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REPORT

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THE MAGAZINE FOR DEMAND-DRIVEN LOGISTICS • JUNE 2018

BALANCING GREEN

SUPPLY CHAIN SUSTAINABILITY:
WHEN IT MAKES SENSE AND WHEN IT DOESN'T

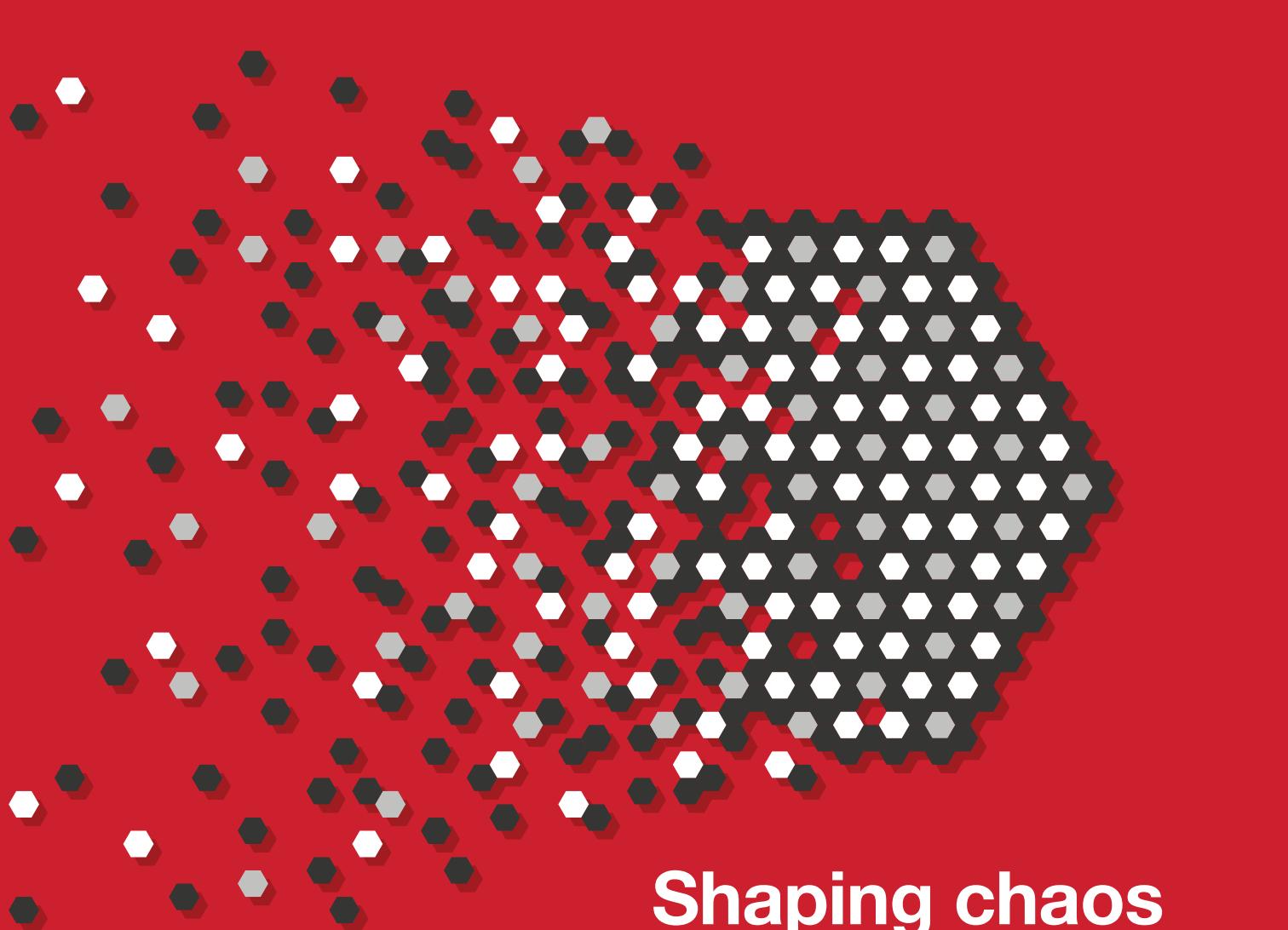
ALSO IN THIS EDITION

75 Green Supply Chain Partners

Combat Cargo: Military
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info snacks

BITE SIZED SUPPLY CHAIN/LOGISTICS INFORMATION

42% would rather be stuck in rush hour traffic in Manhattan than not be able to do their shopping online.

25% would rather sit behind a screaming baby on a plane.

—Respondents to a recent DHL poll of U.S. small businesses

“Parts is parts.”

—Rob Hooper, CEO of Atlantic Logistics, discussing how the logistics challenges of domestic military and civilian shipments are often comparable.

(See *Combat Cargo*, p. 62)



Container costs are still incredibly cheap; shipping a 40-ft. container from the U.S. to Europe and back costs about the same as storing those goods at an Amazon FBA fulfillment center for one month.

— *Freightos Baltic Indexes*

“Despite what they say when interviewed by journalists, NGOs, or academics, the majority of buyers choose not to pay more for sustainable products when faced with the choice at the retail shelf. They generally choose the cheaper product—even if it is less environmentally sustainable than more expensive options.”

— *Yossi Sheffi, author,*

Balancing Green

(See *Clarifying the Business Case for Green Supply Chain Management*, p. 38)

Vision and decisiveness



The two most important characteristics of a leader, according to Dan Curtis, president, BNSF Logistics (See *LeaderShip*, p. 18)

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Tim Miller, vice president of supply chain with Smashburger, is focused on streamlining the supply chain and looking at the most effective way to get products to restaurants.



INDEPTH

38 Clarifying the Business Case for Green Supply Chain Management

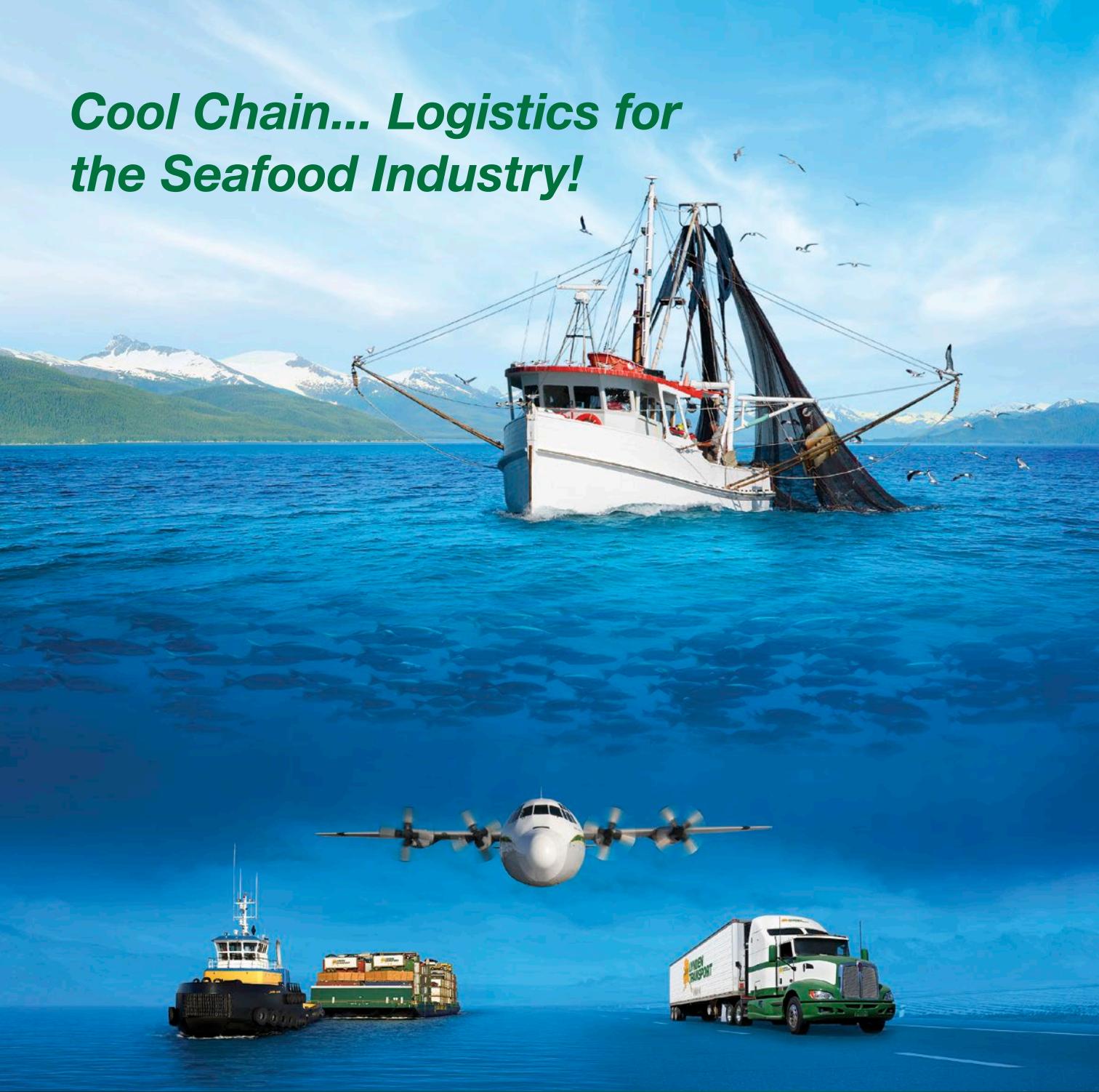
For most companies, sustainability is not a simple case of "profits vs. planet" but people looking for jobs and inexpensive goods vs. others who seek a pristine environment. Here's how your supply chain can satisfy both motivations.

45 75 Green Supply Chain Partners

Inbound Logistics features its annual G75—a carefully curated list of 75 companies that go above and beyond to ensure their global supply chains are sustainable, and that their operations are socially and environmentally friendly.



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As next-gen supply chain professionals set their career goals, mentoring by seasoned professionals can help them up their game.



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HOW BLOCKCHAIN BRINGS
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QUICKBYTES

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ONLINE COMMENTARY



What Does World-Class Supply Chain Planning Look Like? bit.ly/SCPlanning

Despite its criticality, most companies are poor at supply chain planning. Here's a recipe for implementing and executing world-class supply chain planning capabilities that can lead to competitive advantage.



Productivity Boosters: Three Technologies Making Maximum Impact bit.ly/ThreeTechnologies

These three technological innovations have already enhanced supply chain and logistics effectiveness, lowered operational costs, and increased customer satisfaction.



How Blockchain Brings New Efficiencies

bit.ly/BlockchainEfficiencies

Blockchain allows shippers and other supply chain participants to collaborate in new ways, removing significant costs—both hard and soft—out of the supply chain, and freeing time and money for innovation.

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CHECKING IN



by Keith Biondo | **Publisher**



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STAFF

PUBLISHER Keith G. Biondo
publisher@inboundlogistics.com

EDITOR Felecia J. Stratton
editor@inboundlogistics.com

SENIOR MANAGER CONTENT Lauren Muskett
lmuskett@inboundlogistics.com

SENIOR ASSOCIATE EDITOR Katrina C. Arabe
karabe@inboundlogistics.com

CONTRIBUTING EDITORS
Sandra Beckwith • Merrill Douglas
Jason McDowell • Karen M. Kroll

CREATIVE DIRECTOR Jeof Vita
jvita@inboundlogistics.com

MULTIMEDIA CONTENT DESIGNER Evelyn Klotz
eklotz@inboundlogistics.com

DIGITAL DESIGN MANAGER Amy Palmisano
apalmisano@inboundlogistics.com

PUBLICATION MANAGER Sonia Casiano
sonia@inboundlogistics.com

CIRCULATION DIRECTOR Carolyn Smolin

PUBLISHING ASSISTANT Kathy Narvaez

PUBLISHING INTERN Charlotte Abate

SALES OFFICES

PUBLISHER: Keith Biondo
212-629-1560 • FAX: 212-629-1565
publisher@inboundlogistics.com

WEST/MIDWEST/SOUTHWEST: Harold L. Leddy
847-446-8764 • FAX: 847-305-5890
haroldleddy@inboundlogistics.com

Marshall Leddy
612-234-7436 • FAX: 847-305-5890
marshall@inboundlogistics.com

SOUTHEAST: Gordon H. Harper
404-229-9691 • FAX: 404-355-2036
south@inboundlogistics.com

MIDWEST/ECONOMIC DEVELOPMENT: Joseph Biondo
516-578-8924
jbiondo@inboundlogistics.com

NORTHEAST: Rachael Sprinz
212-629-1560 • FAX: 212-629-1565
rachael@inboundlogistics.com

MEXICO & LATAM: Guillermo Almazo
212-629-1560
mexico@inboundlogistics.com

NATIONAL SALES ASSOCIATE: Nicole Mangray
212-290-8757
nicole@inboundlogistics.com

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GDPR: Privacy, Yes. Innovation, No?

If you spend too much time clearing privacy protection notices from your email box, thank the General Data Protection Regulation (GDPR). But what exactly is this regulation and how might it impact future supply chain technological innovation?

GDPR is a new rule with the goal of protecting European Union residents' personal data and adding privacy measures on web transactions that include personal data—no matter where in the world that processing takes place. These new data privacy rules will negatively impact the development and use of artificial intelligence in the EU and put European firms “at a competitive disadvantage compared with their competitors in North America and Asia,” says the Center for Data Innovation.

While the Center is concerned about competitiveness and AI advances, I'm concerned about the full stop these new regulations may have on supply chain innovation. The regulations are described as chilling and ambiguous by many, and impact all companies capturing EU personal data. The judicial overreach into areas outside the EU aside, GDPR's vague nature should give pause to any enterprise engaging in back-office, web, cloud-based operations. ICANN requires full personal details or won't authorize DNS website credentials. Can shady operators refuse to provide accurate domain details to ICANN now?

Here are more open questions about the rules:

Article 22 says that companies must have a human review some AI-based machine activity. Does that render AI in e-commerce at risk in, say, voice ordering and other automated buying activities? What about blockchain pipes that include personal data?

Chapter 5 of the GDPR seemingly requires any company collecting EU personal data to maintain data centers inside the EU. Will you need an additional EU data center now?

Most experts agree the GDPR is complex, and conflicts with other EU regulations. And lack of compliance can draw a fine of four percent of a company's global sales—or 20 million euros, whichever is greater.

The quest to protect consumer privacy and data is admirable. But, unintended consequences alert here. GDPR vagueness needs to be clarified, with carve outs for the WHOIS domain database, AI, IoT data, and blockchain operations. Let's not protect privacy at the expense of supply chain and technological innovation. ■



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Good Question...

READERS WEIGH IN

If you could speed the development of a supply chain-disrupting technology, what would it be and why?



Heavyweight drones that move ocean containers from a port to a distribution center within 50 miles are well into development. Once integrated into air traffic control systems, this technology becomes a game changer for road congestion and cost containment.

Jerry Critchfield

*Senior Director, Transportation
Weber Logistics*

Artificial intelligence. It would create new synergy and efficiencies for both the buyer and supplier side of the supply chain, while helping businesses anticipate risk.

Andrew Nichols
*Head of Procurement
Tungsten Network*

Telematics on commercial delivery vehicles within transportation management platforms for real-time visibility to product delivery.

John Conte, PLS, CSSBB
*Operations and Logistics Manager
Holman Parts Distribution
Holman Business Services*

Take traceability to the “each” level by creating affordable product ID tags for every single manufactured product. This would provide 100-percent tracking, 100 percent of the time throughout the entire supply chain.

Harry Drajpuch
CEO, Amware Logistics

Point-and-click photo recognition software that matches up manufacturer specs and/or measures the dimension and density of anything—big or small.

Terese Kerrigan
*Director, Marketing
Communications, FreightCenter*

Reliable RF tag technology that identifies sellable “eaches” and pack quantities to replace barcodes. This would allow a scanner at a dock door to receive

one whole pallet at a time without breaking it down and scanning each carton. It would speed receiving, an error-prone process.

Tymish Halibey
Operations Manager, Home Depot

Data visibility. Having every vendor, customer, and third-party resource conform to one method would change how we make supply chain decisions.

Kevin VanBelle
*Vice President, TSG Applications
Americold*

Blockchain. If the internet was filled with blockchain nodes, and the ELD mandate was fully implemented, then dollars spent collecting data could shift to analyzing that data.

Michael Dieter
CTO, Transplace

Autonomous long-haul trucks. They would provide gains in freight transit times, safety, and fuel efficiency. Interstate-dedicated trucks are far more attainable than autonomous city delivery vehicles.

Paul D'Arrigo
*Vice President, IT
Spend Management Experts*

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A Closer Look at Fuel

Re. LeaderSHIP: Doug Mueller, CEO, Breakthrough Fuel bit.ly/fuelingbreakthroughs

I read your profile of Breakthrough Fuel CEO Doug Mueller with great interest. In my opinion, Breakthrough Fuel's claims and stance are adversarial and alienating.

The money shippers are paying Breakthrough for its work is an unnecessary expense—why not just negotiate with the trucker and work it out?

We asset-owners pick fueling locations based upon many factors, such as supporting a truckstop that has repairs or sit-down meals, showers or parking.

We also want to fuel at a good time, and with ELDs, this is even more important. We need to buy from places that let us park (truckstops as opposed to fuel stops).

Additionally, Breakthrough Fuel uses unrealistically high mpg. It doesn't account for mountains, stop-and-go congestion, etc. Fuel surcharge is about more than the point-to-point miles for the shipment. You have to account for deadhead, washout, out-of-route (construction) miles, trips to the shop, and other non-load-bearing issues. Breakthrough Fuel tries to say shippers should only pay for that exact mileage.

Trucking executive, name withheld

How Would You Solve the Truck Driver Shortage?

First, pay the driver more. Second, look for and allow younger drivers to get into the business. Third, reward for on-time delivery and safety. Fourth, treat them like you would want to be treated.

David R. Hughes
President, Dalor Transit

Drop the minimum age for a driver to 18 years old. Large carriers should provide apprenticeship programs to these young drivers. Place them in a rig with an experienced driver and allow them to drive daily and get hands-on training. This will ensure carriers have a good flow of incoming drivers.

Robert Paris
Coastal Forest Products

Dedicate one lane in our coast-to-coast interstate network to trucks that pull multiple trailers at a much lower speed to ensure safety. These drivers would do daily turns, allowing them to sleep in their own bed each night. Additionally, regional pads will be used for drop and hook, allowing local drivers to deliver freight to the final destination within a daily turn of domicile. This improves quality of life, and at the same time we are better utilizing and compensating the industry's most valuable resource.

Chris Cook
President, Domestic Freight Management
Ascent Global Logistics

Improve collaboration between suppliers and customers on ordering patterns. All too often, I see underutilized trucks being loaded or unloaded at DCs. Better cube/truck utilization equals more freight moving on the same number of trucks, thus reducing the need for more drivers and assets.

Michael Martinez
Vice President, Customer Service & Distribution
Jel Sert

Where Do You Read IL?



On vacation!
-Ken Luthy, Owner, Suburban Warehouse, Randolph, NJ



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Implementing Blockchain Technology

Blockchain technology creates a global and trustworthy history of a product—from transaction to production to consumption. It has the potential to revolutionize workflows across international borders, empowering an automated, connected supply chain with simplicity and traceability.

1 FLIP YOUR THINKING

Many consider blockchain a solution seeking a problem. It's actually the answer to an array of logistics challenges, particularly for food and port clearance.

2 LOOK AT THE TIME SAVED

Goods can sit in port clearance anywhere from one to seven days. Blockchain decreases this to hours, with a guaranteed clearance date. This reduces time to sell and enables just-in-time delivery.

3 CONSIDER COMPLEXITY

Goods often get stuck in clearance due to incomplete or missing documentation. Blockchain creates a digital trail that can be fixed or recreated seamlessly at any point in transit.

4 KNOW YOUR VARIABLES

What is the possibility of goods being lost, damaged, or stolen? Similar to produce freshness, we must guarantee the quality of other goods, such as consumer electronics. Using IoT technology, such as sensors and RFID, blockchain provides real-time visibility to assure goods are where and as they should be.

5 KEEP PRODUCE FRESH

Blockchain assures freshness by drastically decreasing transit time and can eliminate the spread of foodborne illness. Blockchain can trace every machine and hand that touched produce—from farm, to manufacturer, to carrier, to store. It is possible to pinpoint the source of contamination within hours.

6 FIND THE RIGHT TECHNOLOGY PARTNERS

Blockchain isn't an operational platform. It's a record-keeping system that spans enterprise resource planning systems, warehouse management systems (WMS), transportation management systems (TMS), and order management. Look for WMS and TMS that store and interpret data from beginning to end. These solutions should be flexible enough to adapt your unique workflow.

7 THINK ABOUT DOCK AVAILABILITY

Pickup can't be scheduled until goods pass clearance. Blockchain makes it possible to predict this timeframe, with carriers receiving notification from the port. This optimizes carrier scheduling while expanding dock capacity.

8 UNDERSTAND THE PLAYERS

The value of blockchain is proportional to participation across the industry, both horizontal and vertical. Using perishable foods as an example, each of the supplying farms, manufacturers, shippers, warehouses, and stores must be on board and willing to foot the updated workflow costs.

9 WEIGH COSTS

Does implementing blockchain justify the overhead costs? Consider the cost of upgrading the workflow. This includes purchasing relevant software and finding a blockchain platform provider. Furthermore, the infrastructure must be updated with visibility technology, such as sensors inside facilities or outside on containers or trucks. Lastly, think about the time and effort needed to build the ecosystem.

10 AVOID LIMITING YOURSELF TO COUNTRY VS. EXPORT-BASED INVENTORY CONTROL

Expiration dates dictate the goods we ship in and out of country due to port clearance. Predictable clearance dates from blockchain overcome this to enable better inventory assignment for the best-possible shelf life of goods.

Contributed by Sean Elliott, chief technology officer, HighJump



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NEWS & TRENDS IMPACTING THE

CPG SUPPLY CHAIN

WHAT'S THE DIFFERENCE?

CPG, or consumer packaged goods: merchandise that customers frequently use up and replace. Examples include food and beverages, cosmetics, and cleaning products.

DG, or durable goods: merchandise that is not consumed or destroyed in use and is generally not replaced until the merchandise experiences a problem. Examples include cars, appliances, and furniture.

A RAZOR-SHARP SUCCESS

Online shaving and razor company Harry's was started by two hopeful entrepreneurs who bought a defunct factory and wondered what to do with it. They realized that a solution-driven approach could guide them. Consumers of both genders always need razors; ideally, they need them consistently, at a decent price. The founders decided to fill that need. They opened their factory doors—and their company books—and approached those consumers straightforwardly.

Initially, the strictly online brand didn't have much of a following. But eventually, the strategy of being genuine and open with consumers worked. Today, Harry's is a \$100-million company with a significant base of loyal, dedicated consumers. By letting consumers in on their company's journey, the founders turned their razors into a lifestyle.

CPG companies can take tips from Harry's to create a brand that truly speaks to, and connects with, consumers. The key takeaways are:

- **Share your story:** Every brand, whether established or new, has a story—and consumers want to connect with it. By encouraging consumers to interact with your brand, you create the relationship needed to keep them coming back.
- **See a need, fill a need:** Razors are a fact of life for men and women. By seeing that need and filling it in a convenient and interesting way, Harry's created a niche presence within the market.
- **Never underestimate the power of word of mouth:** Much of Harry's' business can be attributed to its willingness to connect with consumers via social media and other online channels.

SOURCE: Shopkick.com

MANAGING DISRUPTION

From direct-to-consumer delivery to Internet of Things-enabled appliances, the disruptive forces in the grocery industry are hard for CPG suppliers to avoid, according to a study by The Boston Consulting Group and the Grocery Manufacturers Association.

The report highlights actions that CPG companies can take to meet customers' needs and adapt to a changing environment. Among them:

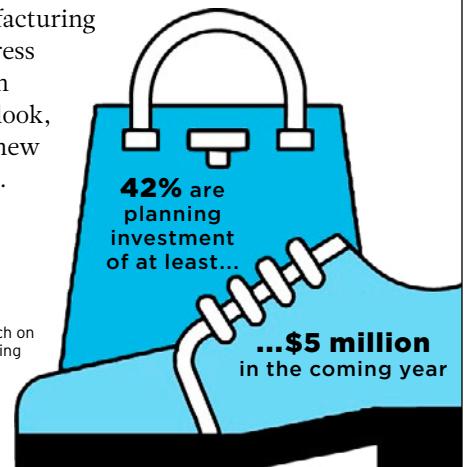
– **Seek efficiencies.** CPG companies currently carry 60 percent of the cost of logistics and hold roughly 50 percent of inventory in the grocery supply chain. They will need to refine their transportation networks, reduce inventories, and lower costs to meet customers' changing demands and new market conditions.

– **Capitalize on big data and digital.** For 78 percent of participating CPG companies, end-to-end data visibility—from point-of-sale data to GPS tracking data on shipments—is a priority. Although they are accumulating more, and more valuable, data, most companies need to develop tools and systems to more effectively analyze it.

– **Sell the benefits of collaboration.** Channel proliferation makes accurate forecasting and planning all the more critical for CPG companies. Success requires both technology and active engagement with their distributors, retailers, and customers, especially when it comes to alternative and e-commerce channels.

NEW TECH ON THE BLOCK

CPG and manufacturing executives express the most bullish blockchain outlook, according to a new Deloitte survey.



SOURCE: New Tech on the Block: Planning for Blockchain in the Retail and Consumer Packaged Goods industries, Deloitte study



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LEADERSHIP

*Conversations With
The Captains of Industry*

By Merrill Douglas

Dan Curtis
President
BNSF Logistics

People and Culture First, Strategy Second

SOME YEARS AGO, DAN CURTIS TOOK A crash course in logistics operations. It started in 2002, when he joined Greatwide Logistics Services as vice president of finance.

“We were a very acquisitive company,” he explains. “I immediately began working on the mergers and acquisitions transactions we were pursuing.” In the course of those activities, Curtis examined the inner workings of dozens of target companies.

So by 2014, when Curtis assumed the role of chief operating officer at BNSF Logistics, he was thoroughly familiar with the nuts and bolts of transportation and logistics. The new job also expanded his responsibilities to encompass human resources, sales and marketing, information technology, procurement, and every other aspect of the business.

In February 2018, Curtis became president of BNSF Logistics, a subsidiary of Burlington Northern Santa Fe LLC. Curtis spoke with us about his leadership strategies and priorities in his new position.

IL: Tell us about an early experience that helped shape you as a leader.

When I joined the accounting firm Ernst & Young after college, the partner who led one of my first audits was an engaging, people-focused leader, much different from the

other partners I had encountered. His technical competency was as high as the others’, but he led with a much more caring approach that made the entire audit team feel included and important.

He made a point of talking with each of us individually, asking about our career plans and goals, how Ernst & Young was treating us, and what he could do to help. It was the first of many experiences that shaped my belief that people and culture are more important than strategy.

IL: What projects get most of your attention these days?

We’re investing heavily in technologies we believe will change the way we serve and add value to our customers, as well as greatly improve our operating efficiencies. We’re using internal resources, but also engaging companies and specific data scientists to help us with algorithms and data lakes, incorporating new sources of data into artificial intelligence improvements within our operation.

We’re also implementing new leadership and sales training—a lot of things around the people side of the business, which includes diversity and inclusion programs, and culture and volunteering opportunities.

IL: Among the challenges your company faces today, what’s one of the most interesting?

I’m highly interested in all the new data available in our industry from the ELD (electronic logging device) mandate,

and from other sources. It's a challenge not only to get access to all of this data, and analyze it and make it applicable, but it's also an interesting integration into the core systems, to see how much better you can get at predicting what's going to happen. We hope to gain insights, for example, into where carriers will be available at what cost, typical destinations from those origins, and how to marry that information to loads we have.

IL: How would you describe your most important characteristics as a leader?

The two most important to me are vision and decisiveness. I have a new vision for the company, and a crucial part of that is to communicate the how, why, and when so the whole organization understands, and we get there together.

I rolled out that vision in our annual management kickoff meeting, soon after I became president. We recorded my talk and disseminated it to all our employees, and that got a lot of positive feedback. We're doing more video interaction to get people engaged and give them a better feel, in real time, for what the management team is thinking and why we're doing what we're doing.

One element of the new vision is to move much faster than we have previously. That requires decisiveness from me. I love getting all the information quickly and then moving on it to make decisions. For example, early on, I doubled the number of staff in our IT development group because we have so many IT initiatives. We need as many resources as we can get to integrate those new technologies into our systems and make them effective for shippers and carriers.

IL: What qualities do you look for in the people who report to you, and how do you nurture that talent?

I look for people who will further our culture and broaden our diversity of thought, and who have an entrepreneurial spirit. Even at our size, we have the attitude within the company that we can get anything done. I nurture talent by engaging all my people in the strategic initiatives we have going, and giving them the space, staff, funds, and guidance they need to accomplish those initiatives.

IL: How do you stay in touch with customers' needs and wants?

We've been doing an annual survey of our customers for years. It gives us valuable data points that we analyze every year and use to set goals and monitor progress. We also collect answers to open-ended questions, which provide real

examples of people in our organization who go above and beyond in their services, or instances when service wasn't at its best. I also stay close to the inside and outside sales resources that interact daily with customers. And I meet with our larger customers as much as their schedules allow.

IL: Have you had an important mentor or role model?

My predecessor as president, Ray Greer, played that role as I worked for him in different areas for many years. He displayed a calm and consistency that influenced my view of how to respond to the myriad situations you face when you run a business. And he allowed me to develop and prepare for this role by increasing my responsibility in all areas.

IL: What's one of the strangest assignments ever to come your way?

A few years ago at BNSF Logistics, we were asked to expedite an extremely rare and expensive car from Los Angeles to London for the owner's use, for one week. It was an odd and costly request. We did it—very carefully.

IL: What makes you happy and excited to come to work?

I'm humbled by, and thankful for, the opportunity to lead our organization. Knowing I can impact the quality of life of a large number of people by creating a fun, safe work environment with plenty of opportunity for personal growth is deeply satisfying.

IL: When you're not working, what do you like to do?

I love spending time with my family. Our kids are all off to, or graduating from, college now, so that's going to be a bit of a change. I also enjoy fishing and golf, when time allows. ■

Balancing Act

While making the transition from COO to president, the hardest part of Dan Curtis's job is finding balance among competing demands on his time—from both inside and outside the company. "It's a different level of demand," he says. "Prioritizing my time and how I'm going to meet those demands has been challenging."

Nearly as hard is the need to implement new initiatives, quickly, on top of existing projects. "There are things I want to add to the business, or to do differently," Curtis says. "Balancing those with our existing priorities and organizational capabilities—that has been challenging as well."



Tim Miller is vice president of supply chain with Smashburger, a fast-casual burger restaurant. Based in Denver, Smashburger has more than 350 locations in 38 states and nine countries.

RESPONSIBILITIES

Commodity management, relationships with suppliers and third-party distributors, contract negotiations, program management; item changes, price validations, and distributor service to the restaurants, including on-time delivery and fill rates.

EXPERIENCE

Vice president, supply chain, Famous Brands International; director, distribution and logistics, Jack in the Box; director, supply chain, Qdoba; director, distribution, Einstein Noah Restaurant Group, Inc.; additional supply chain management positions with Burger King; Restaurant Supply Chain Solutions, LLC; Yum Brands; and PepsiCo.

EDUCATION

B.B.A., Transportation and Logistics, Iowa State University, 1993.

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Tim Miller: Serving It Up Fresh, Fast, and Casual

IN 2017, OUR TEAM AT SMASHBURGER FOCUSED ON THE cost of goods sold. We looked at every aspect of the products we purchased—from commodities, to recipes, to our supplier base. And we got creative.

For example, we looked at the tomatoes we use. We'd always chosen round tomatoes in the past, but after testing, decided to move to Roma tomatoes. They have a more consistent quality, tested better, and reduced costs.

In 2018, we're streamlining our supply chain and looking at the most effective way to get products to restaurants. Smashburger has a national footprint, and in markets where we don't have a lot of density, we have to get creative. In several regions, we

implemented a hub-and-spoke model, where larger distribution centers acting as the hub support smaller ones. We'll continue to evaluate our system and implement this where it makes sense.

When I was at Qdoba, I championed a project in which we shifted from direct-store delivery of produce to consolidating deliveries through the main-line distributors that supplied most of the other food and paper items.

To make this happen, we assembled a cross-functional team with operations

The Big Questions

What words do you live by?

There's no "I" in team. Be humble. Respect others and work together.

What activities make you better at supply chain management and logistics?

I grew up around auto racing and am building a track car now. You have to be analytical and know how to develop and solve problems.

I've island-hopped in Greece and sailed the islands of the Great Barrier Reef in Australia. In sailing, as in supply chain, you've got to

read the charts so you can get from Point A to Point B. You also have to be prepared for any eventuality.

How would you describe your job to a five-year-old?

We make sure you get all the fun toys, foods, and snacks you want.

Who is your hero?

My grandfather. He survived when a German U-boat torpedoed his ship, the *USS Dorchester*, and continued his service in World War II. He was kind, caring, and giving.

and quality assurance, as well as external players, including distributors, produce growers, and shippers. We laid out the objectives and strategy, tested the program, reviewed the feedback, and then rolled it out nationally.

The supply chain we put together improved food safety controls and resulted in more efficient distribution, fewer deliveries, and less complexity at the restaurants. For instance, we previously averaged four produce deliveries weekly to each restaurant. We eliminated all four, and delivered the produce along with the other

groceries. We reduced overall spend and improved operations.

The reduction in deliveries meant fewer invoices and payments in accounting. It also allowed general managers at the restaurants to focus more on serving customers, because they had fewer interruptions from placing orders and accepting deliveries.

Up next at Smashburger, we're increasing our use of technology and data with our new business intelligence solution to refine our supply chain. We'll use it to evaluate, for example, how limited-time offers perform

in different regions, and leverage that information to position inventory where it best supports demand.

I feel fortunate to have managed every aspect of different supply chains, from managing commodities to two-wheeling products through the back door of Pizza Hut, and every step in between. I went to work for PepsiCo out of college and found I like working for organizations that consumers know.

I was the kid who loved to read maps. I also have a captain's license and enjoy reading sailing charts. My friends joke that I never get lost. ■

MABD

ORAD

OTIF

OTS

OTFR

SDA

Acronyms Aren't Important, Execution Is.

Case Stack

Kroger

TARGET

Walmart

Sam's CLUB

amazon

CASESTACKCONSOLIDATION.COM

NOTED

THE SUPPLY CHAIN IN BRIEF

SEALED DEALS

Sports nutrition bar maker **Active Nutrition International GmbH** launched e-commerce channels in Germany and Austria using SaaS solutions provider **Descartes Systems Group's pixi*** WMS to support order fulfillment for its PowerBar and Dymatize sports nutrition brands.



Mitsubishi Electric, manufacturer and marketer of electric and electronic equipment, renewed its agreement with **Yusen Logistics UK** as its warehouse provider to continue to develop a bespoke logistics service. Yusen's solution now includes all inbound logistics, from palletized and handball containers to picking product for dispatch, as well as reverse logistics.



CASK Industries, a full-service manufacturer and wholesale supplier of wall tile, ceiling fans, vinyl flooring, window coverings, door hardware, and countertops, selected and deployed the **Cloud Logistics** TMS to manage transportation. CASK Industries shipped with the system within days of implementation.

Dormify, an online retailer for small-space furnishings, selected **Dotcom Distribution** as its e-commerce fulfillment and logistics provider. Dotcom will provide fulfillment logistics services for the brand's suite of products, including bedding, décor pillows, accessories, and storage cubes.



Computer monitor and display maker **iiyama** entered into a long-term partnership with logistics service provider **GEODIS**. GEODIS takes care of all customs handling, the transport of products from Rotterdam to Venlo, The Netherlands, storage and sales order processing at the GEODIS Campus in Venlo, and daily outbound transport to final customers.

GOOD WORKS

Transervice Logistics

helped The Book Fairies, a Long Island, New York-based non-profit organization, battle illiteracy by collecting and donating more than 750 books, CDs, DVDs, and magazines to be distributed to libraries, schools, and teachers in need throughout metropolitan New York. Transervice Logistics employees filled 20 banker's boxes full of donations to help the organization.



UP THE CHAIN



John Leach was named chief executive officer by 3PL **FLS Transportation Services Limited**. Leach joins FLS from Coyote Logistics, where he was chief commercial officer.

m&a

ROAR Logistics, a domestic intermodal marketing company, transportation brokerage, NVOCC, and U.S. licensed customs broker, acquired **Integra Logistics Services**. With this acquisition, ROAR extends its reach across North America with offices in eight major markets and more than 120 associates.

AFF Global Logistics, a domestic ocean freight forwarder specializing in less-than-containerload freight shipments, acquired freight forwarder **Alaskan Express**. The deal furthers AFF's goal to strengthen its resources and deliver best-in-class capabilities, technology, and services to the Alaska market.

SHOVEL READY

Dermody Properties, a logistics real estate developer and manager, broke ground on a new industrial park in Woodinville, Washington, east of Seattle. Known as LogistiCenter at Woodinville, the park will consist of two buildings totaling 409,500 square feet. LogistiCenter at Woodinville will feature a total of 92 dock doors, eight grade-level doors, and a 32-foot clear height. Construction is expected to be complete in the fourth quarter of 2018. The facility's location and truck maneuverability will complement distribution operations.

GREEN SEEDS



Anheuser-Busch ordered 800 hydrogen-electric powered semi-trucks from Nikola Motor Company, a pioneer in hydrogen-electric renewable technology. The brewer will integrate the zero-emission trucks, designed to travel between 500 and 1,200 miles and be refilled within 20 minutes, into its dedicated fleet beginning in 2020.

CHEP's 40- x 24-inch pooled (shared and reused) half pallets have achieved carbon neutral status. CarbonNeutral certification is based on the CarbonNeutral Protocol, a sustainability program. Further enhancing the solution's sustainability, CHEP, a Brambles company, calculates the carbon footprint of the platform, and then purchases carbon offset credits from offset retailer Natural Capital Partners. The credits benefit the Mississippi Alluvial Valley Reforestation Project, an effort supporting a key North American ecosystem.

recognition

Supply chain solutions provider **NFI** received Lowe's' **2017 Transportation Partnership Award** and was named its **North Dedicated Carrier of the Year**. Providing dedicated fleet solutions to the home improvement and appliance retailer, NFI was recognized for its commitment and support.

Werner Enterprises, a transportation and logistics provider, received the **Partner of the Year Award** for 2017 from Dollar General. The retailer selected the carrier based on utilization, highest on-time service rates, and the best partnership.

Retail chain Sam's Club gave logistics partner **LEGACY Supply Chain Services** its **2017 Third Party Provider of the Year Award** for excellent service within its warehousing and transportation network. LEGACY was recognized for best-in-network productivity, reducing operating cost per unit, and operating four facilities ranked in the top six of the chain's overall network operating index.

Shannon Vaillancourt, president and founder of logistics software provider RateLinX, was invited into the **Forbes Technology Council**, an exclusive community for chief information officers, chief technology officers, and other technology executives.



◀ **Dayton Freight Lines** was named **LTL Carrier of the Year** by HNI Corporation, a manufacturer of office furniture and hearth products, in its inaugural LTL awards presentation (*pictured*). Criteria for this honor include on-time delivery and low claims.

Span Alaska Transportation garnered three awards from the Alaska Trucking Association (ATA), recognizing its commitment to safety. In addition to the **ATA/ConocoPhillips Safe Truck Fleet of the Year Award**, Span Alaska was recognized for most improved truck fleet safety and most improved industrial safety.



Dan Stoll, senior technical manager, Nintex

Digital Logistics: From Trend to Norm

Microsoft has entered a partnership with ocean carrier OOCL to develop artificial intelligence (AI) in shipping, with the goal of helping Microsoft better understand and predict shipping patterns and variables. This partnership comes at a time when traditional players in the logistics sector have worked to streamline and automate wherever possible

in hopes of becoming more efficient and competitive. As these companies step into the business of digital logistics, supply chain automation is no longer a trend, but the accepted norm.

To learn more about digital logistics, *Inbound Logistics* spoke with Dan Stoll, senior technical manager at Nintex, an Intelligent Process Automation company. He has spent the past 10 years of his career helping organizations turn manual processes into well-run automated ones.

IL: What is the current state of digital logistics?

Stoll: Before Microsoft entered the race, companies were already fighting to outdo one another in logistics. Walmart teed off against Amazon with its acquisition of Parcel to make same-day deliveries in New York, while Amazon's acquisition of Whole Foods is making the grocery middleman obsolete. Outside of supply chain acquisitions and announcements, robots and artificial intelligence are also picking up steam.

IL: Is there a clear leader at this point?

Stoll: What's most notable about recent announcements from Microsoft and Amazon is the fact that tech companies are not leaving any sector, including logistics, untouched. Microsoft's partnership with OOCL details that the two are in an 18-month research phase, while "Shipping with Amazon" is open for business. Once Microsoft and OOCL move out of the research phase, distributors will be faced with two powerful direct competitors. Until then, distributors need to increase their investment in data optimization and predictive

analytics to keep up with the technology-driven services. It will be hard to compete with Amazon's costs or Microsoft's intelligence without any automation in place as the two lead the charge in digital supply chain innovation.

IL: What does the race to automate logistics look like?

Stoll: While there is no need to panic, competition in automation is on the rise and will only continue to escalate. Amazon put the pressure on FedEx, USPS, and UPS, but it's Microsoft that is now cranking up the heat. Legacy shipping providers need to embrace the new norm and overhaul their long-time logistics processes. The transition will not be quick or painless, but the payoff is in the time companies save that would have been spent fixing predictable or avoidable issues. Microsoft seems to be one of the first to try and address these problems head on. Depending on what comes of the Microsoft/OOCL deal, we might see two Seattle tech companies in a shipping war.

IL: What does it take to come out ahead?

Stoll: To remain relevant, a plan to automate is critical. If logistics companies aren't planning to automate in 2018, they are already behind. Until "Shipping with Amazon" was announced earlier this year, automation was not a clear priority for legacy shipping providers.

A recent study finds 43 percent of supply chain respondents partially use automation to run their businesses. But over the next few years, more than half of those surveyed want to implement even more automated processes. While the industry continues to make strides in automation and intelligent adoption, logistics leaders can look to third-party automation experts for help.

IL: How does Microsoft's announcement change this?

Stoll: Lost packages, broken cargo, and late deliveries are a given in the current state of shipping. Microsoft's announcement brings an often forgotten stakeholder in logistics: the customer. The Microsoft/OOCL partnership will better address customer needs through technology advancements and predictive analytics. The latest announcement should act as a catalyst to not only implement automation, but also to bring the customer to the forefront of conversations.

What Drives Supply Chain Investment?

Trying to keep up with customer expectations is driving retailer investment, while agility and innovation are driving manufacturers' investment in their supply chains, according to a joint survey of supply chain executives from JDA Software and KPMG LLP. *The 2018 Digital Supply Chain Executive Survey* conducted by Incisiv finds one force remains constant across manufacturers and retailers alike: More than half identify the need for real-time product visibility as the leading driver in digital supply chain investment.

Here are the key findings of the survey:

- Manufacturers have the financial resources, but are struggling with internal decision-makers, with 57 percent

citing a resistance to change as a top impediment to investment in the supply chain.

- Manufacturers view blockchain and autonomous vehicles as the most disruptive technologies, with half of the companies surveyed planning to test these in the next 24 months.

- Retailers express the need for end-to-end traceability (53 percent) with the ability to manage new fulfillment nodes (50 percent).

- The top inhibitors for retailers include lack of management commitment (70 percent), limited IT budget (60 percent), and no integrated strategy (30 percent).

10 Ways to Drive Supply Chain Performance With Big Data

IS MORE ALWAYS BETTER? When it comes to a shipper's supply chain and big data, more data doesn't necessarily equate to better productivity. How you leverage and utilize the influx of data is what's key. Andy Moses, Penske Logistics senior vice president of global products, offers these tips for shippers hoping to utilize big data to drive performance in their supply chains.

1 Eliminate silos.

With various divisions and subsidiaries, it can be difficult to funnel important metrics and data into a single system, but it's important to be able to cut across the entire organization and create the means to view data in aggregate. Otherwise, you're working in buckets.

2 Consider data needed from providers and vendors.

Create a data strategy that works in an environment where some functions are executed in house and some by third parties. Facilities with multiple providers have trouble uniting all this information.

3 Process rigor.

You can have all the great systems in the world, but if you don't have process rigor you won't have actionable data to work with. Strong process compliance allows the data to become meaningful and timely. Executing day-to-day processes regularly across locations gives consistency and truth to the data.

4 Consider a third-party logistics (3PL) company.

A 3PL is looking at a bigger picture and can find opportunities that cut across various networks to bring opportunity to all.

5 Timely information.

Through big data, we now build tools that disrupt some of the traditional analyst's functions that we've had in place for decades. In what formally took weeks and months for an analyst to determine, we are able to use the underlying data and various software tools to give us decision-making information in minutes.

6 Foundation going from descriptive analytics to measures that are predictive/prescriptive.

Everyone is trying to go from reporting the news to being able to predict the news.

7 Cost.

Companies that are most astute with big data find ways to get there while also being mindful of the cost.

8 Compatibility.

Being able to measure compliance with trading partners such as carriers and suppliers within your supply chain is vital. Score carding and performance management of all your suppliers can be a useful exercise. Identify those partners whose process inefficiency is costing you and them money.

9 Cost to serve.

This is a prominent conversation and a path successful businesses are pursuing. The granularity in measurement of supply chains can be served by big data and helps companies understand what vendors and/or customers cost the most. An effective big data strategy will enable you to work with your supply chain partners to take unnecessary costs out of the system. Companies are getting better at incorporating learned experience and big data into their pricing.

10 Understand the what-ifs.

Quality data enables you to run what-if scenarios, and study the network to see whether a proposed change will produce a specific result, and therefore identify inefficiencies, uncover improvements, remove waste, and cut costs.

An Awesome Supply Chain Scholarship

To attract women who want to pursue graduate degrees in supply chain management, the MIT Center for Transportation & Logistics announced a new scholarship in partnership with AWESOME (Achieving Women's Excellence in Supply Chain Operations, Management, and Education), an industry-wide organization for senior-level women in the supply chain field.

The AWESOME/MIT AWE Scholarship will offer an applicant to the MIT Supply Chain Management Program a 100-percent tuition fellowship for the first year — this equates to approximately a \$72,000 value for a student of the class of 2020. Potential students wishing to be considered for this award will announce their candidacy



in their applications along with a one-paragraph essay. MIT will review all applications and forward the top three finalists to AWESOME to select one recipient from the pool of candidates.

Application collection will begin in September 2018 and the first AWE Scholarship will be awarded in March 2019. The recipient will attend the AWESOME Symposium in either May 2019 or May 2020. In August 2019, the first AWE Scholarship winner will attend MIT.

For more information on the AWESOME/MIT Scholarship, contact: Bruce Arntzen, executive director, MIT Supply Chain Program, barntzen@mit.edu

TEACHING LOGISTICS EXCELLENCE

The talent gap continues to be a concern in the supply chain/ logistics sector. To help combat it, many universities and educational institutions are working to attract new students to the sector, and provide appropriate training. One such school is the University of Washington, College of Engineering-Supply Chain Transportation and Logistics master’s program.

Inbound Logistics recently caught up Bill Keough, the program’s managing director and professor, to find out how the University of Washington is addressing the talent gap.

IL: What areas of interest are your supply chain students most focused on?

Keough: Most of our students are currently working in the transportation and logistics field. The majority want to acquire end-to-end knowledge about how excellence in transportation can contribute to optimizing a complex global supply chain.

IL: You’ve seen your supply chain program mature over the years. How do today’s supply chain undergrads differ from previous years?

Keough: Today we see more students who already have undergraduate degrees in the supply chain field. They also

seem far more directed in their career development. Many of them know exactly what kind of role they would like to assume and they leverage the extensive network of contacts they develop in the program to create a concrete plan to reach those objectives.

IL: What advice would you give high school students seeking a career in supply chain/logistics/transportation?

Keough: Go out and get some real-life work experience to see if the field appeals to you. Firms such as UPS and Amazon are always looking for bright people to work in their distribution and transportation operations, particularly during the holidays.

IL: Do you partner with any private businesses to help close the talent gap by training qualified candidates for the supply chain workforce?

Keough: We have several types of partnerships in this effort. We work closely with a number of recruiting firms focused on filling senior roles in the supply chain field. We also have a large network of executive contacts in the supply chain space who frequently contact us to identify top talent for positions that haven’t even been posted yet. We leverage the expertise of the VP-level executives on our advisory board to understand the skills and abilities they are seeking for their supply chain teams, to ensure our curriculum remains tightly linked to the marketplace’s current requirements.

IoT, Robotics, Machine Learning to Transform the Supply Chain

Transport and logistics businesses are investing in Internet of Things (IoT)-based smart technologies to help them take advantage of the wealth of opportunities the Fourth Industrial Revolution offers. The sector is prioritizing IoT, machine learning, and robotics to increase efficiencies across the supply chain, according to research data collected by Inmarsat, a provider of global mobile satellite communications.

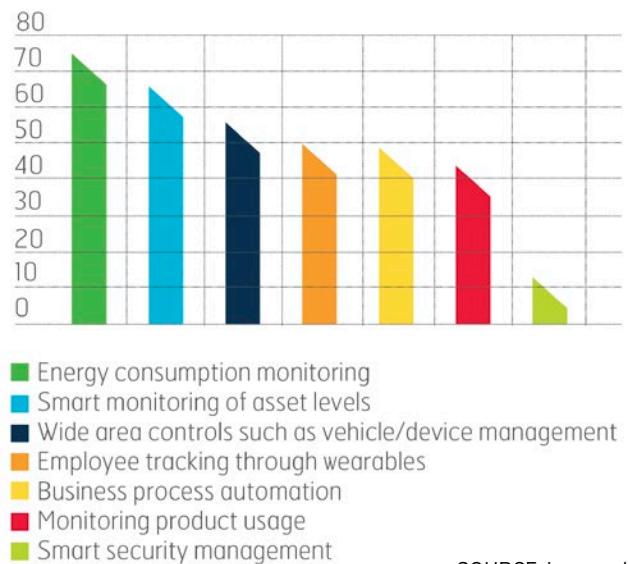
Inmarsat’s report, featuring responses collected from 100 large global transportation companies, found respondents see IoT as the top priority in their approach to digital transformation, with 36 percent having already deployed IoT-based solutions, and an additional 45 percent expecting to roll out the technology by 2019.

Transport companies are rapidly exploring a wide range of other next-generation technologies in the pursuit of digital transformation, the research reveals. The most popular are machine learning (37 percent), robotics (37 percent), and 3D printing (29 percent).

The supply chain looks set to be one of the biggest beneficiaries of this drive toward digital technologies, with 14 percent already reporting visibility and efficiency improvements in their supply chains and another 65 percent expecting to achieve this in the future.

“The industry is clearly making significant strides toward digital transformation, with IoT-based solutions, used in conjunction with robotics, automation, and machine learning, helping to transform the way that goods are manufactured, stored, and delivered,” says Mike Holdsworth, director of transport at Inmarsat Enterprise. “Companies that proactively invest in these technologies will be able to facilitate more secure and profitable operations across their supply chain.”

Which IoT-based solution/s has your organization deployed? (%) (163)



SOURCE: Inmarsat

5 WAYS WAREHOUSING IS GOING GREEN

The future looks bright for warehousing. This is especially true when it comes to taking a green approach to procurement and manufacturing. Eco-friendly warehouses present a tremendous upside for the planet and for your pocket. If you are interested in these revolutionary changes, now has never been a better time to act. Tom Reddon, of BlueGreenTomorrow.com, offers five ways eco-friendly warehouses are revamping the industry daily:

1. Telematics increase fuel-cost efficiencies. These platforms revolutionize the way companies reduce overhead, eliminate earmarks, and drive profitability. They are also extremely eco-friendly. One way telematic software achieves this is through a proactive monitoring of fuel costs to allow businesses to slash fuel expenses, according to TotalTrax.

2. Lighting sustainability. Modernized lighting focuses more on providing a true illumination option at a resourceful rate. This approach is also kind to the environment as it reduces usage and consumption rates.

3. Smartly located inventory. Smartly located inventory is a proven way to bolster efficiency and productivity because it requires workers to do less. As a result, personnel will have

more time to commit to other things, which also means projects will be done faster. As a result, profitability will also skyrocket thanks to this ideology.

4. Energy management systems. The best way to lower consumption is to manage it. Energy management systems autonomously oversee all the utilities one facility uses without much human intervention required. With the integration of timers, thermostats, and gauges for all forms of electricity, gas, heat, and water, energy management systems derive the best practices to use what is needed without excessive waste. This is a fundamental component of eco-friendly systems, because it helps businesses lower usage of renewable resources while also placing more money back in their pockets.

5. Electric forklifts. Electric forklifts eliminate the need for gas and oil. Not only is this good for the environment but it is also safer for employees. Personnel no longer need to expose themselves to dangerous chemicals such as battery acid, anti-freeze, or transaxle liquid. This can slash the level of incidents related to hazardous materials handling, which, in turn, drives up the bottom line. Electric forklifts are as their name entails: simply plug them in before and after operation.

The Logistics Long(er) Run

The current expansion phase for U.S. industrial and logistics real estate appears poised to surpass the typical lifespan of an economic cycle due to demand from e-commerce companies, according to a new report from CBRE.

U.S. economic cycles tend to run for seven to eight years. Yet the current expansionary cycle, which started in 2009, already is among the longest on record for the American economy. CBRE's report highlights two factors that likely will fuel the U.S. industrial market even longer.

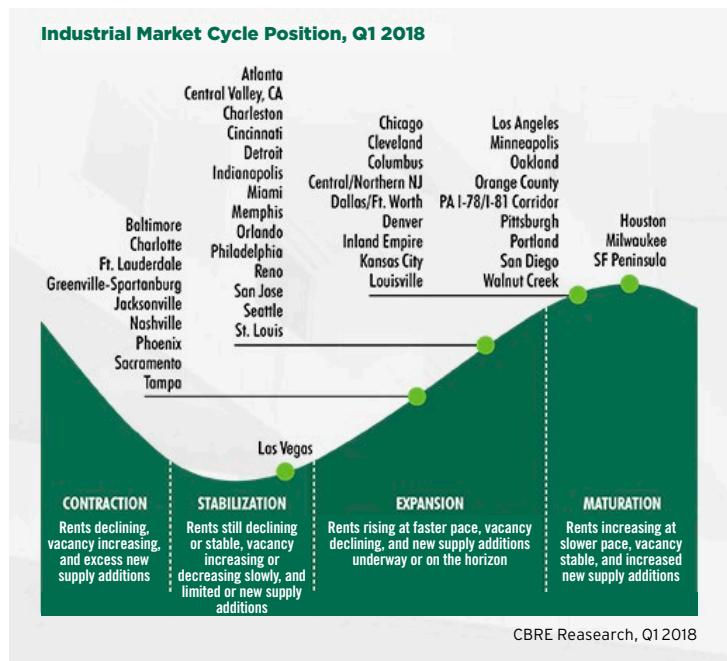
First, the industrial and logistics market—warehouses, distribution centers, manufacturing buildings, and other industrial facilities—tends to lag the broader economy by a couple of years. For example, the industrial market's recovery didn't begin until 2011, well after the broader economy had started its rebound. Thus, the industrial market's expansion isn't as seasoned.

Second, the rapid growth of e-commerce in recent years has created a permanent, structural shift in the market as an increasing portion of U.S. consumer goods is distributed to consumers through warehouses rather than stores. Given that e-commerce still has substantial room to grow within American retail sales, that ongoing shift likely will continue to support the industrial and logistics market's expansion.

"There are few historical precedents for e-commerce's effect on the industrial real estate market," says David Egan, CBRE global head of industrial and logistics research. "The market still is establishing its new baseline, though most evidence indicates that expectations have reset at higher levels for the foreseeable future."

Because of these factors, it's feasible that markets that are further along in the current industrial and logistics cycle than most—such as Houston, Milwaukee, Chicago, and Los Angeles—can continue to generate gains, according to the report.

Meanwhile, markets still in an expansion phase, such as Atlanta, Philadelphia, Phoenix, and Orlando, likely still have time to continue on their trajectory.



While most top industrial markets are well into the expansion or maturation phases of the current cycle, they could remain there for an extended time if the economy stays strong.

Ports Too Busy to Worry About Trade Tensions

Despite trade tensions, port business in the United States and Asia is booming, reports the latest Global Kuehne + Nagel Indicators (gKNI).

U.S. ports are experiencing increased container volumes, with heavy traffic in Los Angeles, Long Beach, and New York/New Jersey, according to real-time data collected by LogIndex, part of the Kuehne + Nagel Group. Notably, inbound loaded container volumes jumped, while the quantity of outbound loaded TEUs tended to decrease.

To illustrate the strong import trend, the metric for inbound TEUs in Long Beach—a gateway for trans-Pacific trade—is up 11 percent compared to the same period in 2017 (April: 8.4 percent YoY), according to LogIndex May estimates. Four months into 2018, the Port of Long Beach has moved 2.5 million TEUs, 17 percent higher than last year's record pace.

Overall, cargo and container throughput in the world's largest ports has risen by 3.2 percent year to date, with the biggest increase in Singapore (+6.2 percent), reports LogIndex. To date, lingering trade tensions have not had a direct impact.

Other import statistics imply it's business as usual, at least at first glance. Iron and steel imports reached an eight-month high in April (+75 percent YoY), based on LogIndex's analysis of bills of lading. Some observers suggest, however, that part of the strong growth is driven by trade tensions as anxious shippers rush to get their cargo to overseas markets.

World trade is inching up, based on country forecasts available for May and June 2018. There are regional differences—Asia is dynamic in contrast to Europe,

Country	Status	Trend	Change*
Australia	positive	↓	change
Brazil	positive	↓	change
Canada	negative	↓	change
China	positive	↑	no
France	negative	↓	no
Germany	positive	↓	change
United Kingdom	negative	↑	no
India	negative	↘	change
Italy	positive	↑	change
Japan	negative	↑	change
Mexico	positive	↑	no
Netherlands	positive	↓	no
South Korea	positive	↑	no
Spain	negative	↓	change
Sweden	positive	↑	no
Taiwan	positive	↓	change
United States	negative	↓	change

*Change in the trend
SOURCE: LogIndex

A downward arrow in cases of negative trade balances means the situation is worsening, and vice versa.

which was digesting the high euro during the first quarter. The United States, Australia, and Canada are the fastest-growing Advanced Economies countries, posting a year-over-year rate of 4.7 percent compared to 16.1 percent of Emerging Market countries, according to LogIndex's May 2018 estimates.

Tech Drives Trade Growth, Say Upbeat SMEs

Small and mid-size enterprises (SMEs) struggling for equal footing in the global economy increasingly look to cross-border trade for growth, seeing technology as a way past obstacles in shipping and compliance, according to new research from Shipa Freight.

Shipa Freight's global study of 800 SMEs from developed and emerging markets shows smaller companies are remarkably upbeat about their ability to expand through trade.

Eighty-nine percent of exporting SMEs surveyed say their export revenue will grow over the next three years; 71 percent say they are concentrating more on international markets than on their home markets. The Shipa Freight survey included exporters and importers from the United States, UK, Germany, Italy, China, India, Indonesia, and UAE.

Smaller companies account for an estimated 95 percent of all businesses and employ two-thirds of the world's workers. Critics of globalization have argued that decades of efforts aimed at easing the flow of goods, capital, and jobs across borders have

come at the expense of SMEs and disproportionately benefitted multi-nationals and other large businesses.

Three-quarters of SME executives surveyed believe businesses that operate internationally are more resilient. Nearly 80 percent say they use online platforms for freight quotes and bookings.

SMEs that view the UK as one of their top export markets are looking elsewhere because of Brexit. Britain's vote to leave the European Union has prompted 73 percent of respondents to prioritize trade with other European countries. Sixty percent of UK SMEs that export and 52 percent of UK SMEs that import say leaving the EU Single Market would be "disastrous" for them.

Smaller companies clearly see technology as a way to close the gap with bigger competitors, cope with documentation requirements, and access competitive shipping options. Eighty-six percent say technology is leveling the playing field for SMEs to operate globally; 89 percent believe technology is transforming the logistics sector.

CEVA and IMS Team Up For FTZ Services

A new alliance between CEVA Global Logistics and IMS Worldwide (IMSW) offers Foreign Trade Zone (FTZ) services to U.S. shippers.

The FTZ program started in the United States in 1934, and is in use across all states, particularly at large gateway points such as Houston, Los Angeles, Miami, Dallas, Chicago, Phoenix, El Paso, and New Jersey. An FTZ allows shippers to lower, eliminate, or become exempt from federal taxes and fees.

The partners will develop a sophisticated Zone Managed Services offering that will analyze a shipper's supply chain, and integrate certain activities into FTZ environments. This will help the shipper achieve improved efficiency, save on duties or import fees, and improve cash flow through working capital reductions.

The collaborative alliance allows CEVA to expand its current FTZ offerings to its ocean and air gateways in North America, as well as utilize its contract logistics expertise and footprint to offer additional benefits to shippers within the FTZ.

The partners also plan to offer e-commerce solutions and air cargo forwarding.

American Airlines Says Hola to Cuba Cargo Service

AMERICAN AIRLINES BECOMES the first U.S. passenger carrier to begin cargo service to Cuba. The airline now offers mail service, including correspondence, parcels, and express mail, into and out of José Martí International Airport (HAV) in Havana,

Cuba's capital city and leading commercial center.

Havana is American Airlines' principal destination from the United States, with one daily flight from Charlotte Douglas International Airport (CLT) and four daily flights from Miami International Airport (MIA) scheduled to increase to five daily flights in October. The MIA flights are operated with Boeing 737-800 aircraft and the CLT flight is operated with the Airbus A319.

American is the leading U.S. airline in Cuba, with nine daily flights to five destinations in the country. American has served Cuba since 1991— with charter service for more than 25 years and with scheduled service since September 2016. The addition of mail service will further strengthen American's commitment to serving the needs of customers in the U.S.-Cuba market.



American Airlines starts cargo operations to Havana, Cuba, becoming the first U.S. passenger airline to provide this service.

SMEs Reveal Global Trade Obstacles

Small and mid-size enterprises (SMEs) face numerous international trade obstacles, finds a Shipa Freight study. Forty-two percent of respondents say the costs of shipping abroad are too high, or they lack an accurate picture of costs, while 40 percent find it difficult to understand documentation requirements.

A significant minority say their cargo has been held up in customs (39 percent) or lost in transit (27 percent).

SMEs based in emerging markets find export regulations onerous: 67 percent identify export regulations as difficult, compared with 44 percent of SMEs based in mature European markets. Exporters from India, China, and Indonesia (79 percent) say it's challenging to penetrate markets in Europe.

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Load and Expedite

If you have spent any time in manufacturing logistics you can appreciate the classic problem of 'Load and Expedite.' At Crane Worldwide Logistics®, we see the same thing all over the world with clients in nearly every industry. By not having adequate logistics visibility, setting proper tolerance levels and accurate production forecasting, companies are being forced to rely on expedited freight to meet their manufacturing demand. Even the most experienced companies and logistics professionals can get this wrong, and the dirty secret is it will not improve or become easier any time soon.

The first thing to consider is the overall market. In general, the economy and manufacturing, both domestic and abroad, are doing quite well. Where the norm has been around 3% growth, many industries are experiencing double-digit growth. This is stretching supply chains that are already near capacity. The second market force to consider is the driver shortage. The supply of drivers is decreasing while the demand is growing. These market forces considered separately are a headache, but when put together create massive challenges and significant cost increases.

On the client/business side of the equation, as a global freight forwarder, we see several reoccurring problems that on the surface seem innocuous but can easily snowball. The first is demand projections for lower tier suppliers. Companies generally give good production estimates for their top suppliers, but quite often miss when it comes to their lower tier suppliers, resulting in the need for expedited shipments since these smaller suppliers cannot keep pace with the growth demand.

The second issue we see is visibility to accurate raw-on-time numbers. When companies and carriers are not working from the same definition of "on-time" it can cause significant shortages. Last but not least, companies and drivers are often sitting on freight. While a driver waiting for a load for an hour does not seem like a major issue, repeating this practice hundreds or thousands of times during the course of a year can add up to missed miles and increased inefficiencies. This scenario adds tremendous waste to the supply chain and also irritates the drivers.

The last group of challenges to consider are changes in the macro environment and anticipation of the future. It is critical, when building a supply chain, you consider what is likely and unlikely to happen in the next year or two from a macro

perspective. Here are a few things as a freight forwarder we are keeping a close eye on and you should too:

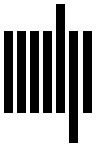
- **301 tariffs with China:** If these go into place there is a significant chance manufacturing may shift locale.
- **Trade agreements:** The current administration has put these on the table and they have the ability to drastically impact duties and duty avoidance.
- **Driver Supply/Prices:** There is more freight than can be moved by the supply of drivers and they know that, price increases are coming.
- **Ocean & Air Freight:** This portion of the supply chain is fairly stable and there should be no major change in the supply of boats although there may be issues with aircraft due to rising e-commerce demand.

Over time, all of these obstacles can drastically increase your freight spend. There is no doubt the price of domestic freight is and will continue to go up over the next few years. This increase makes it even more important for businesses to get these fundamentals right to drive better efficiency.

- Ensure your logistics provider has a solid cross-dock footprint with local pick-up and delivery.
- Demand planning/forecasting for your tier 2, 3, 4 etc. suppliers are adjusting for growth and retraction.
- Understand the macro factors that impact demand.
- Clear visibility to your freight and understanding of true raw-on-time percent.
- Build relationships with freight providers.
- Evaluate repackaging and consolidations to save valuable business days.
- Look at boxing/crating customizations.
- Eliminate driver dwell time.
- Be honest with what you can and can't do in house, 4PLs are a valuable option.

There are a lot of moving parts in the production of a product. The key is to value stream your supply chain to make sure everyone understands the risks and rewards. Sometimes leaning out the supply chain without considering all the factors can cause serious issues. Taking recommended steps and utilizing best practices will not eliminate all 'Load and Expedite' shipments, but they can reduce the frequency.

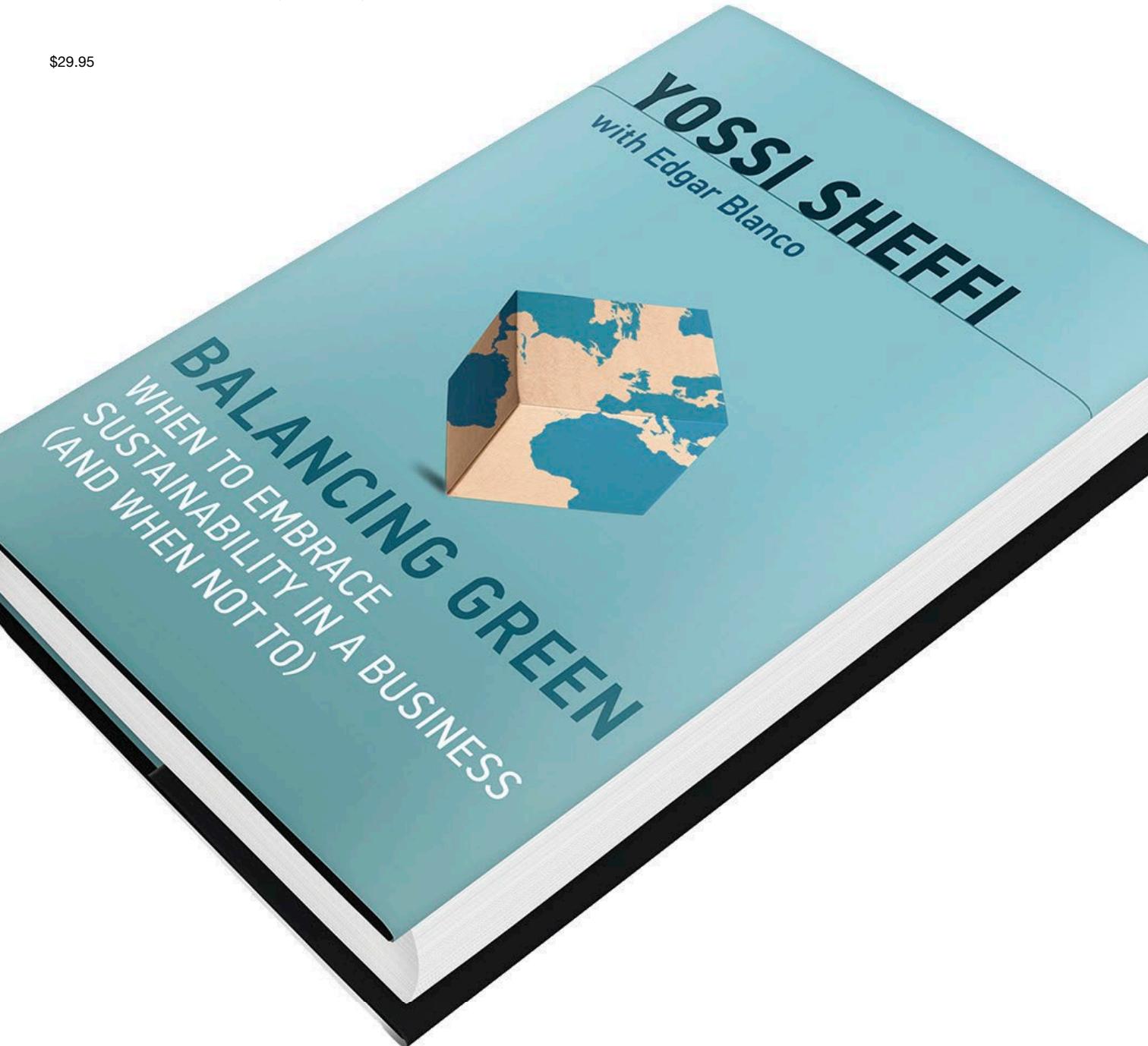
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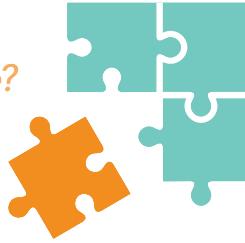


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Supply Chain Challenge?
SOLVED!



Partnering for Operational Efficiency and Cost Savings

Transplace helped a frozen pizza business expand its transportation network to increase operational efficiency and maximize financial savings.

THE CHALLENGE

After acquiring a competitor's North American frozen pizza business, Dr. Oetker, a family-owned global food company, needed to optimize its newly expanded transportation network, which now included customer locations across Canada, production facilities in Atlantic Canada and New Jersey, and sourcing points in Eastern and Central Canada as well as Germany. The goal was to drive financial and operational efficiencies across their North American supply chain, while addressing the geographical challenges of shipping in Canada.

THE SOLUTION

To achieve the results it desired in the midst of a large supply chain transformation, Dr. Oetker partnered with Transplace because of its understanding of



the Canadian market and proven ability to execute. Transplace worked with Dr. Oetker to establish both pre- and post-acquisition network baselines, incorporating transportation and warehousing costs and other factors in order to develop a strategic plan for bringing people, process and technology together to increase operational efficiency and maximize financial savings.

This plan included converting warehouses into merging centers, where shipments from various sources would be consolidated then delivered to customer

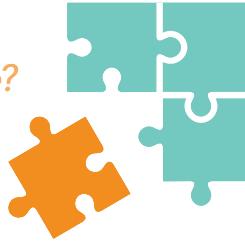
locations. Transplace then established a defined schedule for customer orders and deliveries, helping bring consistency to Dr. Oetker's shipping operations and allowing them to reduce lead times, carry less inventory at its facilities and utilize dynamically-routed, multi-stop loads.

By consolidating freight, reducing inventory stocks and implementing a shipping schedule with dynamic load building, Dr. Oetker was able to achieve cost savings of more than 7% and deliver higher service levels to its customers.

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Supply Chain Challenge?
SOLVED!



Solution Generates Cost Savings

When an industrial manufacturer needed to reduce supply chain costs, they teamed up with Crane Worldwide Logistics for an innovative solution.

THE CHALLENGE

Crane Worldwide Logistics' client is a large global industrial manufacturer and they are under constant pressure to reduce supply chain costs. Due in large part to recent legislation in the transportation industry, there has been a significant shortage in the supply of drivers, drastically increasing the cost of transportation for our client.

Specifically, our client was shipping high volumes of powertrain components from North America to Germany via the ocean. The supplier packaging did not go "wall to wall" so each unit load had to be blocked and braced. On average, the impact of this package was a 60% (cubic average) underutilization rate for each ocean container.

THE SOLUTION

Working with the client, Crane Worldwide Logistics® completely redesigned the supplier pack with several goals in mind:

- Utilize the entire dimensions of the ocean container.
- Design the internal dunnage to protect the components.
- Maximize the number of parts per package.

The results were striking. Not only were we able to accomplish all of our goals on the packaging side, we also exceeded our cost saving expectation for the client.

- Increased parts per box by 100%.
- Reduced containers used annually by 50%.
- Reduced bracing per container 60%.
- Created wall to wall bracing while decreasing total box cost.
- Created a seven-figure cost saving for the client.

We find this to be a great area of opportunity with manufacturing clients. The packaging manufacturers use for shipments tend to have a number of design issues that make them less than ideal for shipping and transportation. We find if we are able to look at a specific application, and design something for the specific purpose, we are able to generate big cost savings. In this case, the review and new design generated big results because our client allowed us to be creative and challenge their internal procedures.

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[IT MATTERS]

BY WILLIAM SALTER

CEO, Paragon Software Systems
sales@paragonrouting.com | 718-288-5833

Last-Mile Technology Needs a Radical Rethink

We need to stop viewing last-mile logistics as solely a delivery challenge. The broader challenge is ensuring processes and their supporting technologies work together to allow supply chains to meet the market's insatiable appetite for faster, more precise deliveries.

Supply chain management technology is boldly exploring sophisticated new developments such as driverless vehicles and the Internet of Things. And yet, we're still employing 1985 technology when it comes to the last mile.

The Reality of Route Planning

Here is what delivery route planning and scheduling looks like at many businesses that manage their delivery fleets using manual methods: A route planner gathers customers' paper orders, assigns them to a driver based on territory, arranges them from first to last after eyeballing a map, and hands over the stacks to drivers to deliver in sequence.

These plans can fall apart the moment there's a delay, and it's difficult to quickly fix them manually. Inefficiencies hamper every route. Deliveries are late or missed, customers lose faith in the supplier, and truck routes often cross each other or double up needlessly. When working

manually, any expert knowledge about peculiarities of loading docks, special customer unloading requirements, and habitual traffic snarls tends to get lost because there's no central place to collect it other than in the planner's memory.

That is astonishing in the highly automated world of freight management.

There's a steep cost to the consequent inefficiency. Last-mile delivery costs in the B2C sector have ballooned to an estimated 30 percent of the total transportation cost; a similar figure could no doubt be arrived at in the B2B sector.

The fully burdened cost of a truck mile is \$1.59, according to the American Transportation Research Institute. For a 50-vehicle private delivery fleet, where each vehicle racks up 50,000 miles per year, driving 20 percent more miles than necessary means nearly \$800,000 in lost profit annually. Customer satisfaction suffers, too.

Delivery performance has become a competitive differentiator, making it a closely scrutinized end goal at almost every departmental level. Last-mile delivery performance is now inextricably connected to every part of the business.

And yet, while the final mile is the most complex part of the supply chain, it is the last part to be optimized.

Automating the Process

Automated routing and scheduling ensures delivery route plans are crafted to maximize delivery stops and minimize fuel while making the most of driver shifts and available trucks. It can also collect critical information about the actual routes driven that companies can use to give customers accurate delivery times, and can feed back into the system to generate even better route plans next time around.

The last mile of the supply chain is an integral, not stand-alone, function. Without great delivery route planning and scheduling, all the smart, powerful technology companies invest to streamline sales, order management, marketing, product design, and customer service grinds to a halt at the final hurdle. ■



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CARRIER'S CORNER

BY HAROON SYED

Vice President of Sales and Marketing, Schneider
SchneiderMarketing@Schneider.com | 800-558-6767

4 Ways to Tell if Your Alcohol Carrier Knows the Hard Stuff

Transporting alcohol is a time- and temperature-sensitive move that requires superior logistics. Selecting a carrier that can meet the stringent requirements and provide value to a shipper's business is crucial.

To demonstrate they would be a good fit for your business, consider alcohol carriers that:

1. Know the law. Every state has its own process for transporting and delivering alcohol, so distributors must find a carrier that knows local laws and understands the requirements from state to state.

For example, some states require drivers to have the state's original permits whether they're driving through or making a delivery. For these states, it's necessary to domicile the permits at predetermined locations so drivers don't have to veer off route to get them. A transportation provider that accounts for this makes shipping more efficient.

2. Adhere to distributor-specific requirements. Shippers are bound to have certain requirements for their products. Finding a carrier to meet these needs is essential for a successful working relationship.

In most instances, enforcing a predetermined mileage blackout area, where carriers are prohibited from stopping before reaching that mileage amount, is common to prevent thieves from stealing the load. To double down on loss prevention, a provider needs to be appropriately insured.

Another common request is to use newer equipment to move alcohol. Equipment that is too old—more than eight to 10 years—may be a deal breaker.

When assessing providers, determine which requirements are absolutes and which are negotiable.

3. Maintain a low CSA score. A reputable carrier and driver can mean the difference between a safe delivery and a tragic accident. Evaluating the Compliance, Safety, Accountability (CSA) data provided by the Federal Motor Carrier Safety Administration identifies high-risk carriers and drivers, helping

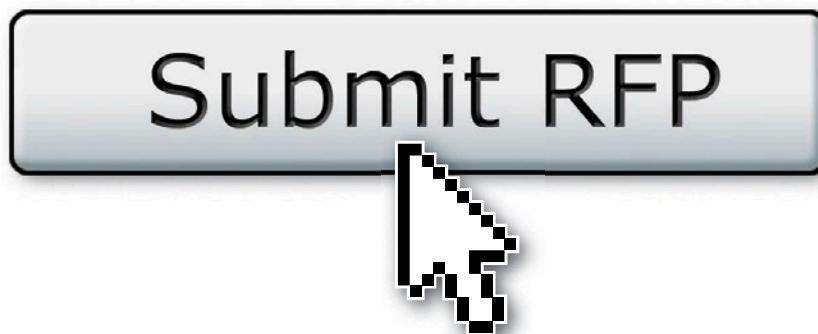
shippers make informed decisions about the company they hire. While even the safest drivers and carriers have violations from time to time, a shipper can see whether these incidents are few and far between or common occurrences.

4. Understand product stipulations. When an alcohol delivery is made, the product's integrity can be tracked back to the transportation provider. External factors such as weather and traffic delays can easily impact product quality. It's critical for a transportation provider to understand the cargo's sensitive nature and get it to the destination as quickly and safely as possible.

What Shippers Can Do

When selecting an alcohol carrier, it's critical to look at those that are equipped to handle the nature of the work and compliant within the industry. A provider that is well versed in permitting laws, understands and reacts well to shipper requests, and achieves impressive CSA scores can mean all the difference to the bottom line—and the successful delivery of a good libation. ■

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CLARIFYING THE
BUSINESS
CASE FOR

GREEN

SUPPLY CHAIN
MANAGEMENT

By Yossi Sheffi

For most companies, sustainability is not a simple case of “profits vs. planet” but a more subtle issue of people looking for jobs and inexpensive goods versus others who seek a pristine environment. Here’s how your supply chain can satisfy these conflicting motivations to achieve both economic growth and environmental sustainability.

Environmental sustainability is first and foremost a logistics and supply chain management (SCM) issue. Supply chain activities such as procuring raw materials and transporting goods impact companies’ environmental performance. Moreover, environmental groups rightly hold companies responsible not just for their own actions as corporate citizens, but also for the actions of their suppliers. Managing supplier relationships falls within the remit of the SCM discipline.

Given these pressures, it appears that companies have an explicit case for investing in supply chain sustainability programs—yet the case for making substantial investments is far from clear and companies tend to do the minimum necessary to support sustainability goals.

Much of the ambiguity springs from the rationale to pursue green supply chain practices. One motivator is that companies tend to be put on the defensive by criticism from environmental groups and need to respond. The sheer complexity of greening supply chains is another reason for investing in green—albeit minimally. But the main reason for corporate caution when it comes to green investments is that consumers are unwilling to pay a premium for sustainable products.

First, let's look at why enterprises have devoted—and continue to devote—resources to green supply chain initiatives.

Officially, companies often champion their environmental credentials in glossy reports, speeches, and media interviews. Behind the scenes, however, many will admit that they do only the minimum for three basic reasons.

1. Risk mitigation. Regardless of the degree to which company executives believe in the threat of climate change or the ravages of environmental degradation, many of their customers do, and they need to respond to these beliefs (even though the same customers are not likely to be willing to pay more for sustainable products). If they don't, they risk incurring the wrath of non-governmental organizations (NGOs) and the media, leading to reputational damage.

This class of supply chain risk management can be termed eco-risk mitigation: initiatives that aim to reduce the likelihood and magnitude of business disruptions caused by environmental issues. In addition to the threat of reputational damage, this type of risk also encompasses investor actions that trigger management changes and disruptive government regulations.

Insurance Limits

Unfortunately, unlike insurable events such as natural disasters and accidents, risk managers have scant reliable actuarial data for quantifying the likelihood of NGO strikes, consumer preference changes, or adverse regulatory changes. Consequently, the few available insurance policies have limited scope and high costs. Thus, companies are left to manage these risks themselves using “just-in-case” or scenario-based justifications for risk mitigation.

In the early 1990s, chemical company BASF learned of the potential toxicity dangers of using bromine-based flame retardants in its polyamide plastic line. If incinerated, the material could produce highly carcinogenic dioxins in the smoke. The company took decisive action. “Less than six months after receiving an initial heads-up from management, the product was completely



An investment in software helped office supplies retailer Staples enhance environmental performance and reduce fuel consumption and emissions in its delivery truck fleet.

pulled from the market,” says Carles Navarro, president of BASF Canada.

Although it was “the right thing to do,” sales suffered. Customers complained, and competitors that still sold polyamide with the toxin gained market share. It took two years for BASF to find a safe alternative material. On the plus side, the company was not subject to reputational costs or attacks from environmentalists and the media when it did not have product on the market.

2. Cost cutting. Investing in green initiatives can reduce supply chain costs. An example is reducing the number of empty miles, which can shrink carbon footprint and capture transportation cost savings.

Switching to local sourcing is a way to take miles and cost out of a supply chain and reduce the carbon footprint. This is especially true for food, where NGOs and environmental writers have popularized the concept of “food miles.” Whole Foods, Walmart, and other retailers have programs to “buy local” typically from suppliers in the same state or a modest distance away.

Local sourcing, however, does not always reduce a product's total life cycle carbon footprint. Factors such as the carbon intensity of the local power grid or the need for energy-intensive production techniques can more than

offset any environmental impact savings from reduced transportation.

Another retailer, Staples, found a way to cut costs and enhance its environmental performance with a relatively modest investment in software. In 2006, Mike Payette, director of fleet operations, was investigating ways to reduce costs, fuel consumption, and emissions on the office supply retailer's fleet of delivery trucks.

He changed the control software in one delivery truck to limit its top speed to 60 mph, monitored fuel consumption for 45 days, and found that average gas mileage climbed from 8.5 mpg to 10.4 mpg—a reduction in fuel consumption of almost 20 percent. Payette estimates it cost only \$7 per truck for him to upload the new software in every vehicle yet the change yielded \$3 million in fuel savings annually.

3. Hedging. The third incentive for modest investments in green is that companies need to gain relevant expertise just in case consumer taste and demand change. For instance, millennial consumers tend to be more environmentally conscious than the baby boomer generation, and these convictions may shape future markets.

In 2008, cleaning products maker The Clorox Company launched a line of environmentally friendly cleaners

called Green Works, a family of 17 green cleaning products designed with natural active ingredients that competed with the company's main line of cleaning products.

Buoyed by a \$25-million annual advertising push in 2008 and 2009, the Green Works product line sales brought in \$58 million a year in 2009. However, the price premium of the products during a recession, and doubts over its efficacy, caused sales to fall to just \$32 million in 2012. Clorox responded by lowering the product's price and launching a rebranding campaign in 2013 to attract mainstream buyers.

Ultimately, Green Works proved to be a money-losing proposition, yet the company's CEO Don Knauss insisted that "it was all about growth." The venture enabled the \$5.6-billion company to make a relatively small investment in building its knowledge about green products.

Many companies also tout cost cutting or other corporate projects that happen to yield environmental benefits as mainly green projects. An example is when Shell sold its stake in Alberta's oil sand project to ease its debt burden, which soared after its expensive

Clorox sells its Green Works line of natural cleaning products on the same store shelves as its regular household cleaning products.



acquisition of BG Group PLC. The company was successful in its media campaign to present the sale as a move away from fossil fuels. The media propensity to highlight "green" helped. Shell's strategy prompted newspaper headlines about how the deal enabled the company to distance itself from an environmentally controversial venture.

Plants vs. Profit (Really?)

The reasons described above motivate companies to invest in green supply chain initiatives—yet many do only the minimum because they do not believe in the need for this effort, or more commonly, that current initiatives do not meet any reasonable cost benefit test even if global warming is real and the danger acute.

Despite this skepticism, companies continue to align themselves with the sustainability movement in public. Why do they maintain this front?

One reason is that many enterprises are put on the defensive when environmental sustainability is framed as a "profits versus planet" or "societal good versus corporate evil." These narratives ignore the role of businesses and their supply chains in both employing people and delivering improved standards of living to humanity.

All stakeholders need to recognize that even the most environmentally responsible companies must manage their supply chains to satisfy growing demand and provide employment opportunities.

The real conflict is not "profits versus planet" but "(some) people" versus "(other) people." More specifically, people who believe in the importance of environmental stewardship vs. people who are looking for jobs and affordable goods. Both are right.

Occasionally, this realistic view comes to light.

An example is the controversy caused by NGO ForrestEthics, when it attacked retailers and logistics providers that used trucking companies who fuel their fleets with diesel derived from Alberta's bitumen sands. In response, Alberta's government provided information on the number of jobs created

by the bitumen sands operation as well as its overall economic contribution, and published reclamation data. The Canadian people were somewhat less measured in their response; they organized a boycott of companies that were quoted as avoiding Canadian fuel.

Even when companies do the "right" thing, they can be caught in the crossfire when ideology and pragmatism conflict. For example, Walmart worked with various stakeholders to develop seafood certification programs that support sustainability. In 2015, environmental group Greenpeace contended that Walmart was not doing enough, whereas Alaskan fisherman and state officials complained that the company was asking too much of them and endangering their livelihood.

Green Can be Challenging

The challenges of green supply chain management also make the case for large investments in sustainability dubious—and are a source of confusion when environmental groups underestimate just how difficult it is to meet sustainability standards.

For example, balancing supply chain sustainability with enterprises' commercial and societal obligations is far from easy. Casting sustainability as a purely ideological struggle is a gross simplification of the balancing act that enterprises must perform to reconcile sustainability with the rigors of running successful businesses and the provision of employment and well-being for the communities in which they operate.

Consider aluminum producer Alcoa, a company that supports multiple green initiatives. Between 2005 and 2015, the manufacturer improved production efficiency by 4.2 percent and reduced greenhouse gas emissions by 25.9 percent. In 2011, it ran 650 initiatives to reduce energy consumption and emissions that led to cost savings of \$100 million, while meeting its greenhouse gas emissions targets.

Yet to remain cost competitive in a global commodity business, Alcoa needs to burn Australian brown coal as a low-cost energy source—a strategy that environmentalists have condemned.



While many consumers refuse to pay more for sustainable products, some retailers, such as Patagonia, have cultivated customers who share a deep passion for green living, and will support it with their wallets.

In addition, evaluating the carbon footprints of supply chains is fraught with difficulty, especially in today's globalized commercial world.

Supply chain practitioners are intimately familiar with the challenges associated with tracking product flow through supply chains. But keeping tabs on the carbon footprint at various points in the supply chain can be much more onerous.

For example, although Chiquita owns much of the banana supply chain, its operations account for a little less than half of the banana's total carbon footprint. This is actually a relatively high figure due to Chiquita's "shallow" supply chain, which includes only two basic tiers, and the company's direct control over it.

For many companies and many supply chains, the customers' suppliers and customers along the supply chain contribute, on average, three times as much to a product's carbon footprint as the company's own operations. This ratio is significantly larger for companies such as Cisco, Apple, Microsoft, and most retailers, who outsource most or all manufacturing and transportation activities. Moreover, in the consumer discretionary product industry, the footprint outside the company is 19 times greater, on average, than the footprint inside the company.

The sheer complexity of modern supply chains can also make it difficult to evaluate operational carbon footprints.

Consider the humble banana. One would be hard-pressed to find a seemingly simpler product to assess for

carbon emissions levels, yet the reality is far more complicated. This simple product hides a bunch of complex issues, according to an assessment of the greenhouse gas emissions of the banana supply chain carried out by the MIT Center for Transportation & Logistics.

A wide range of factors, such as the amount of fertilizer used by growers and how bananas are transported during the long trip to supermarket shelves, influences the size of the product's carbon footprint. Temporal and geographic variations of the underlying supply chain further complicate the calculation.

For example, researchers estimate that 17 kg of carbon emissions is the average carbon footprint of a box of bananas grown by Chiquita in Costa Rica and sold in the United States. In reality, each box of bananas has a very different carbon footprint depending on where in the United States, or around the globe, the fruit is sold.

Consumer Ambivalence

Such complexities, combined with the need to respond to environmental campaigners, motivate companies to maintain a public alignment with supply chain sustainability. But the main reason for maintaining this public face, while only affording minimal support for large green investments behind the scenes, is that consumers are not willing to pay higher prices for green products and services.

Despite what they say when interviewed by journalists, NGOs, or academics, the majority of buyers choose

not to pay more for sustainable products when faced with the choice at the retail shelf. They generally choose the cheaper product—even if it is less environmentally sustainable than more expensive options.

If their customers are not willing to support sustainability through their buying decisions, why should companies make substantial investments in green products?

Voting With Their Wallets

There are exceptions. Companies such as Dr. Bronner and Patagonia, which are fiercely devoted to high standards of sustainability, have customer bases that share these principles. The buying habits of these consumers reflect their passion for green and the companies can invest in sustainability efforts even when it increases their costs because these customers will pay for it.

By and large, however, consumers vote with their wallets.

And it's not just price that drives these buying decisions; convenience is another important factor. For example, individuals order products online even when these purchases have a large carbon footprint owing to activities such as truck deliveries that generate greenhouse gas emissions, as well as wasteful packaging. The convenience of the online channel is extremely compelling.

To understand why it make sense for consumers not to pay extra for green products one has to understand the ladder of product attributes that consumers consider in the purchase process.

Search attributes are obvious tangible properties; a blue versus a red car, for instance. Experience attributes such as taste can be verified after a purchase, such as the taste of the cup of yogurt.

Intrinsic credence attributes such as the level of noxious emissions generated by a car can be verified after the purchase but only by using specialized expertise or equipment. Hidden credence attributes are not part of the products and therefore can't be verified by the consumer. Examples include the use of child labor to make a product or the amount of pollution it causes in manufacturing.

To inform consumers of a product's

green credentials, companies often affix labels to the item that attest to its environmental credence. But this is far from a perfect solution. Attributes such as the trustworthiness or level of clarity of a label influence its effectiveness. The sheer number of available labels can confuse consumers. More importantly, the labels themselves vary wildly in their rigor and trustworthiness.

When consumers find it difficult to distinguish between a high-quality product and an inferior one, they will not pay extra when a seller argues that their product is superior—they will only pay for average products. This is called the Akerlof Effect. The result is that sellers of superior products leave the market and the quality deteriorates over time until the market collapses. It follows that if consumers can't judge the degree to which a product is sustainable, they will not pay for "responsible" products.

Given these ambiguities, it makes perfect sense for companies to do the minimum needed to burnish their sustainability credentials, to cut costs where possible and do the minimum to avoid NGO attacks. Look behind many of the triumphant statements in press releases, and you will find projects that are much more modest than the promotional material suggests.

Sustainability is intimately connected with supply chains, the complex

economic structures formed by companies that use the global supply of natural resources to meet worldwide consumer demand and provide employment for millions of people.

manufacturing, transportation usage, and disposal of all products that sustain and improve peoples' lives.

However, supply chain management processes also are caught in the crossfire between the tensions of economic performance, natural resource stresses, societally acceptable practices, and regulation. The debate regarding the acceptable tradeoffs between human standards of living and prevalence of jobs on the one hand, and levels of environmental impact on the other, has already begun, and it will affect the constraints and opportunities that companies already face.

Meanwhile, if we are to set and meet supply chain sustainability goals that are both realistic and effective, it is vital that we move away from sloganeering and carry out a sober assessment of what we are trying to accomplish, how much it will cost, whether the cost justifies the effort and any resulting dislocations, and how we will go about it. ■

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INSIGHT INTO ACTION

ABOUT THE AUTHOR: Yossi Sheffi is Elisha Gray II Professor of Engineering Systems at MIT, and Director of the MIT

Center for Transportation and Logistics. Details about his book, *Balancing Green*, are online at: mitpress.mit.edu/balancing

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G75

75 GREEN SUPPLY CHAIN PARTNERS

Inbound Logistics features its annual G75—a carefully curated list of 75 companies that go above and beyond to ensure their global supply chains are sustainable, and their operations are socially and environmentally friendly. These companies have spent years developing and implementing best practices to ensure the footprint they leave on the world is a positive one.

ALASKA AIR CARGO

alaskaair.com

Alaska Air Cargo continues to find innovative ways to reduce the environmental impact of services, facilities, and equipment. Alaska Air Cargo's environmental strategy encompasses four main areas: reduce emissions from planes and equipment, waste from flights and other facilities, consumption of non-sustainable resources, and energy use in its buildings.



CURRENT GREEN INITIATIVES

- › Reduce greenhouse gas emissions
- › Reuse/recycling program
- › Reduce energy usage

NOTABLE ACHIEVEMENT

The airline's 2020 goal is to reduce mainline emissions 20 percent per revenue ton mile over 2009 levels.

ARCBEST

arcb.com

In 1976, ArcBest LTL carrier ABF Freight began limiting its trucks' maximum speeds to conserve fuel and reduce emissions. The company's new trucks have computerized engine shut-offs to reduce idling and minimize fuel consumption. The company follows an equipment maintenance/replacement program, so the average age of its linehaul tractors is rarely more than two years.



CURRENT GREEN INITIATIVES

- › Reduce energy usage
- › Reduce greenhouse gas emissions
- › Energy-efficient equipment
- › Reuse/recycling program

NOTABLE ACHIEVEMENT

ABF Freight has been a SmartWay partner since 2006 and winner of the 2014 SmartWay Excellence Award.

48FORTY SOLUTIONS

48forty.com

48forty uses recycled pallets to offer customers sustainable pallet solutions. The company repairs damaged pallets and sends them back into the pool. 48forty disassembles battered pallets and salvages boards that can be used in other pallets. It even chips the unusable bits and uses them as landscape mulch or for biofuel.



CURRENT GREEN INITIATIVES

- › Reuse/recycling program
- › Sustainable packaging
- › Sustainably source materials
- › Waste minimization through Lean manufacturing

NOTABLE ACHIEVEMENT

48forty has 90 million pallets in force. It uses and repairs each pallet about 10 times, ultimately shredding them for mulch.

AMERICAN AIRLINES CARGO

aacargo.com

Ever since employees led the Fuel Smart initiative in 2005, American Airlines has saved millions of gallons of fuel from being consumed by its aircraft and support vehicles, while also cutting millions of pounds of CO2 emissions from being thrust into the atmosphere.

CURRENT GREEN INITIATIVES

- › Reduce greenhouse gas emissions
- › Reuse/recycling program

NOTABLE ACHIEVEMENT

American deploys more than 5,000 reusable lightweight composite cargo containers, reducing weight and saving more than one million gallons of fuel every year.

CANADIAN NATIONAL (CN)

cn.ca

Canadian National's (CN) environmental strategy focuses on emissions and energy efficiency, waste management, biodiversity, and land management. With Precision Railroad, fuel-efficient locomotives, and leading-edge technology, CN achieved a fuel and carbon efficiency improvement of 37 percent over the past 20 years.

CURRENT GREEN INITIATIVES

- › Reduce greenhouse gas emissions
- › Reduce energy usage
- › Optimize yard performance

NOTABLE ACHIEVEMENT

CN's fleet uses 15-percent less fuel per gross ton mile overall than the industry average.



AVERITT EXPRESS

averittexpress.com

Aside from investing in newer and cleaner technologies and equipment, Averitt helps shippers reduce their carbon footprint through strategies that include returnable totes to replace corrugate waste and the use of climate-controlled LTL units to cut reliance on foam containers and dry ice. It works closely with companies to identify mutually beneficial supply chain strategies that are also green-minded.

CURRENT GREEN INITIATIVES

- › Reduce greenhouse gas emissions
- › Reuse/recycling program
- › Reduce energy usage
- › Sustainable packaging
- › Energy-efficient lighting

NOTABLE ACHIEVEMENT

Since 2004, Averitt has lowered CO2 emissions by about 27 percent, reduced nitrogen oxide emissions by 50 percent, and cut particulate emissions by 52 percent.



APL LOGISTICS

aplogistics.com

APL Logistics continues to create programs to capture sustainability data and make it available to customers. It engages with its community through new partnerships, and develops new products to reduce customers' greenhouse gas consumption.

CURRENT GREEN INITIATIVES

- › Reduce greenhouse gas emissions
- › Alternative fuels/energy sources
- › Reuse/recycling program
- › Reduce energy usage
- › Energy-efficient lighting
- › Collaborate with stakeholders to reduce and recycle plastic bags in retail businesses

ALLIANCE SHIPPERS

alliance.com

Alliance's EverGreen refrigeration units are equipped with two-way cellular tracking devices. They draw power from a battery source within the units, allowing them to always have a GPS location on assets as well as the ability to turn the refrigeration unit on and off at any time. Solar panels allow Alliance to use the sun's energy to continuously charge the batteries on its trailers.

CURRENT GREEN INITIATIVES

- › Reduce greenhouse gas emissions
- › Alternative fuels/energy sources
- › Reuse/recycling program
- › Reduce energy usage
- › Solar panels
- › Energy-efficient lighting

NOTABLE ACHIEVEMENT

Alliance's refrigerated trailers, moved via the nation's rail system, reduce CO2 output by 67 percent versus moving the same goods via highway trucks.



AAA COOPER TRANSPORTATION

aaacooper.com

AAA Cooper installs enhanced/full aerodynamic fairing packages; converts oil to lighter-weight synthetic for better fuel economy; installs tire pressure systems designed for drive tire position to enhance mpg; and installs next-generation skirting on van trailers with better airflow direction. The SmartWay partner has new tractor placement with automated manual transmission with specific drivetrain modifications designed to increase mpg and reduce emissions.

CURRENT GREEN INITIATIVES

- › Reduce greenhouse gas emissions
- › Reuse/recycling program
- › Reduce energy usage
- › Sustainably source materials
- › Energy-efficient lighting

NOTABLE ACHIEVEMENT

Continual reduced emissions since 2013.



CELADON TRUCKING

celadontrucking.com

A long-time member of SmartWay, Celadon keeps a current tractor fleet, and relies on the latest technology to help reduce emissions and fuel consumption. The trucker outfits its tractors with speed limiters and equips trailers with skirting. Celadon regularly maintains its tractors to run at optimum efficiency.

CURRENT GREEN INITIATIVES

- › Alternative fuels/energy sources
- › Reuse/recycling program
- › Use wastewater
- › Reduce energy usage
- › Sustainable packaging
- › Solar panels
- › Energy-efficient lighting

NOTABLE ACHIEVEMENT

Celadon earned the 2017 SmartWay Freight Carrier and Multimodal Excellence Award.

BNSF

bnsf.com

BNSF created a Carbon Estimator Tool for shippers to track the carbon footprint of their rail shipments. It also implemented locomotive management systems to reduce idling, fuel consumption, and emissions.

CURRENT GREEN INITIATIVES

- › Reduce greenhouse gas emissions
- › Reduce energy usage
- › Energy-efficient lighting
- › Solar panels
- › Alternative fuel/energy sources

NOTABLE ACHIEVEMENT

Fuel efficiency has increased 10 percent since 2005.



CRANE WORLDWIDE LOGISTICS

craneww.com

The 3PL's Crane Cares initiative is composed of three specific branches through which it demonstrates commitment to the environment (Green Worldwide), the communities in which we live and work (Give Worldwide), and the health, wellness, and safety of employees and their families (Live Well Worldwide).

CURRENT GREEN INITIATIVES

- › Reuse/recycling program
- › Use wastewater
- › Reduce energy usage
- › Energy-efficient lighting

NOTABLE ACHIEVEMENT

Crane Worldwide has been recognized as a SmartWay Transport Partner since opening its doors in 2008.

CASESTACK

casestack.com

CaseStack's retail consolidation programs help conserve natural resources by reducing dock congestion, improving warehouse efficiencies, and decreasing the number of trucks on the highway. The resulting supply chain consumes less energy and produces lower amounts of carbon emissions. CaseStack has been a SmartWay partner for the past eight consecutive years.

CURRENT GREEN INITIATIVES

- › Reduce greenhouse gas emissions
- › Reduce energy usage
- › Energy-efficient lighting

NOTABLE ACHIEVEMENT

CaseStack's consolidated truckloads reduce carbon emissions by 58 million pounds of CO2 each year.

CSX TRANSPORTATION

csx.com

CSX Transportation has a three-pronged approach to sustainability: reduce the environmental footprint of operations, engage openly on sustainability issues, and support sustainability developments. In 2016, the company improved fuel efficiency by shutting down unused locomotive power whenever possible. The railroad is capable of moving one ton of freight 474 miles on a single gallon of fuel.

CURRENT GREEN INITIATIVES

- › Reduce greenhouse gas emissions
- › Alternative fuels/energy sources
- › Reuse/recycling program
- › Reduce energy usage

NOTABLE ACHIEVEMENT

Since 1980, CSX has improved fuel efficiency by more than 100 percent.

CROWLEY

crowley.com

Crowley's new terminal management systems reduce truck idling and turn times by 25 percent, which reduces air impacts on the mainland and Puerto Rico. Two new commitment class containerships will provide Puerto Rico service with 38-percent per-container reduction of CO2 emissions, and near-total SOx reduction. Crowley's tank vessel fleet carried 472 million barrels, and made 5,196 product transfers with zero spills.

CURRENT GREEN INITIATIVES

- › Reduce greenhouse gas emissions
- › Alternative fuels/energy sources
- › Reuse/recycling program
- › Use wastewater
- › Reduce energy usage
- › Sustainable packaging
- › Sustainably source materials
- › Energy-efficient lighting
- › Limit/eliminate plastic bottle and other disposable beverage container usage

NOTABLE ACHIEVEMENT

Using the Clean Cargo Working Group platform, Crowley launched its first third-party verification of emissions data for customer assurance, receiving 100-percent verification of its international liner fleet's CO2 and SOx emissions.

CARGO TRANSPORTERS

cgor.com

As a SmartWay Partner Excellence Award winner in 2016, Cargo Transporters continues to spec its on-highway vehicles with the most current aerodynamic equipment, maximizing fuel efficiency. The company invests in on-site electrification for vehicles so hotel loads can be powered by shore power connections. It has invested in load-sensing devices in trailers to avoid extra on-highway miles resulting from trailer checks.

CURRENT GREEN INITIATIVES

- › Reduce greenhouse gas emissions
- › Alternative fuels/energy sources
- › Reuse/recycling program
- › Reduce energy usage
- › Use wastewater
- › Energy-efficient lighting

NOTABLE ACHIEVEMENT

Installed additional 26 shore power parking spots for trucks, bringing total to 50.



DHL SUPPLY CHAIN

dhl.com

DHL has set four interim sustainability targets to achieve by 2025. Global target: increase carbon efficiency by 50 percent compared to 2007. Local target: deliver 70 percent of its own first- and last-mile services with clean pickup/delivery solutions. Economic target: more than 50 percent of sales incorporate green solutions. People target: train 80 percent of employees as certified GoGreen specialists.

CURRENT GREEN INITIATIVES

- › Reduce greenhouse gas emissions
- › Alternative fuels/energy sources
- › Reuse/recycling program
- › Reduce energy usage
- › Sustainable packaging
- › Sustainably source materials
- › Solar panels
- › Energy-efficient lighting
- › Customer Go Green solutions

NOTABLE ACHIEVEMENT

A carbon efficiency target to improve by 30 percent over 2007 baseline by 2020 was achieved in 2016, four years earlier than planned. In 2017, it improved by two index points to 32 percent.



CT LOGISTICS

ctlogistics.com

CT has invested in software developments specifically targeting the ability to provide shippers the tools to make greener supply chain choices. Its Lion™ software helps shippers drive energy efficiency with supply chain routing analysis technologies. This software was built to maximize lane effectiveness and facilitate more optimal/greener transportation mode selections. CT's FreitWeb™ software aggregates small shipments to reduce costs and fuel. This software enables shippers to choose environmentally conscious routings, mode selections, and carriers with the shortest transit times to reduce fuel consumption and lower CO2 emissions.

CURRENT GREEN INITIATIVES

- › Reuse/recycling program
- › Use wastewater
- › Energy-efficient lighting
- › At least 40 percent of its six-acre corporate campus remains undeveloped and wooded
- › Intelligent thermostats are utilized for all areas

NOTABLE ACHIEVEMENT

CT saved more than 200,000 kWh of electricity over the past year by replacing all facility lighting with LED lamps/bulbs.

CROWN EQUIPMENT

crown.com

From product design to packaging, Crown reduces its environmental footprint through increased energy efficiency, lean business processes, reduced resource consumption, and elimination of waste. Crown delivers high-quality, energy-efficient lift trucks that use fewer parts, require less maintenance, and produce less waste.

CURRENT GREEN INITIATIVES

- › Reduce greenhouse gas emissions
- › Alternative fuels/energy sources
- › Reuse/recycling program
- › Use wastewater
- › Reduce energy usage
- › Sustainable packaging
- › Sustainably source materials
- › Energy-efficient lighting

ENGLAND LOGISTICS

englandlogistics.com

The England Logistics team safeguards food and beverage shipments by utilizing a network stocked with temperature-controlled facilities and equipment, resulting in fewer transportation risks. Using optimization software also allows the company to build an economic strategy for each shipment, resulting in reduced miles. These practices ensure each shipment is transported in the most resourceful way possible, with a minimized impact on the environment.

CURRENT GREEN INITIATIVES

- › Reduce energy usage
- › Sustainable packaging

NOTABLE ACHIEVEMENT

As a SmartWay partner, England Logistics is committed to reducing carbon emissions in the environment.

NOTABLE ACHIEVEMENT

Crown has achieved five zero-landfill status facilities, three ISO 14001-certified facilities, and is the first company to have three facilities receive the Ohio EPA's Encouraging Environmental Excellence Gold Award.

DUPRÉ LOGISTICS

duprelogistics.com

Dupré's green initiatives address fuel efficiency, safety, and environmental performance. Dupré's fleet contributes to green results with a top speed of 62 mph, and the use of fuel-efficient tires. Utilizing Omnitrac and Green Road technologies monitors safety and fuel economy.

CURRENT GREEN INITIATIVES

- › Reuse/recycling program
- › Reduce energy usage
- › Energy-efficient lighting

NOTABLE ACHIEVEMENT

Dupré strives to maintain the environment within its operations.

ECHO GLOBAL LOGISTICS

echo.com

By using technology, industry expertise, its extensive carrier network, and multimodal transport options, Echo provides clients with access to greener transportation solutions.

CURRENT GREEN INITIATIVES

- › Reduce greenhouse gas emissions
- › Reuse/recycling program
- › Reduce energy usage
- › Energy-efficient lighting

NOTABLE ACHIEVEMENT

Since 2010, Echo has partnered with the SmartWay program to measure, benchmark, and improve its environmental footprint.



DSC LOGISTICS

dsclogistics.com

DSC's sustainability programs include warehousing and transportation emissions reduction. Its goals include reducing utility metrics across all locations by an average of 8 percent year over year. The company's network redesign features better placed distribution centers and optimized transportation routes, resulting in a more sustainable network with a reduced carbon footprint. DSC is certified as a SmartWay logistics provider and carrier partner.

CURRENT GREEN INITIATIVES

- › Reduce greenhouse gas emissions
- › Alternative fuels/energy sources
- › Reuse/recycling program
- › Reduce energy usage
- › Sustainable packaging
- › Sustainably source materials
- › Solar panels
- › Energy-efficient lighting

NOTABLE ACHIEVEMENT

DSC's transportation consolidation efforts for customers reduce mileage

driven across all modes by up to 700,000 miles monthly, and reduced carbon emissions by 12 percent in 2017.

HUB GROUP

hubgroup.com

Hub Group's LEED Gold-certified corporate headquarters features natural habitat landscaping, energy-efficient lighting, electric vehicle charging stations, and rainwater harvesting. A continuing initiative aims at reducing idle hours.

CURRENT GREEN INITIATIVES

- › Reduce greenhouse gas emissions
- › Alternative fuels/energy sources
- › Reuse/recycling program
- › Reduce energy usage
- › Energy-efficient lighting
- › Rainwater harvesting
- › Satellite tracking for improved routing
- › Day cab/lightweight sleeper investments
- › New electric tractor purchases and platooning

NOTABLE ACHIEVEMENT

Hub Group continues to educate, develop, and implement intermodal conversions in its customers' supply chains, resulting in savings of 3 billion plus pounds of CO2 in 2017.



FEDEX

fedex.com

FedEx sustainability efforts include: managing its carbon footprint, establishing environmental policies and procedures for employees to follow, using natural resources to minimize waste generation, and establishing an EarthSmart program.

CURRENT GREEN INITIATIVES

- › Reduce greenhouse gas emissions
- › Alternative fuels/energy sources
- › Sustainable packaging
- › Reuse/recycling program
- › Solar panels

NOTABLE ACHIEVEMENT

By 2012, FedEx had increased its global electric vehicle and hybrid electric vehicle fleet to 482 vehicles, logging more than 14.8 million miles and saving 480,000 gallons of fuel.

GEORGIA PORTS AUTHORITY

gaports.com

Moving to electric rubber-tired gantry cranes for container handling reduces GPA's carbon footprint by 96 percent per crane. Savannah's electric ship-to-shore cranes capture enough energy lowering boxes to power themselves 18 minutes of each hour. GPA uses computer controls and efficient fixtures that, adjusting for the season, turn on lights as the sun sets. The project aims to achieve \$4.9 million in energy savings over 10 years.

CURRENT GREEN INITIATIVES

- › Reduce greenhouse gas emissions
- › Alternative fuels/energy sources
- › Reuse/recycling program
- › Reduce energy usage
- › Energy-efficient lighting

NOTABLE ACHIEVEMENT

Electrification efforts avoid the use of more than 5.8 million gallons of diesel each year.

JAXPORT

jaxport.com

From designing cargo terminals and using innovative technologies, to purchasing new equipment, JAXPORT is committed to environmental protection. Among the port's efforts to preserve the region's natural environment are championing the use of cleaner, alternative fuels, reducing engine emissions from port equipment, and recycling oil used in cranes.

CURRENT GREEN INITIATIVES

- › Reduce greenhouse gas emissions
- › Alternative fuels/energy sources
- › Reuse/recycling program
- › Reduce energy usage

NOTABLE ACHIEVEMENT

JAXPORT helped construct an outdoor classroom at Oceanway Middle School that features hundreds of native plants, a freshwater pond, and an elevated deck. Oceanway uses the facility to teach students science and ecology.

KENCO

kencogroup.com

Kenco commits to the environment by employing a full-time leader of sustainability to drive initiatives. The company aims to assist its customers in achieving environmental responsibility. Initiatives include: using hybrid automobiles in the company fleet, reducing paper and paper waste with technology, and using auxiliary power units to reduce idle time and fuel consumption.

CURRENT GREEN INITIATIVES

- › Reuse/recycling program
- › Alternative fuels/energy sources
- › Energy-efficient lighting

NOTABLE ACHIEVEMENT

Governing trucks and training drivers on progressive shifting techniques to promote fuel conservation.

J.B. HUNT

jbhunt.com

For the past 10 years, J.B. Hunt has been a SmartWay partner and received a SmartWay Excellence Award each year. The company engineers and designs customer solutions with an emphasis on energy efficiency. Other green initiatives include LTL consolidation and network optimization, mpg tracking and improvement maintenance, lightweight and aerodynamic equipment, driver training, and alternative fuel options such as natural gas and biodiesel.

CURRENT GREEN INITIATIVES

- › Reduce greenhouse gas emissions
- › Alternative fuels/energy sources
- › Reuse/recycling program
- › Reduce energy usage
- › Solar panels
- › Energy-efficient lighting

NOTABLE ACHIEVEMENT

In 2017, J.B. Hunt reduced carbon emissions equivalent to removing more than 700,000 passenger vehicles off the road for one year.

LUFTHANSA CARGO

lufthansa-cargo.com

Lufthansa Cargo's environmental strategy for continuous improvement focuses on green flying, green ground, environmental management system, innovation, partnerships, data transparency, public relations, and green solutions. Lufthansa Cargo operates five new Boeing 777F—the most efficient freighter in its class—and invested in two more, which will be delivered in 2019. Continuous investment in energy-efficient technology and buildings is as important as ongoing investment in new, lighter loading equipment.

CURRENT GREEN INITIATIVES

- › Reduce greenhouse gas emissions
- › Alternative fuels/energy sources
- › Reuse/recycling program
- › Use wastewater
- › Reduce energy usage
- › Sustainably source materials
- › Energy-efficient lighting

NOTABLE ACHIEVEMENT

Lufthansa Cargo will replace all standard containers with lighter variants by 2020. It has achieved 70 percent of this goal, resulting in CO2 savings of more than 6,800 tons per year.



KNIGHT-SWIFT TRANSPORTATION

knighttrans.com

Knight-Swift's commitment to offering sustainable solutions encompasses multiple efforts, including: fuel-efficient tractors, fuel conservation initiatives, lower tractor emissions, energy-saving solar farms, alternative-fuel R&D, and aerodynamic trailer technology.

CURRENT GREEN INITIATIVES

- › Reduce greenhouse gas emissions
- › Alternative fuels/energy sources

NOTABLE ACHIEVEMENT

Knight-Swift's more than 4,200 tractors operate with U.S. EPA2010 or newer engines. Technology related to these engines has effectively reduced the two primary emissions of the diesel engine—NOx and particulate matter—by 99 percent.

KANE IS ABLE

kaneisable.com

KANE reduces emissions, pollution, and congestion with smarter trucks and delivery methods. A Collaborative Distribution program reduces emissions by pooling inventory and shipments.



CURRENT GREEN INITIATIVES

- › Reduce greenhouse gas emissions
- › Reduce energy usage
- › Reuse/recycling program
- › Energy-efficient lighting
- › Sustainable packaging

NOTABLE ACHIEVEMENT

Since 2012, KANE has recycled 61.6 tons of paper, 196.8 tons of plastic and stretch wrap, 12,822 tons of cardboard, 101.2 tons of cans/bottles, 14 tons of steel, and 149 tons of wood.

LYNDEN

lynden.com

Lynden is the first Alaska-based transportation company to be recognized by SmartWay and the first trucking company to earn the Green Star Award for Alaskan businesses. Despite operating in steep terrain and extreme conditions, Lynden's fleets consistently score among the most efficient in terms of CO2 per ton mile as measured by the SmartWay Transport Partnership.

CURRENT GREEN INITIATIVES

- › Reduce greenhouse gas emissions
- › Alternative fuels/energy sources
- › Reuse/recycling program
- › Reduce energy usage
- › Sustainable packaging
- › Sustainably source materials

NORFOLK SOUTHERN

nscorp.com

NS adopted a carbon-mitigation strategy, Trees and Trains, that turns its carbon footprint into a corporate opportunity. Additionally, through its progressive locomotive rebuilding program, NS has developed a new class of low-emission Eco locomotives for railyard service now used in Chicago, Pittsburgh, Atlanta, and Macon, Georgia.

CURRENT GREEN INITIATIVES

- › Reduce greenhouse gas emissions
- › Alternative fuels/energy sources
- › Reuse/recycling program
- › Reduce energy usage

NOTABLE ACHIEVEMENT

In its largest project, the company invested \$5.6 million over five years to reforest 10,000 acres in the Mississippi Delta. Between 2016 and 2030, the trees will generate an estimated 1.12 million carbon credits that NS can use to offset its carbon emissions or sell to others wishing to offset their environmental impacts.



- › Energy-efficient lighting.
- › Super-efficient reefer units, shore-side plug-in technology, and electric forklifts save fuel and reduce emissions
- › LED lighting has improved safety and reduced energy use, and its stormwater pollution prevention exceeds local requirements

MATSON

matson.com

In 1993, Matson's Zero Solid Waste Discharge policy, developed with Ocean Conservancy, set the industry standard for environmental protection at sea. Its Greentainer program uses a revenue slot on every sailing to collect all solid waste for transfer to recycling and waste-to-energy facilities on shore.

CURRENT GREEN INITIATIVES

- › Reduce greenhouse gas emissions
- › Alternative fuels/energy sources
- › Reuse/recycling program
- › Reduce energy usage
- › Energy-efficient lighting

NOTABLE ACHIEVEMENT

Matson recently installed engine exhaust cleaning systems on its Alaska fleet and will outfit its two new Aloha Class vessels, currently under construction, with dual-fuel, LNG-capable engines.



NOTABLE ACHIEVEMENT

Facility upgrades have saved 3,535 MWh of electricity and 4.5 million BTUs of heating fuel/natural gas annually. This equals the average energy used in 335 homes or 403 passenger vehicles each year.

MAERSK LINE

maerskline.com

Maersk Line aims to reduce its ocean shipping CO2 emissions by 60 percent per container transported between 2016 and 2020. It has already reduced CO2 emissions per container transported by 42 percent, and is investing more than \$1 billion in upgrading large container vessels with new technologies to reduce fuel consumption, CO2, and sulphur dioxide emissions by up to 20 percent per container transported. Technical upgrades include advanced propeller systems, engine upgrades, and hydrodynamic hull coatings.

CURRENT GREEN INITIATIVES

- › Reduce greenhouse gas emissions
- › Alternative fuels/energy sources
- › Reduce energy usage

NOTABLE ACHIEVEMENT

Maersk Line is taking delivery of the Triple-E, a modern vessel that is setting new standards in fuel efficiency. Its Triple-E vessels reduce both fuel consumption and harmful air emissions by up to 35 percent per container transported compared to other vessels sailing on the same shipping route.



NFI

nfiindustries.com

NFI develops and applies best practices to improve environmental impact through implementing technology and alternative energy across its operations, such as electric vehicles, solar power, and natural gas fleets. Currently, NFI runs electric yard horse and lithium battery forklift demonstration units, and is working to develop class 8 battery electric and hydrogen fuel cell vehicles. As an EPA SmartWay partner, NFI also uses AirTabs, trailer skirts, battery-powered APUs, and speed limiters to improve fuel efficiency. The EPA has awarded NFI the SmartWay Excellence Award three times.



CURRENT GREEN INITIATIVES

- › Reduce greenhouse gas emissions
- › Alternative fuels/energy sources
- › Reuse/recycling program
- › Reduce energy usage
- › Sustainable packaging
- › Solar panels
- › Energy-efficient lighting

NOTABLE ACHIEVEMENT

With 100-percent low-emission tractor fleets, NFI produces the least emissions possible and increased miles per gallon by at least 2 percent each year for the past eight years.

NORTHWEST SEAPORT ALLIANCE

nwseaportalliance.com

The partnership between the ports of Tacoma and Seattle reduces port-related emissions through clean truck programs, shore power at terminals, retrofitted cargo-handling equipment, and cleaner-burning ship fuels.

CURRENT GREEN INITIATIVES

- › Reduce greenhouse gas emissions
- › Alternative fuels/energy sources
- › Reuse/recycling program
- › Reduce energy usage
- › Energy-efficient lighting

NOTABLE ACHIEVEMENT

The alliance achieved a 95-percent reduction in stormwater zinc and copper at terminal operations; and reduced diesel emissions 47 percent from trucks, 51 percent from trains, and 88 percent from ships.

PECO PALLET

pecopallet.com

PECO's core business is built on a foundation of reusing and recycling pallets to reduce waste. PECO cycles pallets an average of four times per year and carefully maintains them to prolong their useful life.

CURRENT GREEN INITIATIVES

- › Reduce greenhouse gas emissions
- › Reuse/recycling program
- › Reduce energy usage
- › Sustainable packaging
- › Sustainably source materials

NOTABLE ACHIEVEMENT

PECO block pallets allow true four-way entry for more efficient stacking and transportation, which can significantly reduce fuel costs and reduce shippers' carbon footprint.

OLD DOMINION FREIGHT LINE

odfl.com

Old Dominion Freight Line continues to invest in its newest 2018 fuel-efficient fleet. It is retrofitting all 230 service centers with LED lights. Other green initiatives include fully equipped technology, such as onboard computers that track mpg and tire inflation systems that increase fuel mileage and reduce emissions. Its service center shops continue to convert to sole recycling water for drive-through truck washes, where more than 1,000 gallons of water are consistently on reserve.

CURRENT GREEN INITIATIVES

- › Reduce greenhouse gas emissions
- › Reuse/recycling program
- › Use wastewater
- › Reduce energy usage
- › Solar panels
- › Energy-efficient lighting
- › Moved from propane-powered to battery-powered maintenance PM carts



NOTABLE ACHIEVEMENT

Old Dominion's fleet is 100-percent low rolling resistance, increasing fuel efficiency and reducing emissions. 100 percent of its trailers (roughly 23,000) are equipped with aerodynamic skirts to lower wind resistance and conserve fuel.



ORBIS CORPORATION

orbiscorporation.com

ORBIS analyzes a customer's systems, designs a solution, and executes a reusable packaging program for cost savings and sustainability. Using lifecycle assessments to compare reusable and single-use packaging, ORBIS helps shippers reduce environmental impact.

CURRENT GREEN INITIATIVES

- › Reduce greenhouse gas emissions
- › Reuse/recycling program
- › Reduce energy usage
- › Sustainable packaging
- › Sustainably source materials

NOTABLE ACHIEVEMENT

ORBIS helps shippers leverage lifecycle assessment data to make sustainable supply chain changes.



PORT OF LONG BEACH

polb.com

Guided by its award-winning Green Port Policy, the port is reducing harmful air emissions from port-related operations, improving water quality in the harbor, protecting marine wildlife, and implementing environmentally sustainable practices.

CURRENT GREEN INITIATIVES

- › Reduce greenhouse gas emissions
- › Alternative fuels/energy sources
- › Reuse/recycling program
- › Use wastewater
- › Reduce energy usage
- › Sustainably source materials

NOTABLE ACHIEVEMENT

The Port of Long Beach notched clean air records in its latest study of air pollution emissions, including an 88-percent reduction in diesel particulate matter.

PENSKE LOGISTICS

penskelogistics.com

In addition to helping customers go green, Penske benchmarks sustainability efforts against its competitors/customers, performs an annual GHG emission inventory, discloses its GHG emissions information to the Carbon Disclosure Project, and conducts energy audits/analysis to identify opportunities to save money and reduce carbon footprint. The company upgraded to more efficient fluorescent and LED lighting, and participates in the EPA's Green Power Partnership to purchase renewable energy credits.

CURRENT GREEN INITIATIVES

- › Reduce greenhouse gas emissions
- › Alternative fuels/energy sources
- › Reuse/recycling program
- › Reduce energy usage
- › Solar panels
- › Energy-efficient lighting

NOTABLE ACHIEVEMENT

The purchase of renewable energy credits resulted in avoiding more than 10,542 MT of CO₂. Penske has reported a year-over-year reduction in metric tons of CO₂/mile for its fleet since 2012.

PORT OF LOS ANGELES

portoflosangeles.org

Utilizing the tenets of sustainability, the port works toward the best interests of the community, environment, and economy. It practices these principles through integral considerations during planning, design, and construction, and throughout operations and maintenance of port facilities and structures.

CURRENT GREEN INITIATIVES

- › Reduce greenhouse gas emissions
- › Alternative fuels/energy sources
- › Reuse/recycling program
- › Use wastewater
- › Reduce energy usage
- › Sustainably source materials

PERFORMANCE TEAM

performanceteam.net

A SmartWay partner since 2008, Performance Team continues to undertake green initiatives. PT's entire fleet has SmartWay-approved tires and uses trailer skirts and under trays to improve fuel efficiency. PT also utilizes on-demand packaging and works with corridor recycling to help recycle and reduce obsolete hardware in its facilities.

CURRENT GREEN INITIATIVES

- › Reduce greenhouse gas emissions
- › Alternative fuels/energy sources
- › Reuse/recycling program
- › Use wastewater
- › Reduce energy usage
- › Sustainable packaging
- › Sustainably source materials
- › Solar panels
- › Energy-efficient lighting

NOTABLE ACHIEVEMENT

In the past seven years, Performance Team transloaded more than 340,000 containers. Using a 3:2 compression standard, this translates into approximately 230,000 outbound trailers and a carbon reduction footprint of 30 percent.



NOTABLE ACHIEVEMENT

To advance zero-emission technologies throughout the port complex, the Port of Los Angeles partners with terminal operators to apply for state and federal funding to demonstrate and deploy cleaner technologies.

PORT OF SAN DIEGO

portofsandiego.org

All heavy-duty trucks accessing the Port of San Diego maritime terminals to pick up or drop off cargo must comply with clean air requirements under the State of California's Drayage Truck Regulation. The port's Vessel Speed Reduction Program is a voluntary strategy to reduce air pollutants and greenhouse gas emissions from ships by reducing speeds to 12 knots in the vicinity of San Diego Bay.

CURRENT GREEN INITIATIVES

- › Reduce greenhouse gas emissions
- › Alternative fuels/energy sources
- › Reuse/recycling program
- › Use wastewater
- › Reduce energy usage
- › Sustainable packaging
- › Sustainably source materials
- › Solar panels
- › Energy-efficient lighting

NOTABLE ACHIEVEMENT

The Port of San Diego was among the first U.S. ports to adopt a Climate Action Plan.

PITT OHIO

pittohio.com

PITT OHIO looks to see how it can do business differently by partnering with customers, vendors, and community members. The company has uncovered innovations in renewable energy over the past two years, and has installed eight wind turbines and 700 solar panels in its new Cleveland facility. Its long-term goal is to generate enough power to charge electric trucks.

CURRENT GREEN INITIATIVES

- › Reduce greenhouse gas emissions
- › Alternative fuels/energy sources
- › Reuse/recycling program
- › Reduce energy usage
- › Solar panels
- › Energy-efficient lighting
- › Wind power

NOTABLE ACHIEVEMENT

In 2017, PITT OHIO reduced overall electricity kWh by 6 percent, and specifically at its Pittsburgh facility, reduced consumption by 25 percent through implementing its DC powered, renewable energy micro-grid.



PORT OF BALTIMORE

mpa.maryland.gov

The Maryland Port Administration (MPA) is committed to meeting obligations for improved air and water quality, reduction of impacts to the Patapsco River and the Chesapeake Bay, and sound environmental management for dredging projects. MPA is working to reduce diesel emissions, manage stormwater responsibly, become more energy efficient, and offset environmental impacts from port operations with green projects that meet stewardship goals.

CURRENT GREEN INITIATIVES

- › Reduce greenhouse gas emissions
- › Alternative fuels/energy sources
- › Reuse/recycling program
- › Use wastewater
- › Reduce energy usage
- › Sustainably source materials

NOTABLE ACHIEVEMENT

The port has removed all underground storage tanks, retrofitted sand filters, wetlands, wet swales, and bioretention structures at several terminals, installed several engineered stormwater quality treatment technologies featuring pretreatment and filtering systems, and created hundreds of acres of wetlands and wildlife habitat.



PORT OF PORTLAND

portofportland.com

The Port of Portland has reduced diesel particulate matter by 76 percent from its 2000 level for operations it controls. It recently installed an additional 42 electric pre-conditioned air units to keep aircraft cool on hot days at Portland International Airport gates. Since 2005, the port has fueled container-handling equipment with ultra-low sulfur diesel and improved exhaust systems for cleaner emissions.

CURRENT GREEN INITIATIVES

- › Reduce greenhouse gas emissions
- › Alternative fuels/energy sources
- › Reuse/recycling program
- › Use wastewater
- › Reduce energy usage
- › Sustainably source materials

NOTABLE ACHIEVEMENT

Efforts to minimize idling vehicles and traffic at Portland International Airport and other properties have dropped carbon monoxide output by more than two tons annually.

PORT OF OAKLAND

portofoakland.com

The Port of Oakland studies all the impacts of a thriving economy to mitigate unintended negative impacts, including pollution (air, water, noise) and infrastructure wear and tear. As a result, the port is involved in dozens of innovative programs, thanks to an array of creative, problem-centered partnerships and collaborations that work to identify, quantify, and meet environmental challenges.

CURRENT GREEN INITIATIVES

- › Reduce greenhouse gas emissions
- › Alternative fuels/energy sources
- › Reuse/recycling program
- › Use wastewater
- › Reduce energy usage
- › Sustainably source materials

NOTABLE ACHIEVEMENT

The Port of Oakland's energy-efficiency rebate program provides tenants the port serves as a municipal utility the opportunity to replace their energy-inefficient electric equipment and fixtures. The port's energy rebate program encourages the implementation of energy-saving initiatives in the facility.



RR DONNELLEY

rrdonnelley.com

RRD continuously strives to improve global environmental health and safety performance by using practices that protect employees and the environment, including reducing emissions, developing recycling and pollution prevention opportunities, and using paper, energy, and other resources more efficiently.

CURRENT GREEN INITIATIVES

- › Reduce greenhouse gas emissions
- › Reuse/recycling program
- › Use wastewater
- › Reduce energy usage
- › Sustainable packaging
- › Energy-efficient lighting

NOTABLE ACHIEVEMENT

RRD is pursuing energy-efficiency programs involving several different technologies that it is installing in plants worldwide. The company reuses, repairs, repurposes, and recycles its process materials and byproducts to limit what enters the waste stream. RRD works with clients and suppliers to make packaging environmentally responsible, and collaborates to help minimize their combined effects on the environment.

RINCHEM

rinchem.com

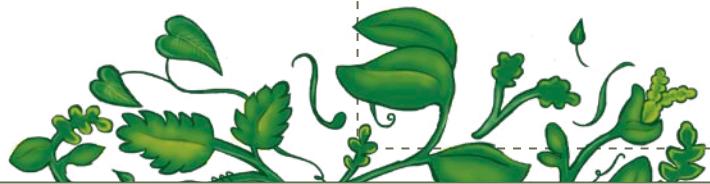
Rinchem is actively working to replace lighting with energy-efficient resources at all warehouse and administrative sites. A special focus on energy consumption at administrative sites includes sustainable office supplies and overall energy consumption best practices. Rinchem's transportation team adds only energy-efficient solutions for new assets, and requires its transportation partners to have a green initiative in place before working with them.

CURRENT GREEN INITIATIVES

- › Reduce greenhouse gas emissions
- › Reuse/recycling program
- › Use wastewater
- › Reduce energy usage
- › Sustainable packaging
- › Energy-efficient lighting

NOTABLE ACHIEVEMENT

Energy-efficient lighting installed at Rinchem's first site saved 118 tons of CO₂ generated by fossil fuels. The energy-efficient lighting saves 248,230 kWh per year per site.



PUROLATOR

purolator.com

Purolator trains its drivers on eco-driving practices, continues to find new and innovative ways to reduce energy consumption, and offers environmentally friendly packaging options. The company understands the need to meet regulatory requirements and ensure environmental compliance.

CURRENT GREEN INITIATIVES

- › Reduce greenhouse gas emissions
- › Alternative fuels/energy sources
- › Reuse/recycling program
- › Use wastewater
- › Reduce energy usage
- › Sustainable packaging
- › Sustainably source materials
- › Solar panels
- › Energy-efficient lighting

NOTABLE ACHIEVEMENT

Purolator has the largest hybrid electric vehicle fleet of any freight and parcel solutions provider in North America, and has been conducting an annual greenhouse gas inventory since 2007.

RAYMOND CORPORATION

raymondcorp.com

Raymond's sustainability initiatives include upgrading software and controllers to an automated logic and lighting controls program to zone and control factory and office lighting, heating, and air conditioning based on utilization; incorporating occupancy sensors to eliminate wasted lighting in main and facility offices; using water reclamation from the powder-coat paint system for utility water requirements; and installing supplemental active solar lighting.

CURRENT GREEN INITIATIVES

- › Employing five workers solely responsible for minimizing the waste stream

NOTABLE ACHIEVEMENT

Transitioning to propane from #2 fuel oil for the main boiler can eliminate the burning of up to 50,000 gallons of oil—almost twice the CO2 emissions of propane.



SCHNEIDER

schneider.com

Recent accomplishments include: improving fuel efficiency 12.5 percent since 2008; reducing fuel consumption 500,000 gallons between 2015 and 2016; reducing CO2 emissions by 4 percent, NOx by 7 percent, and particulate matter by 23 percent. Schneider is a charter member of the SmartWay program and is an eight-time SmartWay Award of Excellence winner.

CURRENT GREEN INITIATIVES

- › Reduce greenhouse gas emissions
- › Alternative fuels/energy sources
- › Reuse/recycling program
- › Use wastewater
- › Reduce energy usage
- › Sustainable packaging
- › Sustainably source materials
- › Energy-efficient lighting

NOTABLE ACHIEVEMENT

Schneider is eliminating the need for idling by equipping every new solo truck with auxiliary power units. This will reduce fuel used during idling by 85 percent.

RYDER

ryder.com

Ryder has added electric vehicles (EVs) to its fleet, and has leased EVs to customers to assist them in reaching their sustainability goals. The company has also equipped several maintenance facilities across North America to meet the service and charging requirements for commercial EVs. Ryder has also achieved more than 200 million miles with its natural gas vehicle fleet operations.

CURRENT GREEN INITIATIVES

- › Reduce greenhouse gas emissions
- › Alternative fuels/energy sources
- › Reuse/recycling program
- › Reduce energy usage
- › Energy-efficient lighting,

NOTABLE ACHIEVEMENT

Ryder has strategic partnerships with several electric vehicle manufacturers to provide distribution and maintenance services. The company has also deployed EVs in its rental and lease fleets.



RUAN

ruan.com

Three-time SmartWay Excellence Award winner Ruan utilizes lightweight trucks and trailers, proven aerodynamic solutions, auto-inflation tire systems, onboard monitoring, and auto-shift power units. Ruan also partners with and contributes to the Clean Cities annual study on diesel reduction. The company is one of only three for-hire fleets in the National Clean Fleets Partnership.

CURRENT GREEN INITIATIVES

- › Reduce greenhouse gas emissions
- › Alternative fuels/energy sources
- › Reuse/recycling program
- › Reduce energy usage
- › Energy-efficient lighting
- › Member of CA SB1383 Subgroup #2 (Fostering Markets for Digester Projects)
- › Customer on-farm methane digester produces renewable fuel for Class-8 CNG tractor fleet
- › RNG fuel

NOTABLE ACHIEVEMENT

Ruan has run nearly 90 million miles on natural gas power since 2011, including 55 million miles using renewable natural gas from biodigested cattle manure.

SOUTH CAROLINA PORTS AUTHORITY

scspa.com

SCPA strives to be the greenest port in the Southeast through low gate turn times for truckers and efficient terminal operations; fully electrified cranes and terminal transloading equipment; reduction of idling on and near port property; 100-percent compliance with air quality standards and voluntary air monitoring; and the Clean Truck Program, requiring a 1994/newer engine for trucks entering the port. The port is a member of the Southeastern Diesel Collaborative and Coalition for Responsible Transportation, and supports local environmental groups.



CURRENT GREEN INITIATIVES

- › Reduce greenhouse gas emissions
- › Alternative fuels/energy sources
- › Reuse/recycling program
- › Reduce energy usage
- › Sustainably source materials
- › Energy-efficient lighting
- › Offer a food truck program on terminal to reduce personal vehicle trips during daytime meals

NOTABLE ACHIEVEMENT

Development of an inland port network consisting of two facilities in South Carolina—Greer and Dillon—that increase freight tonnage moved by rail per gallon of fuel.

TRANSGROUP GLOBAL LOGISTICS

transgroup.com

TransGroup's external and internal sustainability activities are encompassed in its TransNeutral green program. TransGroup has been a SmartWay member since 2007. Its internal company sustainability initiatives include energy conservation, recycling, waste reduction, and paperless initiatives.

CURRENT GREEN INITIATIVES

- › Reduce greenhouse gas emissions
- › Alternative fuels/energy sources
- › Reuse/recycling program
- › Reduce energy usage
- › Energy-efficient lighting
- › Paperless initiatives

NOTABLE ACHIEVEMENT

TransGroup was the first third-party logistics provider to become a SmartWay partner in 2007.

SEABOARD MARINE

seaboardmarine.com

Current initiatives include recycling used batteries and scrap metal from repaired containers, equipment, and ships. Seaboard's modern refrigerated container fleet uses ozone-friendly refrigerants that also increase energy efficiency. The carrier continually evaluates emerging technologies to reduce the environmental impact of its vessels, such as adjusting and replacing propellers and rudder bulbs with modern designs. Seaboard Marine works exclusively with accredited environmental firms for disposal of used tires and any items or substances that contain oil.

CURRENT GREEN INITIATIVES

- › Reduce greenhouse gas emissions
- › Alternative fuels/energy sources
- › Reuse/recycling program
- › Use wastewater

- › Reduce energy usage
- › Sustainable packaging
- › Sustainably source materials
- › Energy-efficient lighting

SHIPPERS GROUP

shipperswarehouse.com

Shippers Group removed high-emissions forklifts from its fleet, and removed 206 metric tons of non-greenhouse gas emissions from the atmosphere. As part of its Zero Landfill Initiative, it recycled 63 tons of cardboard, plastic, and paper, and reused 4,703 units of dunnage and air bags. Shippers Group's Wilmer DC is equipped with high-efficiency electric chillers and T5 lighting with motion sensors.

CURRENT GREEN INITIATIVES

- › Reduce greenhouse gas emissions
- › Alternative fuels/energy sources
- › Reuse/recycling program
- › Use wastewater
- › Reduce energy usage
- › Sustainable packaging
- › Sustainably source materials
- › Energy-efficient lighting

NOTABLE ACHIEVEMENT

Shippers Group has been part of the Texas Emission Reduction Plan since 2007, and removed high-emissions forklifts from its fleet.



NOTABLE ACHIEVEMENT

Seaboard Marine recently added 1,370 high cube refrigerated units to its refrigerated container fleet, of which 415 are equipped with special controlled atmosphere technology to meet the needs of perishable import/export shippers.

TRANSPORTATION INSIGHT

transportationinsight.com

Transportation Insight's integrated Enterprise Logistics solutions leverage multi-modal insight, expertise, and technology-driven data analysis to help clients improve supply chain performance. Employing Extended LEAN continuous improvement methodology for the end-to-end supply chain helps clients improve and maintain operational efficiencies as market demands change. Transportation Insight is an ongoing participant in the SmartWay Partnership program.

CURRENT GREEN INITIATIVES

- › Reduce greenhouse gas emissions
- › Reuse/recycling program
- › Reduce energy usage
- › Sustainable packaging
- › Energy-efficient lighting

NOTABLE ACHIEVEMENT

Transportation Insight engineers data-driven Enterprise Logistics solutions that eliminate supply chain waste and optimize routes.



SEALED AIR

sealedair.com

Sealed Air sets specific environmental targets for energy, greenhouse gases, water, and waste. The company continues to improve its plans to address environmental impact and cost reduction goals.

CURRENT GREEN INITIATIVES

- › Reduce greenhouse gas emissions
- › Alternative fuels/energy sources
- › Reuse/recycling program
- › Use wastewater
- › Reduce energy usage
- › Sustainable packaging
- › Sustainably source materials
- › Energy-efficient lighting

NOTABLE ACHIEVEMENT

In 2017, Sealed Air reduced energy intensity by 13.7 percent, reduced greenhouse gases by 21 percent, and reduced water intensity by 16.7 percent. It also diverted 71.3 percent of landfill waste (reduction compared to 2012 baseline).

UNION PACIFIC RAILROAD

up.com

Union Pacific continuously improves its management systems and operating efficiency, develops and invests in technology to reduce its environmental footprint, and works to increase fuel efficiency, reduce air emissions and energy consumption, and recycle used materials.

CURRENT GREEN INITIATIVES

- › Reduce greenhouse gas emissions
- › Alternative fuels/energy sources
- › Reuse/recycling program
- › Reduce energy usage
- › Sustainably source materials
- › Solar panels
- › Energy-efficient lighting

NOTABLE ACHIEVEMENT

Union Pacific set its best-ever fuel consumption rate in 2017, improving by 1.7 percent. Since 2000, it has saved nearly 2.9 billion gallons of fuel.



TOTE MARITIME

totemaritime.com

TOTE Maritime spearheads many environmental initiatives, including converting vessels to liquefied natural gas power. TOTE continually seeks ways to reduce its environmental impact through innovative programs, many of which stem from the ideas of its employees.

CURRENT GREEN INITIATIVES

- › Reduce greenhouse gas emissions
- › Alternative fuels/energy sources
- › Reduce energy usage

NOTABLE ACHIEVEMENT

In 2017, JAX LNG, TOTE Maritime's LNG supplier, received a Letter of Acceptance from the U.S. Coast Guard for the operation of its waterfront LNG facility and the approval to conduct barge-to-ship LNG bunkering operations with TOTE Maritime's Marlin Class ships and its LNG barge, *Clean Jacksonville*.

TRANSPLACE

transplace.com

Transplace executed 12.8 billion ton miles on carriers registered with the SmartWay program in 2016, and procured 96 percent of ton miles for managed transportation business through SmartWay-registered carriers.

CURRENT GREEN INITIATIVES

- › Mode conversion/consolidation
- › Alternative fuels/energy sources

NOTABLE ACHIEVEMENT

Transplace helps shippers reduce emissions through use of more fuel-efficient transportation modes and the overall reduction in number of shipments needed through consolidation and co-loading arrangements.

WSI (WAREHOUSE SPECIALISTS, LLC)

wsinc.com

WSI employs natural landscaping and green space to minimize stormwater runoff and surface pollutants, and uses electric-powered equipment when possible. An active recycling program at all facilities amounts to thousands of tons of materials recycled each year.

UPS

ups.com

UPS continues its progress toward environmental goals: reducing absolute GHG emissions in global ground operations 12 percent by 2025, using electricity from renewable sources (25 percent by 2025), using alternative fuel as a percentage of total ground fuel (40 percent by 2025).

CURRENT GREEN INITIATIVES

- › Reduce energy usage
- › Reuse/recycling program
- › Reduce greenhouse gas emissions
- › Alternative fuels/energy sources

NOTABLE ACHIEVEMENT



As of 2016, UPS reached one billion cleaner miles through

its alternative fuel and advanced technology vehicles fleet.

CURRENT GREEN INITIATIVES

- › Reduce energy usage
- › Reuse/recycling program
- › Reduce greenhouse gas emissions
- › Alternative fuels/energy sources
- › Energy-efficient lighting

NOTABLE ACHIEVEMENT

WSI received Responsible Care certification from the American Chemistry Council for its warehouse facility in Baytown, Texas, while its overall chemical unit passed program recertification.

WERNER ENTERPRISES/ WERNER LOGISTICS

werner.com

A four-time SmartWay Excellence Award winner, Werner has driven more than 17 billion miles since implementing ELDs 20 years ago, reducing out-of-route miles to save fuel and cut emissions. Running ELDs eliminated paper log books to save trees and reduce waste.

CURRENT GREEN INITIATIVES

- › Reduce greenhouse gas emissions
- › Alternative fuels/energy sources
- › Reuse/recycling program
- › Reduce energy usage
- › Energy-efficient lighting

NOTABLE ACHIEVEMENT

Since 2007, Werner has saved more than 203 million gallons of diesel fuel and reduced CO2 emissions by more than 2.2 million tons.



CURRENT GREEN INITIATIVES

- › Reduce greenhouse gas emissions
- › Alternative fuels/energy sources
- › Reuse/recycling program

VERSACOLD

versacold.com

VersaCold's environmental efforts include retrofitting facilities with high-efficiency lighting, roofing, and charging systems; installing rainwater and defrost condensation collection systems and reduced flow faucets; implementing recycling programs, and expanding the use of more efficient refrigerants, such as ammonia.

CURRENT GREEN INITIATIVES

- › Reduce greenhouse gas emissions
- › Alternative fuels/energy sources
- › Reuse/recycling program
- › Use wastewater
- › Reduce energy usage
- › Energy-efficient lighting

NOTABLE ACHIEVEMENT

A partnership with Bullfrog Power provides a renewable energy purchase, allowing VersaCold to displace 54.8 metric tons of CO2 annually, or 4.6 metric tons of CO2 monthly.



- › Reduce energy usage
- › Energy-efficient lighting
- › Installed white roof on corporate headquarters to reflect UV and cool building

NOTABLE ACHIEVEMENT

U.S. Xpress has worked with Nikola Motor Company, supporting efforts to design, develop, and produce hydrogen fuel cell/electric trucks.

XPO LOGISTICS

xpo.com

XPO was awarded “Objectif CO2” by the French government and committed to reducing its French fleet emissions by 6 percent, starting in 2016 and ending in 2018. Many XPO Logistics facilities are ISO140001 certified. The 3PL recycles millions of electronic components and batteries annually through reverse logistics operations, and monitors emissions from forklifts at logistics sites, with protocols in place to take immediate corrective action if needed. Drivers are trained in responsible eco-driving and fuel usage techniques. XPO is experimenting with diesel alternatives, such as diesel-electric hybrids.

CURRENT GREEN INITIATIVES

- › Reduce greenhouse gas emissions
- › Alternative fuels/energy sources
- › Reuse/recycling program
- › Reduce energy usage
- › Sustainable packaging
- › Sustainably source materials
- › Solar panels
- › Energy-efficient lighting
- › Network optimization

NOTABLE ACHIEVEMENT

XPO is 90 percent compliant EuroV, EEV, and EuroVI. Its average truck age is 2.5 years. The 3PL invested \$90 million in new trucks in 2018 (North America); and used the first LNG-powered trucks in Paris suburbs. It is targeting a 20-percent reduction in CO2 emissions.

YUSEN LOGISTICS

yusen-logistics.com

Yusen Logistics (Americas) upgraded its Carson, California, facility with energy-efficient lighting and a white roof. Previously installed in the warehouse, the company is expanding the LED system to include the office and exterior yard. The white roof keeps the warehouse cool by deflecting up to 80 percent of sunlight, resulting in significant energy savings. Yusen Logistics is rolling out lithium-battery powered forklifts in Carson, as well as at its Sumner, Washington, facility. The lift trucks produce zero byproducts, resulting in fuel and repairs cost savings.

CURRENT GREEN INITIATIVES

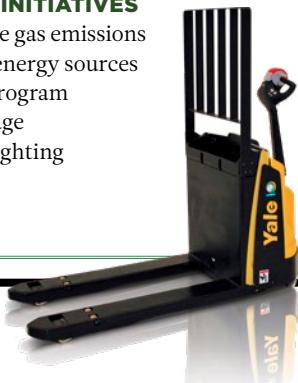
- › Reduce greenhouse gas emissions
- › Alternative fuels/energy sources
- › Reduce energy usage
- › Solar panels
- › Energy-efficient lighting

NOTABLE ACHIEVEMENT

An investment in more than 30 lithium-ion battery powered forklifts will result in an average energy savings of 16 percent per truck.

NOTABLE ACHIEVEMENT

Yale is one of the largest volume producers of zero-emissions electric lift trucks in North America.



YRC WORLDWIDE

yrcw.com

YRC Worldwide companies are past recipients of the SmartWay Environmental Excellence Award, and the EPA named its team a SmartWay Champion. The company’s fleet strategy centers on equipment use, cleaner-burning fuels, and fuel-efficient engines. YRC has self-imposed restrictions on power-unit idling to reduce emissions and save fuel, and it uses biodiesel fuel, which burns cleaner than petroleum-based diesel. A priority continues to be replenishing the fleet with clean diesel trucks while testing other options.

CURRENT GREEN INITIATIVES

- › Reduce greenhouse gas emissions
- › Alternative fuels/energy sources
- › Reuse/recycling program
- › Reduce energy usage
- › Energy-efficient lighting

NOTABLE ACHIEVEMENT

Since the beginning of 2015, YRC has replaced 20 percent of its approximately 14,000 tractors and 15 percent of its approximately 44,000 trailers. About 70 percent of line-haul vehicles will be three years old or newer by mid-2018. All 53-foot and 28-foot trailers entering the fleet are equipped with aerodynamic skirts and fuel-efficient tires. And, YRC caps speed below 65 mph on all units, which reduces fuel consumption and emissions.





Combat Cargo: The Challenges of Military Logistics

Think you're a project cargo master? If you really want to be all you can be, try moving difficult cargo into an area with terrible infrastructure and hostile combatants, something military logisticians do every day.

By: Jason McDowell



Everyone wants to be a POG, until there's POG stuff to be done. That's an old—but accurate—military joke. In the U.S. military, officers and enlisted personnel filling non-combat roles are jokingly referred to as POGs: Persons Other Than Grunts.

Military logisticians—or loggies—may be POGs, but they face constant disruptions and supply chain threats. And these days, being a POG doesn't mean you won't see combat. Keeping installations and troops supplied, especially in hard-to-reach areas, takes intense training and no small amount of grit.

The Wisconsin National Guard's 32nd Infantry Brigade Combat Team served extensively in the Operation Iraqi Freedom combat theater. They quickly became adept at moving hazardous shipments through potentially dangerous areas.

"We routinely ran convoys of fuel tankers from Kuwait north through Baghdad, and to Balad, and even farther north and east into more remote places of Iraq," says Major Bill Barthen, brigade S-4 and logistics officer for the 32nd. "It wasn't that the cargo was too difficult, but our anxiety over our vulnerability to possible attack and how to segregate potential fires kept us on our toes."

Proper training is crucial to successful operations in dangerous areas. Between deployments at home and between missions while overseas, troops train extensively so they know what to do when the worst happens.

"We practiced how to quickly extract vehicle operators and passengers, whether they were conscious or unconscious,

from trucks," Barthen says. "We practiced on American contractors and foreign country nationals. The language barriers and various operational states of their equipment made it a unique challenge, which we addressed well."

PREPARING FOR THE UNEXPECTED

"We constantly rehearse expected issues to improve our response time," he adds. "For example, tires pop and vehicles break down. Leaders and maintenance personnel have little time to assess the situation and decide to repair on the spot or recover to a better, often safer area to address the broken equipment. Other soldiers take up defensive positions and secure the area, which often requires communicating with people of a different culture and language, to maintain a situation safe enough to remedy the problem and continue the mission."

"Where we are exposed to small arms fire, improvised explosive devices, or indirect fire from mortars, artillery, or aircraft, those battle drills become critical in maximizing time to save lives, recovering damaged equipment, and protecting the cargo," Barthen says. "Cargo such as fuel and ammunition can make the situation even more difficult."

The government also enlists assistance from contractors such as government services firm KBRwyle, which provides a wide range of supply chain management, transportation, and other professional services to the Department of Defense (DoD). Contractors also train to ensure the safety of their crews.



Security and safety concerns were thoroughly addressed before this Wisconsin Army National Guard convoy security deployment moved to Logistics Support Area Anaconda, near Balad, Iraq.

“Safety is always the priority concern,” says Ella Studer, senior vice president for KBRwyle’s logistics business. “We have safety processes for any environment or operating condition.

“Screening and vetting of local vendors and subcontractors is critical,” she notes. “In Iraq, Iraqi nationals must first obtain a Prime Minister National Operation Center (PMNOC) letter from the Iraqi government to obtain clearance into certain sites. Security experts perform assessments and report their findings, with recommendations to KBRwyle leadership.

“We take appropriate measures to mitigate any security concerns,” Studer adds. “Security considerations sometimes include military or contractor-provided escorts and aerial surveillance to ensure the safety of personnel and equipment.”

OFF THE ROAD AGAIN

Direct threats aside, critical shipments often move through areas with little standing infrastructure. The 32nd recently conducted classroom training where logisticians were asked to overcome obstacles that might obstruct humanitarian aid in a fictional disaster area in the Philippines.

“The scenario mandated we use mine-resistant vehicles, but our ad

hoc staff continued to advise our commander—the instructor—that we needed smaller, wheeled vehicles, and even boats to be successful in that environment,” says Barthen.

“Conditions such as steep dirt roads that became impassable in the frequent rains made the situation difficult,” he adds. “Congestion on narrow roads with two-way traffic, sharp corners, low power lines, and bridges that could not sustain the weight of our loaded vehicles made it challenging to find suitable routes for delivering humanitarian aid to villages damaged by typhoons or suffering food security and potable water issues.”

Bad roads, crumbled airstrips, or lack of port access aren’t the only problems that can arise. Complications can vary widely in specific areas of the world.

“KBRwyle adapts to each situation with knowledge of the geographical areas and operational conditions,” says Studer. “Challenges include obtaining qualified employees to execute each scenario, obtaining equipment durable in the operating environment, and coordinating deliveries with receiving entities that are likely to have competing priorities depending on operational conditions.”

Even in the United States, military shipments come with complications. Tanks, helicopters, and other large freight

must be moved between military installations, or by highway or rail to ports for shipment overseas. While U.S. infrastructure is arguably better than the average war or disaster area, it isn’t always convenient for moving over-sized cargo.

SPECIAL ASSIGNMENT

“Three assignments come to mind,” says Rob Hooper, CEO of third-party logistics company Atlantic Logistics, which provides specialized hauling services to the DoD. “The first two are movements of Sikorsky SH-60 Seahawks for the U.S. Navy within the state of Florida, on removable goose-neck (RGN) trailers.

“The helicopters are 52 feet long, 11 feet wide, and 12.5 feet high,” he explains. “The over-dimensional length of the helicopters required three-axle expandable lowboy trailers.

“The third is a Logistics Vehicle System Replacement cargo truck moved from Florida to South Carolina,” he says. “The truck measured 432 x 101 x 106 feet and weighed 53,500 pounds. We used a three-axle step-deck as a less expensive solution to an RGN.”

In the United States, project cargo moves aren’t uncommon. Pipeline sections, large equipment, zoo animals, or any number of other obscure shipments move through the U.S. transportation

network every day. The logistics challenges of domestic military and civilian shipments are often comparable.

“There’s an old expression that is sometimes true in the logistics business: parts is parts,” Hooper says. “The mechanics of the processes are often similar, but the shipping requirements are often different. They are more intricate when you have to coordinate a helicopter on a specialized trailer.”

On top of the usual challenges, however, DoD contractors must overcome myriad licensing and security roadblocks.

“The scrutiny you’re put through to become an approved services provider is generally greater than that in the private sector,” says Hooper. “Base access is also a challenge, because virtually all bases require extensive driver background checks. This slows the process.”

Even when military units move their own domestic shipments, logisticians face significant regulatory hurdles. Loggies frequently travel to obtain proper certifications on location at military installations, and participate in training through online modules and classroom instruction within their units.



Pailton engineers test the equipment it sells to the military to make sure it meets exacting standards and capabilities.

“Right now, we are in the process of identifying qualified re-fuelers to receive bulk fuel from a Defense Logistics Agency (DLA) vendor, then distribute it at points along a 400-mile convoy route,” says Barthen. “Each operator needs to be certified by unit leadership and validated by DLA before the vendor will schedule delivery.

“To enable the operation, we’re

ordering additional spill containment materials and coordinating with commercial landowners to conduct our refueling operations on their property,” he adds.

Military logisticians solve complicated problems quickly, are trained to overcome any challenge, and keep a cool head under pressure. That’s valuable in any logistics operation. ■

CARRYING THE LOAD

Military vehicles have come a long way from the jeeps and cargo trucks we see in old episodes of M.A.S.H. The trucks that move freight across war zones can’t just be functional, they must also be tactical.

“Armored vehicle capabilities have continued to take huge strides,” says Eric Sonahee, design and development engineer for Pailton Engineering, a provider of steering systems for armored military vehicles.

“Fuel economy, suspension, and armor are just three examples of areas that have significantly taken off in recent years.”

Technological advances in vehicle manufacturing have contributed to safer, more efficient vehicles. For example, Pailton collaborated with tier one vehicle manufacturers to provide lightweight steering systems that enabled a top speed of 70 mph for some tactical vehicles. The weight of components and armor left older military

vehicles with a top speed of 50 to 55 mph.

In addition to performance, quality is also crucial. An equipment failure in a combat zone isn’t just an inconvenience—it can mean life or death. Fortunately for our troops, we now live in a world of big data, and information gathered in the field and through tier one manufacturer testing can be used to design and build stronger, more reliable equipment.

“With enough vehicle data from our customers, we are able to compile a block testing program on our test rigs that match the same loads and frequencies of the real-life conditions,” Sonahee says. “This demonstrates the importance of collaboration, communication, and sharing data.

“Success in the industry has been driven by the vital collaboration between tier one manufacturers and suppliers as part of the design and testing process,” he adds. “We should celebrate this.”



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Chemical Logistics: The Price of Success

These are good times for chemical manufacturing in the United States. But an active market creates special challenges for companies that need to transport chemical products.

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The U.S. chemical industry is going strong, according to American Chemistry Council (ACC) figures released in late 2017. U.S. chemical production volume for 2017, excluding pharmaceuticals, would be 0.8 percent higher than in 2016, finds the ACC's annual industry study. ACC predicts further growth of 3.7 percent in 2018, 3.9 percent in 2019, and 3 percent in 2020.

Continued access to inexpensive shale gas, used for feedstock in the manufacturing process and for energy, gives U.S. chemical manufacturers an advantage over competitors in other locations, says the ACC. Companies have announced nearly 320 new chemical production projects in the United States, with a total value of more than \$185 billion, the organization says. Foreign investment accounts for 62 percent of that value.

The ACC also notes an increase in exports from the United States,

creating a \$32-billion trade surplus for chemicals, excluding pharmaceuticals, in 2017. Chemical exports totaled \$127 billion, and imports rose by 2.8 percent over 2017, reaching \$96 billion.

Along with low-cost feedstock, the U.S. chemical industry benefits from the strength of the general economy, which is driving greater demand for plastics and many other products made from chemicals. "We've seen a sustained upward trend that has continued to build steadily and progressively," says Mark Montanari, vice

president, chemical and oil and gas at Boston-based consulting firm Maine Pointe.

Companies that transport chemicals, or manage chemicals transportation, saw a spike in business in 2017 in the wake of several major hurricanes, including Harvey, which ravaged southern Texas in August of that year. "Some of the production facilities we were working with sustained damage," recalls Adam Kroupa, general manager of the ChemSolutions business at third-party logistics (3PL) provider C.H. Robinson in Eden Prairie, Minnesota.

As companies transferred production to alternate facilities, they needed to move component chemicals or arrange for suppliers to deliver to the new locations. "We

Chemical Logistics: The Price of Success



Miller Intermodal Logistics Services provides well-maintained, efficiently priced equipment, and responds quickly to shippers who need to lease bulk tank trailer storage and equipment.

were able to help those companies with their supply chain, and adjust their transportation needs,” Kroupa says.

On top of those temporary changes, the chemical industry has seen some longer-term adjustments to shipping strategies since the Panama Canal reopened in 2016.

“Imports from China that used to hit the West Coast are being delivered to Texas, where a lot of refining and chemical production facilities are located,” Kroupa says. “Many shipments are going to the East Coast as well.” Those changes mean less demand for over-the-road or intermodal transportation for chemicals from California, but more for tanker truck capacity near the ports of Texas, Georgia, and the Northeast.

Another trend is a move among some chemical manufacturers to develop a more distributed supply chain. “Instead of operating major plants that produce and source from one or two locations globally, some companies are trying to figure out how to create smaller,

boutique manufacturing that’s close to customers,” says Chuck Breinholt, president of Rinchem, an asset-based 3PL in Albuquerque that specializes in chemical and gas supply chains.

Like companies that supply components to auto manufacturers, these chemical firms try to locate plants in the same cities as some of their large customers, vastly reducing the need for outbound transportation.

“This move doesn’t necessarily benefit us as a 3PL,” says Breinholt. “It is smart business, however, if manufacturers can figure it out and can comply with and control safety and quality issues.”

The Big Squeeze

While greater demand for chemicals is good news for companies that sell and use those products, and for their logistics partners, the strong market also creates a big challenge—a serious capacity crunch.

Thanks to the ongoing driver shortage, tighter enforcement of

hours of service (HOS) regulations with electronic logging devices (ELDs), and a healthy economy, companies shipping all kinds of products find it hard these days to secure transportation capacity in popular lanes. For chemical shippers, the challenge is even greater.

That’s partly because so many chemicals are classified as hazardous materials (hazmat). In a tight market for drivers in general, the subset of drivers with hazmat certification is even tighter.

“The driver shortage is more acute because of the additional training that’s required to haul chemicals,” says Michael Notarangeli, executive vice president, logistics, at Maine Pointe. “Usually drivers in the chemical industry have more tenure, because they have more training and a good safety record.”

Such requirements make it tough to find new drivers for chemical loads when demand surges.

Making the situation tougher still, a federal regulation



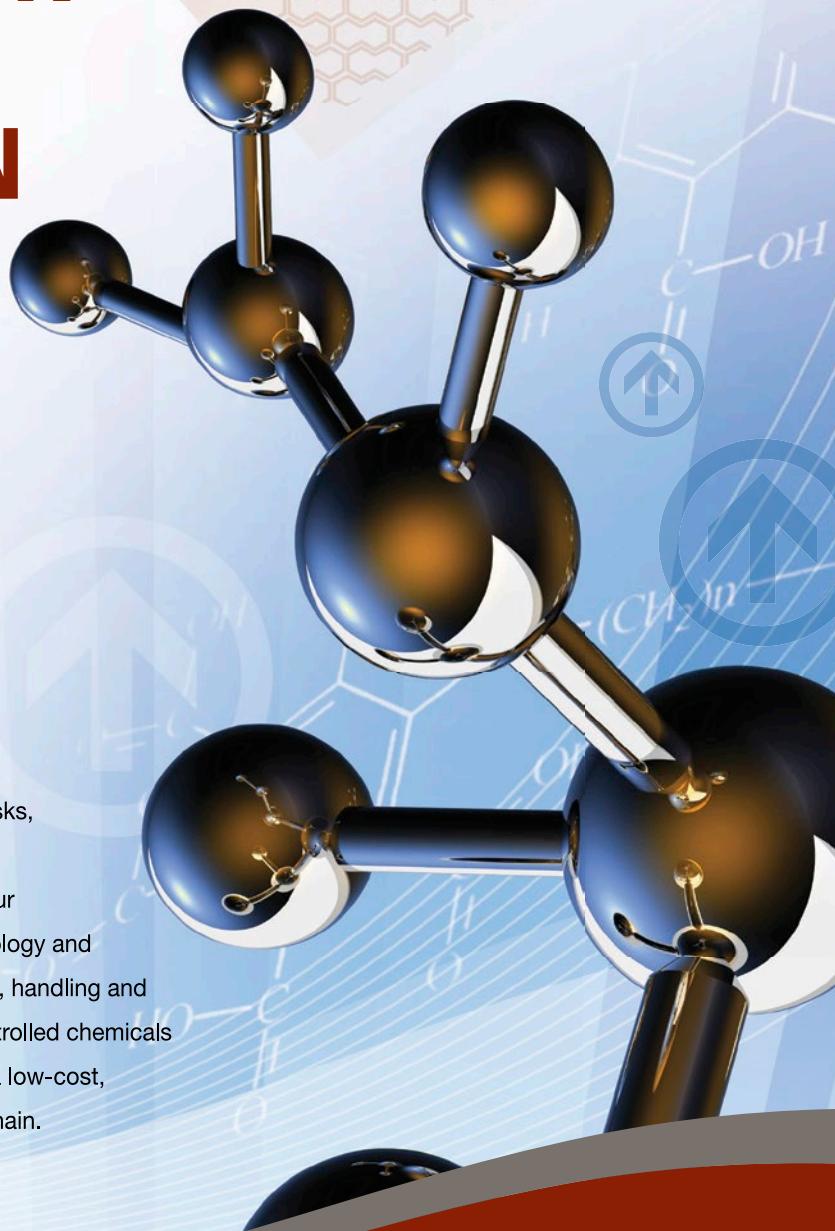
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established several years ago requires some drivers who haul hazardous chemicals in van trailers to add tanker endorsements to their commercial drivers' licenses (CDLs).

"If a shipment includes liquid or gaseous containers larger than 119-gallon capacity, and the aggregate combined volume in

those containers exceeds 1,000 gallons, you're required to get a tanker endorsement," says Greg Umstead, vice president of transportation management at 3PL Transplace in Frisco, Texas. "A lot of chemical shippers move large totes. If more than two of those totes are on the trailer, you need a tanker endorsement."

The ELD mandate, which took effect in December 2017 and came under full enforcement in April 2018, has not only tightened up the hours when drivers are available to work, but has also knocked some capacity directly out of the market.

While many carriers adopted ELDs years ago, the industry as a whole did not fully embrace the

Regulatory Relief

While some regulations make life harder for chemical companies, several recent moves by the federal government could give the industry a boost, according to Adam Kroupa, general manager of the ChemSolutions business at third-party logistics provider C.H. Robinson in Eden Prairie, Minnesota.

One helpful development is the Ozone Standards Implementation Act of 2017, which modifies the National Ambient Air Quality (NAAQS) standards in the Clean Air Act.

"If shippers in the marketplace don't collaborate quickly and efficiently with service providers, we will only run into other problems, especially in a contracting driver market," notes Mike Forbes, vice president of logistics solutions at Kenan Advantage Group (KAG) in North Canton, Ohio. KAG provides tank truck transportation and logistics management services for companies that ship fuel, chemicals, industrial gases, and food-grade products.

Collaboration can take many forms. At industry meetings, shippers and service providers have been sharing ideas about how to improve efficiency. Those discussions lead to specific initiatives that might involve several shippers or even several carriers.

For instance, in some cases, KAG and other bulk liquid carriers can establish programs to use each other's facilities to wash out their tanks after deliveries. "Not all carriers have wash stations at every location or key market," Forbes says. Such cooperation helps carriers bring greater value to their customers.

In other cases, a carrier and shipper might join forces to eliminate empty miles in the supply chain by tying outbound finished product shipments to inbound raw materials. "A lot of best-practice sharing and problem solving goes on through these collaborations," Forbes says.

Chemical shippers and their partners also need to think more broadly about their transportation options. "Everyone should continue to look for situations that

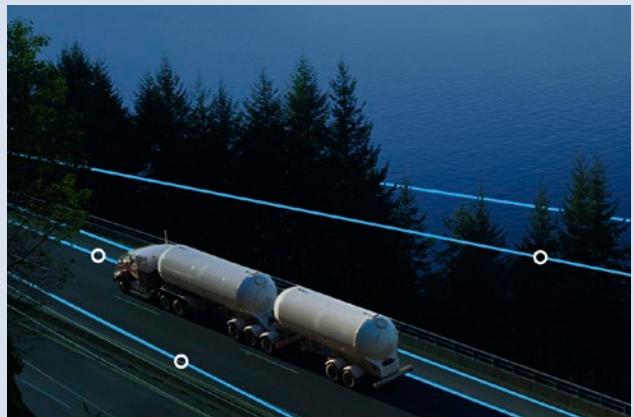
help shippers eliminate the 'lumpiness' over a delivery week," Forbes says. "We need to consider programs that influence end users to accept loads on broader time tables, versus an '8 a.m. Monday' standard."

In the ongoing quest for greater logistics efficiency, information technology continually offers new capabilities, such as "being able to anticipate and better provide predictability," Forbes says. "More and more, predictive analytics are becoming a component of decision making.

"In the past, what we called 'real-time data' wasn't actually real time; it had a lag to it in most situations," Forbes says. "Now, some of the applications collect and share data in actual real time. You can make predictions from that data, to change and anticipate different scenarios, which makes all parts of the supply chain more efficient and lean."

New mobile apps for operations, sales, and customer service also deliver benefits for chemical shippers and their transportation partners.

"For example, the apps let drivers provide more timely information about shipments or unplanned events that could impact cost and service," Forbes says. "Mobility also extends sales and customer service activity any time, anywhere."



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Chemical Logistics: The Price of Success

devices. Some trucking companies and drivers were not able to equip their trucks, and were hoping that stricter enforcement of HOS rules would never actually come to pass, says Steve Haskins, president and CEO of Miller Intermodal Logistics Services, Inc. (MILS), based in Ridgeland, Mississippi.

Carriers and drivers who anticipated government intervention, or who chose not to spend the capital to equip their fleets, vanished from the market. “With that void, the industry suddenly felt a vacuum of eight to 10 percent fewer trucks that simply aren’t on the road today,” he says.

The regulations have hit bulk tank transportation—including the transportation of chemicals—particularly hard. Drivers transporting bulk loads are experiencing significant dwell time waiting to load and unload. “Many drivers’ Department of Transportation (DoT) hours of service are consumed with waiting in staging areas to load and unload at chemical industry plant sites or tank farms,” Haskins says.

Haskins suggests that chemical shippers could assist with DoT compliance if they would be more flexible in their schedules. “Shippers expanding loading and delivery times with off-hour, night, or weekend options would provide additional windows for drivers to load and unload,” he says.

MILS provides transportation and logistics services with its own fleet of tank trucks, dry vans, and dedicated freight. In partnership with other carriers, MILS offers services that include a strong emphasis on tank truck, van, rail, and intermodal transportation. It provides supply chain management, order fulfillment, inventory management, a transload and warehouse facility, equipment leasing, and maintenance.

The company also offers specialized services, such as transporting goods in totes via dedicated less-than-truckload (LTL) or full truckload.

Carriers cannot solve capacity issues on their own, Haskins notes. Chemical shippers and receivers must come to the table with changes in the way they consume drivers’ time. “We must collaborate for better use of truck and driver resources, and invest in plant infrastructure and site improvements for safer and more efficient handling of trucks,” he says. “This, along with better scheduling, will bring the needed capacity results.”

Different Dynamics

Stricter enforcement of HOS regulations hasn’t had the same effect across the board, but rather has changed the dynamics for shippers tendering loads to carriers, says Reggie Dupré, CEO of Dupré Logistics Services in Lafayette, Louisiana. Given the limit on the number of hours a driver can work in one day, a carrier is more likely

to want a 450-mile load—requiring a one-day trip—than a load that has to move 750 miles, which takes about a day and a half.

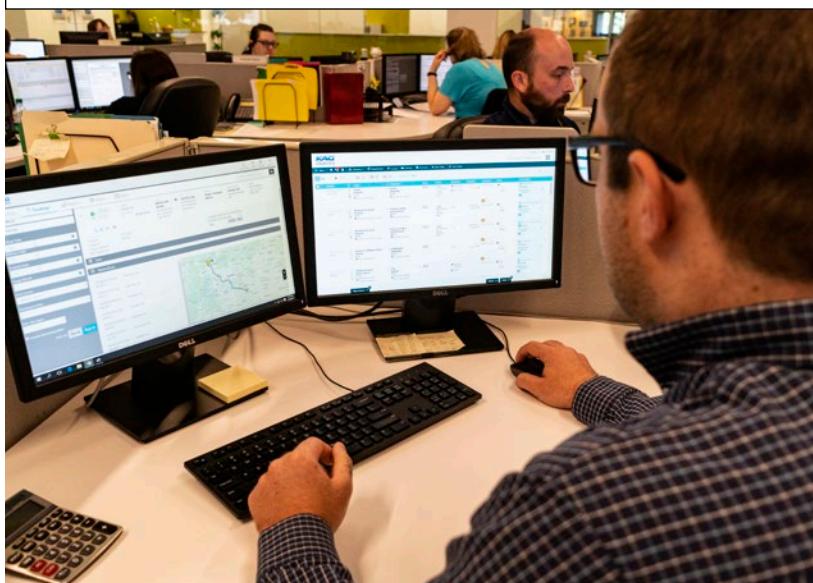
“We in the trucking industry are selecting the loads that give us the highest productivity,” he says. “Those in-between ranges are not as desirable.”

Shippers that can’t avoid those 750-mile runs pay a premium, Dupré says. Shippers are also working with carriers to eliminate those awkward runs.

“Some shippers are positioning inventories into regions and getting those regional depots supplied by either barge or rail,” he says. “And then they’re doing more local deliveries via truck. But a ‘local’ delivery could still be less than 500 miles.”

Dupré Logistics focuses largely on the chemical and energy industries with three levels of service. The first level offers spot transportation via the company’s own fleet and through its trucking brokerage. The second provides managed transportation, and the third provides dedicated contract services.

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The Form Factor

Although chemicals often move in bulk containers, they may also move in barrels, totes, or custom-made packaging. The size and shape of these packages can make a significant difference in transportation and storage costs.

"Sometimes the packages are light, but tall, and cannot be stacked," says Chuck Breinholt, president of 3PL Rinchem in Albuquerque.

"And sometimes the configuration is too wide, so they cannot be placed side by side on a truck," he adds. "Or once they make it to a warehouse, their unique size doesn't fit the racking configuration."

Container sizes and packaging configurations can lead to ineffective space utilization, and wasted space costs money. So when companies source or design packaging for chemicals, they need to think about how the packaging will cube in transit, as well as in storage and at the ultimate destination.

"That can help them drive out unexpected and potentially significant costs," Breinholt says.



While strategies such as the use of regional depots can help shippers avoid some problems in over-the-road transportation, companies may also run up against other capacity challenges, ranging from congested ports to scarce space on the rails. "Domestic logistics services are at their maximum right now," Dupré says. "The collision between the increase in demand and the restricted supply is the biggest challenge that we and our customers face."

In part, today's capacity shortfall springs from an overabundance a few years back, when the economy was weak. "Everybody was forced to reduce their assets and service offerings to some extent because capacity levels were higher than demand," Dupré says. Now, service providers in all modes are scrambling to accommodate greater volumes.

Yet another factor complicating access to capacity for chemical shippers is the proliferation of mergers and acquisitions in the industry. "A lot of mid-level companies are joining up together," says Michael Clark, executive vice president, logistics, chemicals, and specialty products at KAG Logistics in North Canton, Ohio. "The strong keep getting stronger. And, in some cases, they demand a little more from their supply chains."

Larger companies with well-designed supply chain strategies have an advantage when it comes to capacity, Clark says. For example, rather than serve customers from one supply point, today a big company might ship product from multiple facilities.

"Big companies can take advantage of capacity, where it is, at any given time in the cycle," he says. Big companies also have greater clout in the marketplace.

In addition, larger chemical companies are becoming more

strategic in the way they use dedicated capacity and brokerage services. Consider a firm that uses dedicated capacity to handle its regular volume, but then sees a surge in demand due to a sales campaign. Rather than pull trucks from its contracted fleet or capacity from its traditional carrier partners to handle this extra volume, the company might make spot buys through a broker.

"In the past, larger companies had a fleet that traveled the same routes every day," Clark says. "Now, they're responding to the market much more quickly and creatively."

Longer Lead Times

Because capacity is so tight, especially for companies that need bulk tankers, shippers must start their transportation planning earlier. "Large bulk shippers used to have to give carriers three to five days notice," says Bob Daymon, senior vice president of operations at Transplace. "They're now being required to give 10 days notice."

Chemical shippers and their service partners use various strategies to beat the capacity crunch. For instance, they use information technology to anticipate the shipper's upcoming needs and locate capacity that meets specific requirements.

"We're investing more than \$150 million in technology in 2018 alone," says Kroupa. Those information systems help ChemSolutions find available trucks and match the right equipment to the right jobs.

"Our technology can look at freight that's being shipped and make sure it aligns with customer needs," he explains. "There's also a security aspect to align tank requirements with any commodity controls the customer has in place."

ChemSolutions uses its

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37

YEARS IN
BUSINESS



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683

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1050

TRAILERS



970

DRIVERS

33mo.

AVERAGE LIFE OF
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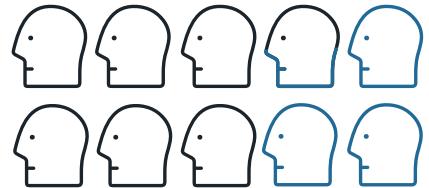


DRIVERS HAVE,
ON AVERAGE,

5 years
OF SERVICE

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Chemical Logistics: The Price of Success

transportation management system (TMS), called Navisphere, to spot trends and understand where capacity is available. “If we have capacity from a carrier in a specific area, for example, we can relay that information to customers and try to get ahead of things,” Kroupa says. “We can secure that equipment for them ahead of someone else.”

In addition, the company uses data analytics to understand customers’ shipping patterns and make preparations even before the customer places its orders.

Shippers also use technology to forge closer relations with carriers and 3PLs, so they can work together on challenges such as securing capacity. “Companies now have the ability to more tightly manage the supply chain with their partners, through the availability of data and better collaborative capabilities,” says Montanari.

Planning Ahead

Transplace uses technology to anticipate the needs of chemical shippers, start the planning process early, and find opportunities for continuous moves. “We want to know where the capacity is going, and how we can leverage it in a continuous loop,” Daymon says.

Predictive analytics help Transplace anticipate seasonal demand spikes, or shorter spikes due to upcoming storms. “We usually know two weeks out if a hurricane is coming. How do we prepare for that?” Umstead says.

Obviously, that strategy applies to all kinds of commodities. “But I see a lot of it specifically with chemical shippers,” he adds.

Also, Transplace works with carriers to lock in capacity for shippers who need it regularly. “We’ve established several dedicated fleets among our chemical



The KAG Logistics support center serves all its drivers, field operations personnel, and customers.

customers, not only for packaged chemicals, but also with bulk truck,” Umstead says.

In a third strategy, Transplace has created a preferred shipper program for chemical clients. The 3PL surveyed carriers to find out what they do or don’t like about serving particular shippers and then sent the results to its chemical customers. The survey shows, among other things, that carriers like to take loads from shippers that: get drivers in and out of their facilities fast; offer amenities such as wi-fi, lounges, and bathrooms; and let drivers park their trucks overnight.

“Some shippers have taken steps here to better accommodate drivers,” Umstead says.

The advent of ELDs is forcing shippers to become especially creative about eliminating driver waiting time. Shippers need to establish drop trailer programs, or else implement sophisticated load rack scheduling, Umstead says. In load rack scheduling, a company pre-loads trailers before drivers arrive to pick them up, or times its loading to get the driver back on the road as quickly as possible.

For smaller chemical companies competing for capacity against the big guys, a partnership with a 3PL can help. A service provider buys

far more transportation than a small chemical shipper, allowing it to strike better deals with carriers. And it may be better equipped to spot opportunities.

“Smaller companies sometimes lack the broader network knowledge about what’s going on across all the chemical networks,” says Clark at KAG Logistics. Some also lack the technology to take advantage of that knowledge.

In the Know

As a subsidiary of Kenan Advantage Group, KAG Logistics has access to its company’s own bulk liquid tankers, as well as a large network of outside carriers. KAG Logistics provides dedicated transportation, managed logistics services, truckload services, and supportive services such as transloading from rail to truck and inventory management.

“We know what’s going on in the marketplace, and we have processes and technology in place that smaller companies can leverage,” Clark says. The 3PL can also help smaller chemical companies optimize their supply chains.

“They may not have enough volume for a large dedicated



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In 2017, Rinchem expanded its chemical distribution center in Pyeongtaek, South Korea. The new site provides four additional warehouses capable of storing a wide variety of materials including flammable, toxic, corrosive, oxidizer, and miscellaneous dangerous goods with strict temperature requirements.

fleet, but we can help give them dedicated-like service by marrying up some of their capacity demands with other customers' capacity," he explains.

Getting the Meter Running

At MILS, one additional solution available to shippers who want to use capacity more efficiently is employing metered tank trucks. Usually, a bulk liquid is transported in a "single barrel" tank trailer or in a compartmented tank trailer. Those options limit a shipper's flexibility when it comes to the size of the loads it can deliver, Haskins explains.

About 15 years ago, MILS worked with a meter manufacturer to install meters on its tank trucks. Now, a shipper can provide a series of multi-stop deliveries in variable amounts to its customers. "This helps customers get their goods to market more efficiently while optimizing shipment orders via best routes for cost-effective deliveries," Haskins says.

Chemical shippers could also find more capacity if they were more flexible in their requirements.

"Today's chemical shippers want it their way," says Haskins. Each shipper that tenders a load has precise specifications for the equipment the carrier will provide.

Sometimes, a carrier has a truck available to carry a load, and it's just a few miles from a shipper, but can't fill the need because that truck doesn't meet every one of the shipper's requirements. "If shippers would collaborate more with carriers to ask, 'What can I do to make my freight fit your truck and your truck fit my freight?' that would help us free up more capacity resources in the market," Haskins says.

Dupré agrees that collaboration among shippers and service providers is becoming essential. "We're all trying to solve the same problem," he says. "If we come at it adversarially, we won't be using the available brain power of all the teams."

One more area where collaboration could pay off is in the timing of shipments. In the petrochemical industry today, carriers are wrestling with such a big backlog that a shipper who calls to book a truck often has to

wait two weeks to get one. "We're asking our customers to look at how they set up loads, when they place orders, and when they ask their customers to place orders," Dupré says.

Many chemical companies promise customers shipment within 48 hours, or sometimes even 24 hours. "It's very difficult to meet that demand right now," Dupré says. Shippers are critically aware of the capacity shortage, but they haven't yet responded with new processes, he adds.

Inventory Management

Just as 3PLs are helping customers in the chemical industry secure the capacity they need, those service partners can also help chemical companies manage inventory more effectively. To that end, Rinchem has recently made some new investments in its Chem-Star warehouse management system (WMS). The 3PL has upgraded its solution to provide simple, low-cost links with suppliers and customers, providing visibility that helps chemical companies make better decisions about how they manage and transport inventory, Breinholt explains.

One new feature, called Easy Link, integrates Chem-Star with shippers' own management systems. "Now we can easily automate advanced shipping notifications, order receipt confirmations, inventory reconciliations, and all sorts of data links so companies don't have to worry about whose system they're working in," Breinholt says.

Rinchem uses business intelligence technology to extract valuable information from the data and then to recommend alternative supply chain options to the customer.

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Landstar focuses its chemical business on product transported in drums and totes, such as this shipping container, which contains class 7 radioactive materials.

Breinholt cites an interesting insight that emerged from the data belonging to one of Rinchem's large customers. "For a certain product line, they had about 8,000 SKUs [stock-keeping units], and among those SKUs, more than 80 percent hadn't moved in the past five months." This is crucial information, given chemicals' finite shelf life.

"Once chemicals age, it's difficult to find a primary or secondary use for them, and then they become hazardous waste," he says. "The whole idea is to figure out how to reduce inventory, put it in the right places, and make sure decision makers know what is going on."

Training for Safety

Because many chemicals are hazardous materials, chemical shippers and their logistics providers must work diligently to keep their products safe and secure, both in transit and while in storage. At Landstar Transportation Logistics, based in Jacksonville, Florida, safety efforts start with a requirement: every owner-operator

leased to the company must be certified to haul hazmat.

"We put owner-operators through live training and orientation," says Mike Cobb, Landstar's vice president, safety and compliance. "At the end of the training, they are required to complete an in-depth hazmat course online. And then we recertify them every three years."

Landstar's nearly 10,000 contracted owner-operators do most of their hazmat hauling

with platform equipment and van trailers, not tanks, so the company's chemical business focuses on product transported in drums and totes. Although Landstar offers transportation for a wide range of commodities, it insists on hazmat certification for all its drivers. This helps to ensure that when a customer needs to move a hazardous load, there will be a driver available.

"If a driver is in the middle of New Mexico, and we need them to pick up a hazmat load nearby, we know they are certified to haul that load," Cobb says. "We don't need to have another driver deadhead 400 or 500 miles to pick that up."

Landstar hauled more than 200,000 hazardous loads in 2017, Cobb says. The company has established a hazmat department to make sure everything runs smoothly, and that all drivers get recertified on schedule. The department also ensures that Landstar's independent sales agents maintain hazmat certifications, so all agents bring the necessary safety knowledge to their work.

Furthermore, the hazmat department functions as a help desk. "If an operator is picking



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Chemical Logistics: The Price of Success

up a load and something on the paperwork doesn't look right, and it's not something they feel comfortable correcting or speaking with the shipper about, they can call our number 24/7/365," Cobb says. An employee will provide whatever assistance the owner-operator needs.

On top of its certification requirement, Landstar participates in Responsible Care, a program the ACC developed to promote health and safety. "A lot of the tank carriers are Responsible Care certified, but many typical van transportation providers are not," says Cobb.

Every year, a third-party Responsible Care auditor visits Landstar to evaluate its processes with an eye toward safety, compliance, risk management, and loss prevention. "Fortunately, we have met the standard every time," Cobb says.

No matter how careful its transportation partners are about safety, ultimately a shipper is accountable for any mishaps involving its hazardous products.

"When you manufacture the chemical, you can have the best safety protocols, the best people, the best training, the best record," says Notarangeli. "But as soon as it leaves your direct control, your entire supply chain has to be subject to those same standards. That adds complexity, cost, and a pretty steep layer of governance and due diligence."

Close collaboration is the key to getting safety right when working with service partners. "The carrier has to have access to the same information the shipper has in terms of safety sheets and safety protocols," Notarangeli says. Ideally, service providers would join the chemical company's employees for safety training, so everyone is working from the same

set of guidelines, he adds.

Along with the safety issues attached to hazmat transportation, many chemical shippers also contend with safety issues that are specific to bulk transportation, where loading and unloading can be complex processes. MILS has alleviated some of those concerns by making a commitment to redesigning the trailers in its tanker fleet to include fixtures and

controls for ground-level access, which greatly mitigate slip and fall incidents, Haskins says.

With their eyes always fixed on safety issues, while also searching for new ways to improve capacity utilization, chemical shippers and their partners have a lot to watch out for. If the chemical market continues to heat up, they'll be watching even more intently, and needing to work even smarter.

Who's Responsible?

Identifying a hazardous material is the shipper's first step, and frequently the most difficult. Of all the shippers' responsibilities, the requirement to properly classify a hazardous material is critical. The other requirements are based on the proper identification of the hazardous materials.

HAZARDOUS MATERIALS SHIPPER RESPONSIBILITIES:

- Determine whether a material meets the definition of a "hazardous material"
- Proper shipping name
- Class/division
- Identification number
- Hazard warning label
- Packaging
- Marking
- Employee training
- Shipping papers
- Emergency response information
- Emergency response telephone number
- Certification
- Compatibility
- Blocking and bracing
- Placarding
- Security plan

When moving hazardous materials, many carrier and shipper responsibilities frequently overlap. When a trucker performs a shipper function, the carrier is responsible for performing that function in accordance with 49 CFR. The cargo space of the vehicle should be suitable for the material being shipped. The vehicle itself must be in sound mechanical condition. The carrier must check to ensure that the material offered by the shipper is properly described and packaged. In addition to the provisions of 49 CFR Parts 100-180, interstate motor carriers of placarded loads must comply with the hazardous materials requirements in 49 CFR P.

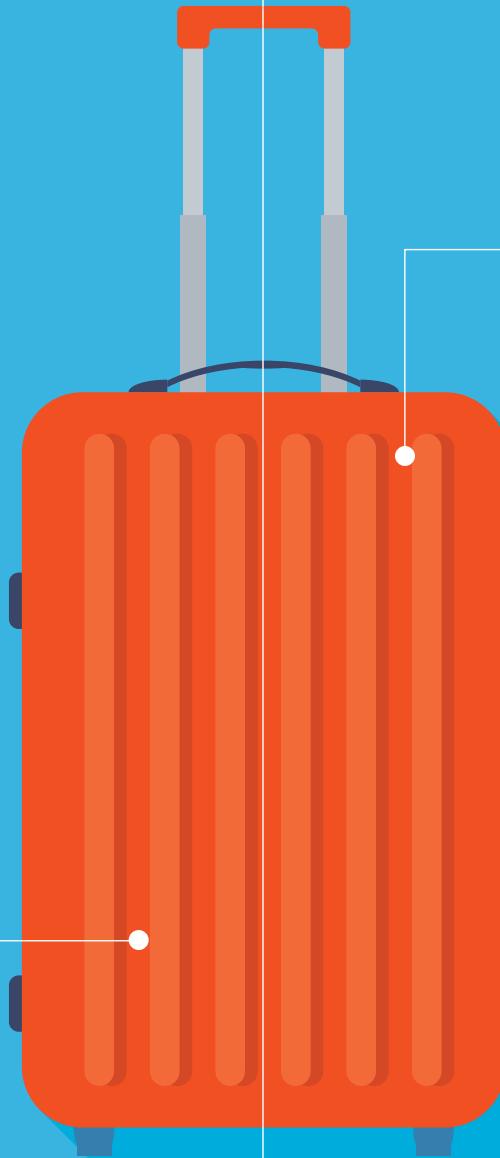
HAZARDOUS MATERIALS CARRIER RESPONSIBILITIES:

- Shipping paper
- Placard and mark vehicle
- Loading and unloading
- Compatibility
- Blocking and bracing
- Incident reporting
- Security plan
- Employee training

Source: Federal Motor Carrier Safety Administration

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MILS offers metered tank trucks to help chemical shippers use capacity more efficiently. This lets shippers provide a series of multi-stop deliveries in variable amounts to their customers. In addition to transportation and logistics services, MILS provides supply chain management, order fulfillment, inventory management, a transload and warehouse facility, equipment leasing, and maintenance.

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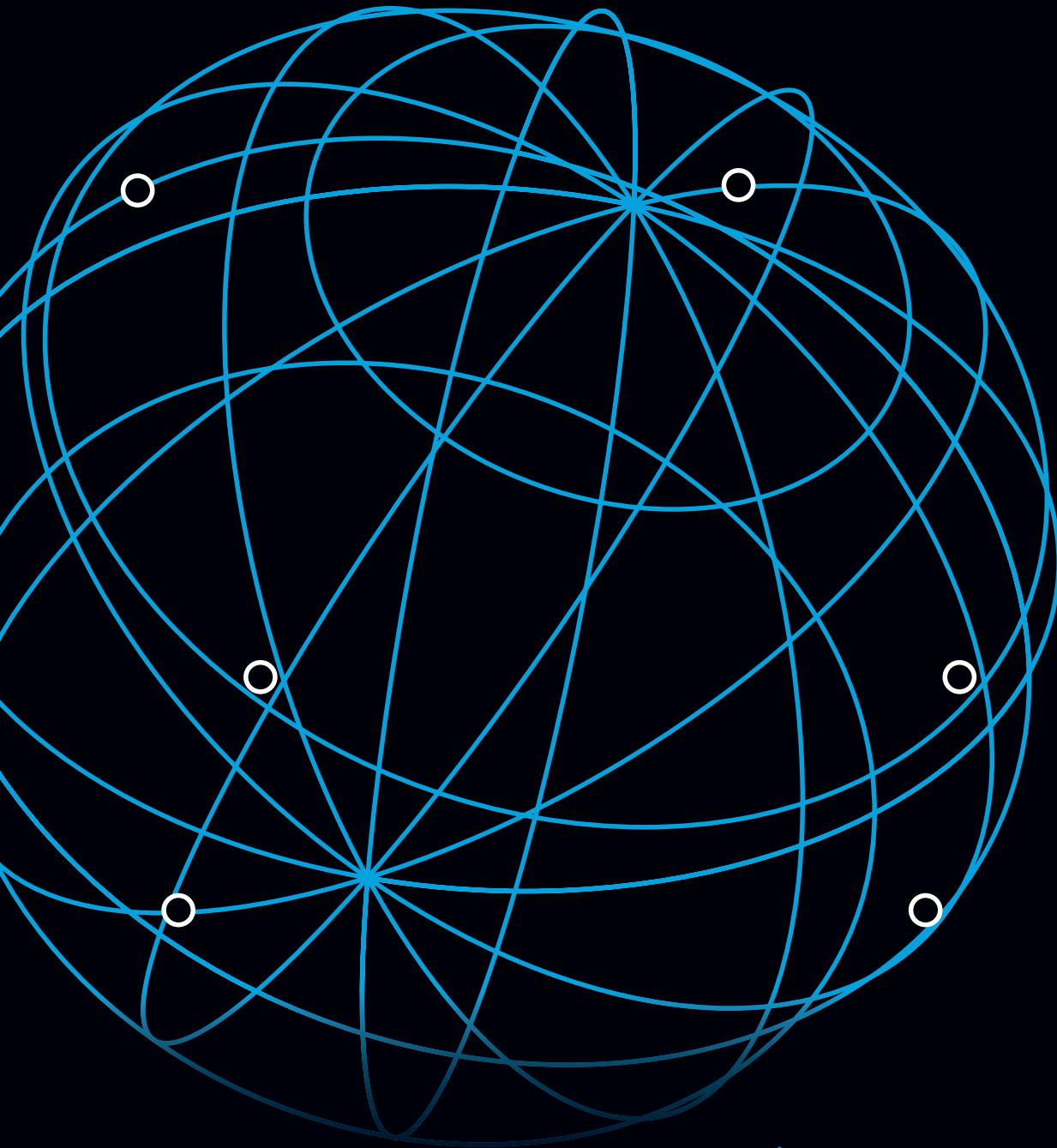
The port's Supply Chain Authority team works across port functions—operations and terminals, commercial and economic development, information technology—to provide a customer-centric process to meet chemical shippers' unique logistics challenges.

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As next-gen supply chain professionals set their career goals, mentoring by seasoned professionals can help them up their game.

By Sandra Beckwith

PUT ME IN, COACH! NEXT-GEN LEADERS ARE READY TO PLAY

Michael Curran-Hays clearly remembers a challenging situation early in his career with global management consulting firm Kepner-Tregoe. He was meeting with an unusually intense client who squeezed a stress ball so hard it popped out between his fingers.

“He also asked questions I wasn’t sure I knew how to answer, so I called my mentor afterwards for advice,” recalls Curran-Hays, now a global practice leader at the firm. “Being able to get his input was huge.” It’s one reason he mentors junior colleagues today.

Senior supply chain professionals have long mentored less-experienced colleagues and students informally or through new-hire orientations or leadership development programs. But, as the profession has grown and become better defined, the mentor’s role has become even more important.

The field has expanded significantly beyond basics such as purchasing, inventory management, fulfillment, and shipping to include positions ranging from supply chain analyst to sustainability manager. With the increase in job types comes a more formalized career path that didn’t exist until recently.

“Supply chain is becoming a more mainstream career path out of school,” says Tisha Danehl, a vice president at staffing firm Ajilon in Chicago, with experience in filling supply chain positions. “If you talk to anyone who has been in the field for more than 10 years, they’ll tell you they fell into it after working in marketing, finance, or another area. But that is changing.”

The logistics boom and the resulting need to fill more jobs with qualified applicants has contributed to increasing interest in supply chain mentoring programs that help give high-potential but less-experienced employees and students a head start. Industry associations APICS and the Council of Supply Chain Management Professionals (CSCMP) offer two of the largest mentoring programs. Just a few years ago, both began offering supply chain mentoring programs that pair seasoned pros with students or members who are new to the field.



As part of BlueGrace Logistics' Executive Forum program, director-level mentors meet informally with small groups from outside their area to discuss issues and address questions.

The CSCMP program began modestly without the benefit of technology. Mentors and mentees complete questionnaires that association volunteers use to make appropriate matches based on desired industry, location, position, and other factors. The program is currently transitioning to a technology platform that will use algorithms similar to Match.com's to pair veterans with novices. The APICS program has always used a technology platform but recently implemented a more powerful system.

Their investment in more sophisticated technology underscores the value of their programs to respective members.

"Mentorship and career development are so important to APICS, and we wanted this program to give members value," says Kathleen Schroeder, APICS director of membership.

"When we saw our program double every year since we started it in 2015, we knew it was something big," says Heather Wood, CSCMP director of conference and event content.

PLAYING MATCHMAKER

Both organizations provide an infrastructure that includes not only a mentor-mentee matching service, but also resources that help facilitate conversations and recommendations for how to structure the mentoring relationship. The rest is up to participants.

Feedback reveals that pairs meet as needed via email or Skype, and that many pairs try to connect in person at industry conferences, too.

GETTING FACE TIME

When three of APICS mentor Gary Smith's student mentees were selected as APICS conference scholarship recipients last year, he was able to meet with them face-to-face for the first time.

"That was exciting. Most of the time we communicate with email because they're all over the world," says Smith,

vice president of New York City Transit's Division of Supply Logistics.

At BlueGrace Logistics in Florida, where there are several in-house mentoring programs, the process tends to be face-to-face. A senior manager mentors all new employees at the company's 11 locations as part of their orientation. One mentor usually has several mentees from different disciplines who often meet initially as a group to learn more about the company and its culture before eventually transitioning to email, in-person, or telephone conversations

COACHING VS. MENTORING

What's the difference between coaching and mentoring? The biggest is that mentors are usually senior people who help those with less experience either navigate the company or develop their careers, while coaches help people with a specific challenge. Coaching often includes training, while mentoring is focused on advising.

Are you a coach or a mentor? Take this short quiz.

1. Do you meet or communicate on a flexible schedule that responds to the other person's need for information?
2. Is your goal to help the other person acquire a specific skill?
3. Is there a significant experience or age gap between you and the person you're assisting?
4. Is your relationship based on the fact that you do something very well that the other person wants to learn how to do?

If you answered "yes" to questions 1 and 3 and "no" to 2 and 4, you're a mentor. Your role is to help develop the individual's talent and guide a career path rather than teach them how to do something specific.

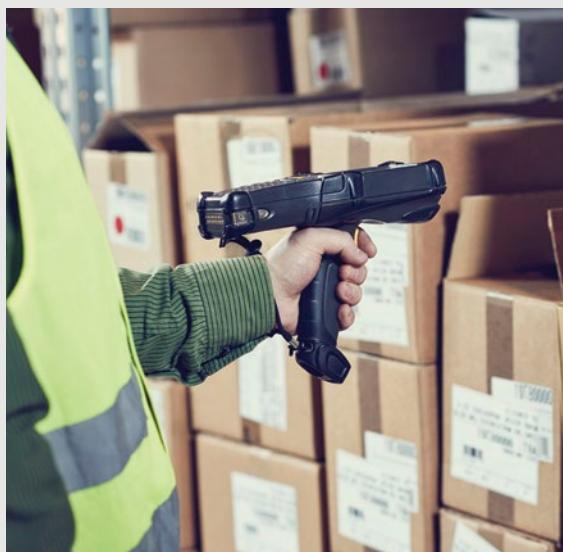


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*Dr. David J. Closs, MBA, PhD
John H. McConnell Chaired Professor of Business Administration
in the Department of Supply Chain Management at Michigan State University*



Michael Curran-Hays (behind table with glasses) mentors employees at Kepner-Tregoe in part because he appreciates how much mentors helped him early in his career.

a small group of people from outside the mentor's area. The groups of five to six meet informally to ask questions, learn more about other areas of the company, and get feedback.

Sean Butler, the company's chief human resources officer, meets with his group of six twice each month for about 30 minutes. The mentees drive the discussion topics.

"The small group forum empowers employees and encourages them to share new ideas and any concerns,

while providing an opportunity to build a stronger connection with company leadership. We talk about anything and everything," he says.

As a mentor, Butler finds the program rewarding.

"Mentoring is truly a two-way exchange. I gain valuable insights from mentees through their comments, questions, and ideas, too," he says.

At AIMMS, a supply chain software platform provider, mentoring initiatives support customers as well as college students. In both cases, AIMMS sets the stage for other parties to mentor, then steps back.

The company is expanding its successful in-person customer gatherings in Europe to the United States, having hosted its first domestic half-day event earlier this year in the Chicago area. At these executive roundtables, customers meet for peer-to-peer education and discussion.

"Our customers love that they can talk face-to-face and learn from each other," says Narasimhan Krishnan, customer account manager.

The company also provides access to its software through the A.T. Kearney student lab at Carnegie Mellon University in Pittsburgh. The program connects MBA students with industry mentors who help them solve problems. AIMMS extended that collaboration last year to a half-day lab session at an analytics conference, where it paired students with the company's client experts who could mentor the students as they solved a problem.

CULTURE CLUB

At Kepner-Tregoe, each new employee is assigned a mentor who helps them understand the company and its culture. The mentoring relationship, which begins about six months into employment, continues for about three months.

In addition to participating in that program, Curran-Hays also mentors employees interested in moving into his field from another part of the company. "It often starts with a casual conversation where they're showing

as needed to address specific questions.

After six months, the new employees may also enroll in the Executive Forum, which gives those at the director level and above an opportunity to mentor

WHEN MENTEE BECOMES MENTOR

The Supply Chain and Analytics Student-Executive Mentoring program at the University of Missouri-St. Louis connects high-potential undergraduate and MBA students with local logistics and supply chain professionals who serve as industry mentors.

Started in 2016, the program helps students develop a professional network they can leverage for advice and job search connections.

Industry professional Masao Nishi, a member of the program's Supply Chain & Analytics Advisory Board and a mentor, appreciates having the opportunity to help students understand the range of career opportunities.

"I enjoying sharing what I've learned over the years if it can help someone just starting out," says the semi-retired principal of M. Nishi Strategic Advisory.

One of those who have benefited from the program's mentoring is Sarah Rizzo, now an export logistics specialist with Anheuser-Busch InBev. Rizzo found the program so helpful she's now looking to pay it forward.

"The experience helped me be better prepared to join the workforce, particularly as a woman entering a male-dominated field," Rizzo says.

She has since instigated a Supply Chain and Analytics Young Alumni Board mentoring program at her alma mater to help those about to start their career better understand what to expect from an entry-level position.

"The executive mentoring program offers a high-level perspective that's helpful," she says. "Now we'd like to add a peer-to-peer level component."

"Those who have just started their careers will be able to share their 'what I wish I knew sooner' experiences with students so they have a better sense of what to expect from that first job," says the program's faculty advisor, Jill Bernard Bracy, supply chain and analytics assistant teaching professor at the university.

The new program launches in fall 2018.

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MENTORING AND THE TALENT PIPELINE

At Western Illinois University in Macomb, Illinois, faculty and students in the supply chain management program are informal mentors to area high school students.

They participate in a high school and community college ambassador program created by Barton Jennings, professor of supply chain management, to help local employers find supply chain talent by introducing younger students to supply chain job opportunities.

"DOT Foods in particular needs more talent every year than there are students graduating from local high schools," Jennings says.

Jennings is also interested in recruiting students to Western Illinois's supply chain management program, but the outreach isn't necessarily geared to that.

"I recently spoke to a group of high school students about non-college degree jobs that include truck drivers and forklift operators, which often pay better than they might expect," Jennings says.

In addition to faculty and student presentations at schools, the program includes Jennings's annual tour of DOT Foods, a redistributor, with students and their teachers.

"So many students want to stay in the area but don't think there are any jobs," he says. "This tour helps us show them options and gives us a chance to talk to them about careers."

Global food processing company Archer Daniels Midland, headquartered in Decatur, Illinois, supports the outreach with \$90,000 donated to the program three years ago.

"We're trying to educate high school students about all the potential opportunities out here in this field," says Kim Ekena, vice president of ARTCO, the company's transportation subsidiary.

"We have inserted ourselves in the human resources supply chain to get local jobs filled," Jennings says.

interest in what I do, but if it looks like they actually want to explore a change more seriously, I ask them to approach their manager first. If it makes sense for the individual and the company, we'll continue the conversation," Curran-Hays says.

Whether it's an official new hire mentoring relationship or a more

informal situation, the value of mentoring to the firm with about 100 employees spread around the world is significant.

"We don't all work together at a central location, so having these sessions where we meet by Skype or in-person at a client location is huge for relationship-building," he says.

Just as importantly, though, is how it allows senior consultants to share institutional knowledge in a meaningful way.

"If I had to sit down and talk with you about how to put together objectives with measures and standards for a supply chain engagement, you would be bored," Curran-Hays says. "But if my mentee called and asked for help with a specific proposal, just the process of working on it together more informally makes that transfer of knowledge easier and more interesting."

Executive recruiter Danehl sees supply chain employee mentoring programs as a way to retain the best and brightest talent, too.

"Having a mentoring program helps companies continue to keep top supply chain talent engaged. It says to them, 'We believe in you and want to invest in you,'" she says. "As an employer, the less turnover you have, the more profitable you are."

It's also good for the mentors.

"I enjoy helping these young people move ahead in their careers," says Smith. "Sometimes they need somebody in their life who's an objective third party to give them a straight story. We can do that for them." ■

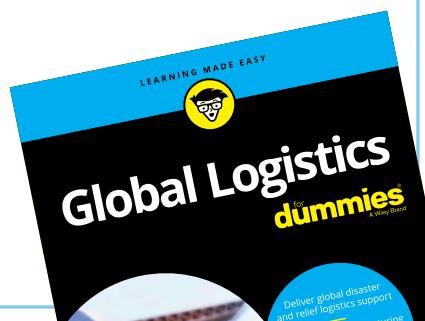
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Supply Chain Insights

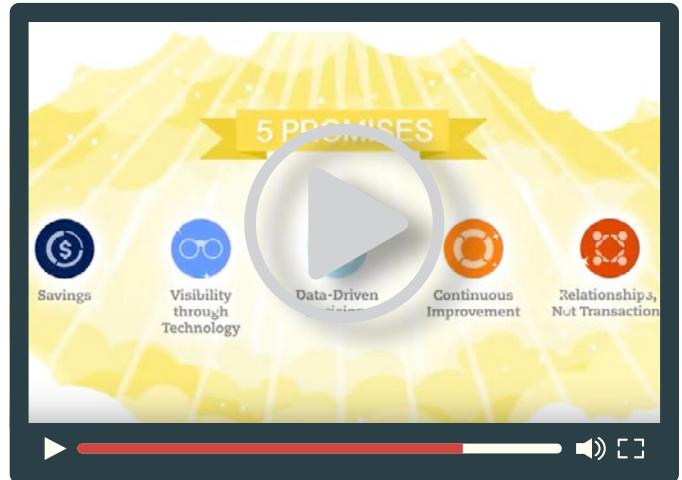
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video

SUNSET TRANSPORTATION: 5 PROMISES

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whitepapers



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Optimum Expenditures GROUP

In this whitepaper, Optimum Expenditures Group uses a specific case study to demonstrate how it was able to help one company save almost 20 percent off its freight spending budget by simply analyzing various aspects of supply chain transportation spending. By asking pointed questions and evaluating both obvious and hidden challenges, Optimum was able to design a financial roadmap that was unique to this specific company. Download now to learn more and find out how Optimum can help you find extra savings.



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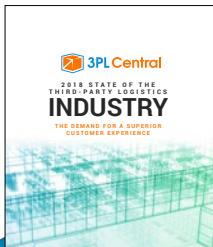
Overcoming the Talent Gap in Transportation

DHL Supply Chain

Research suggests the potential for a truck driver shortage of 96,000 by 2020. While raising wages is often presented as a solution—at least until automated vehicles reach commercial viability—the challenge is complex and requires a multi-faceted approach that goes beyond higher wages and signing bonuses. In this paper, DHL Supply Chain offers three solutions that can make a difference.

Supply Chain Insights

whitepapers



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2018 State of the Third-Party Logistics Industry Report

3PL Central

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podcast



Pete Mento

Customs and Trade Compliance: How Can Companies Best Navigate an Ever-Shifting Trade Landscape?

GUEST: PETE MENTO

Vice President of Global Trade and Managed Services, Crane Worldwide

The pressures on customs and trade professionals to collect, organize, and maintain massive amounts of information amidst ever-changing compliance regulations can often reverberate up and down the supply chain. Tune in to hear Pete Mento of Crane Worldwide offer information that might help importers and shippers better prepare their businesses to act before they need to react.



3PL

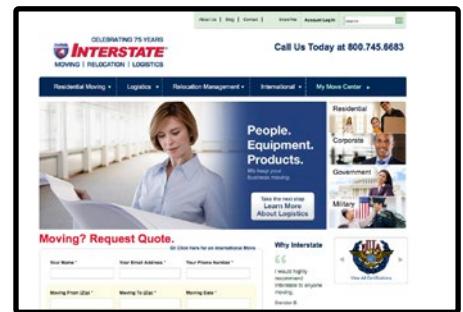


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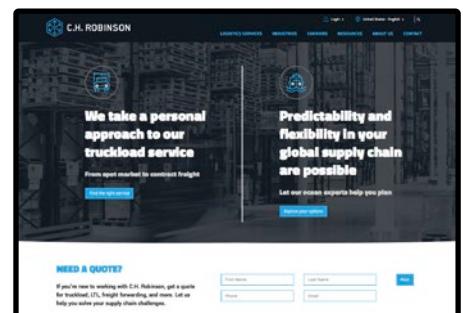
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CHEMICAL LOGISTICS

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Chemical Logistics

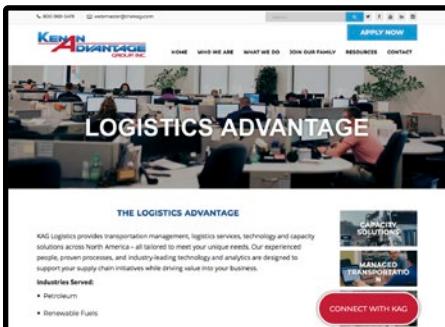
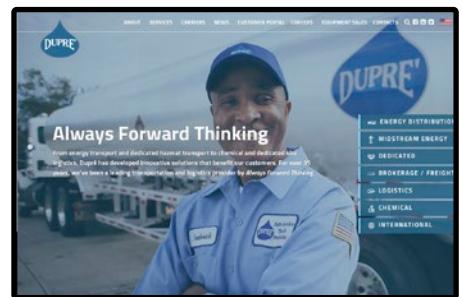


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CLX Logistics is a global provider of comprehensive logistics management, technology, and supply chain consulting services to a broad base of industry verticals. From chemical and energy to manufacturing, retail, agriculture, automotive, and heavy haul, we help clients in nearly every industry to realize sustainable supply chain value by employing a mix of managed services, on-demand global TMS technology, and comprehensive transportation management services to improve performance and reduce cost. CLX Logistics is dedicated to solving its customers' most vital logistics challenges.

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CHEMICAL LOGISTICS

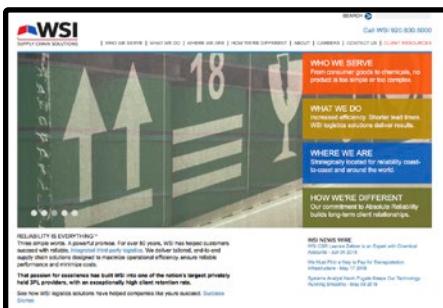
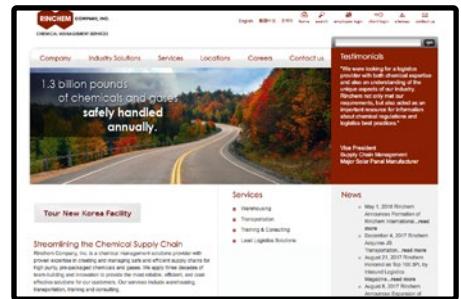


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IN THIS SECTION:

Freight Forwarding - Project Logistics

FREIGHT FORWARDING



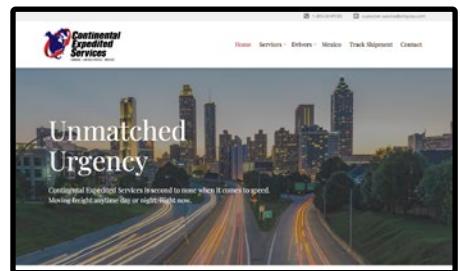
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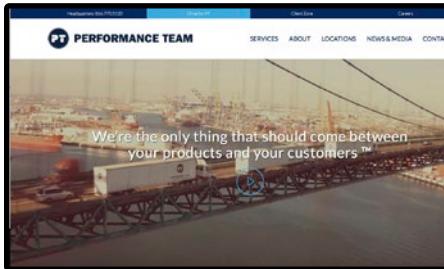
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RETAIL LOGISTICS



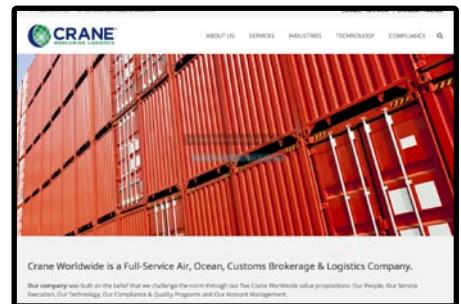
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TRUCKING



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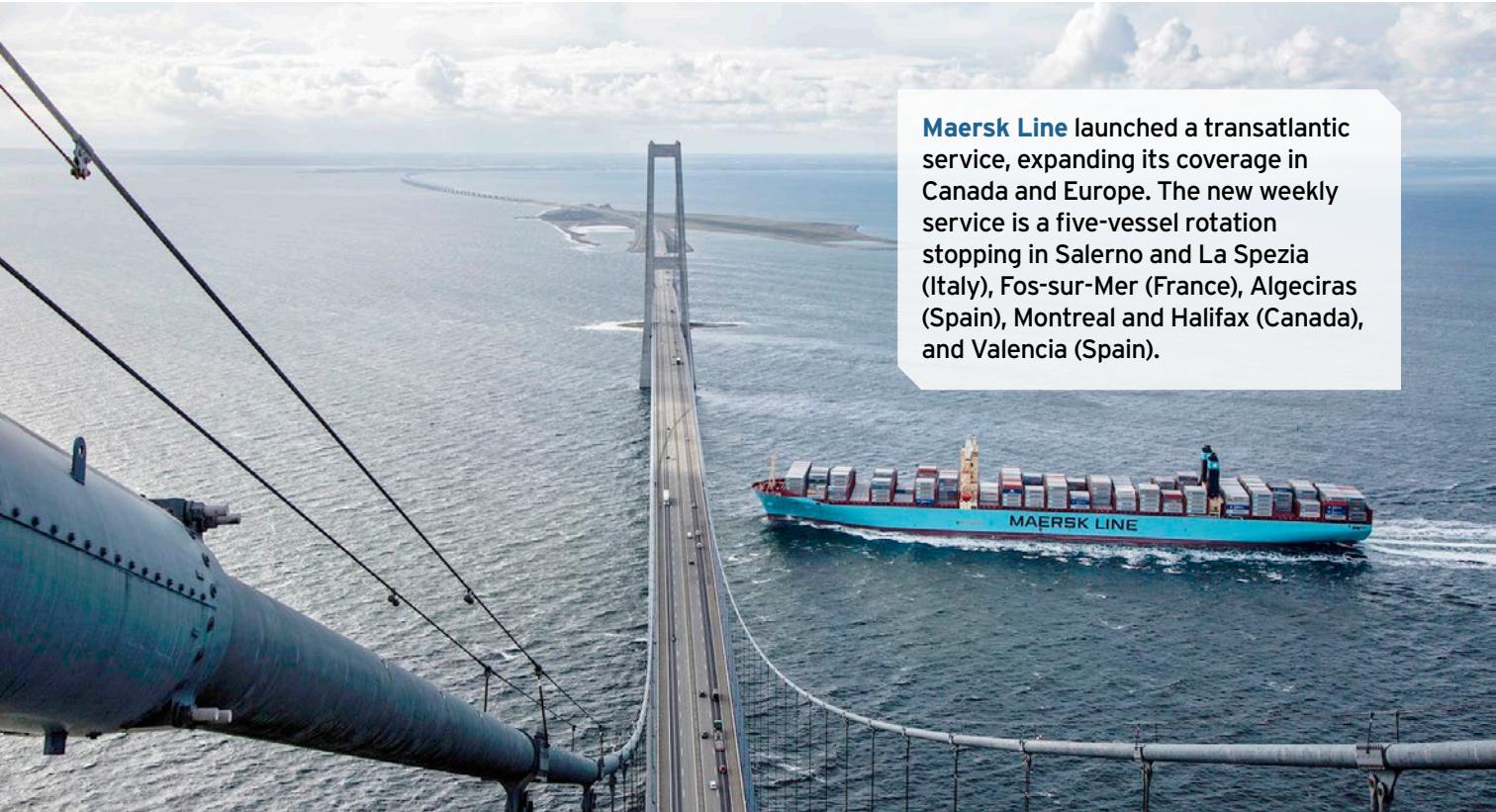
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Maersk Line launched a transatlantic service, expanding its coverage in Canada and Europe. The new weekly service is a five-vessel rotation stopping in Salerno and La Spezia (Italy), Fos-sur-Mer (France), Algeciras (Spain), Montreal and Halifax (Canada), and Valencia (Spain).

// Services //

SEKO Logistics expanded its White Glove delivery offering by adding a full-assembly, nationwide service for heavyweight and bulky business-to-consumer e-commerce products. The new option includes installation, setup, syncing smart devices, and removing packaging. Supported by a 24/7 customer service center, SEKO monitors deliveries around the clock.

To accommodate intermodal rail cargo volume growth, **South Carolina Ports Authority (SCPA)** opened Inland Port Dillon, its second inland facility in the state. SCPA expects Inland Port Dillon to convert an estimated 45,000 container movements from truck to rail in its first year of operation.

Crowley Logistics opened an expanded warehouse in Miami, consolidating the company's Medley and Doral facilities in Florida. The 180,000-square-foot warehouse features more than 5,000 pallet rack positions and 95 container parking spots along with a single-direction truck flow to prevent cross-traffic.

Pilot Freight Services, a provider of transportation and logistics services, expanded its El Paso, Texas, station to 40,000 square feet. Receiving authorization as a Foreign Trade Zone, the Pilot facility runs new inventory and security systems to document and track products and materials held on site until they are ready to be shipped to Mexico.

Expanding on its freight audit and payment and TMS offerings, **CTSI-Global** launched a full managed services solution. The new solution gives shippers visibility through in-transit tracking, including proactive visibility to all exceptions such as late deliveries and damaged freight. It also provides expected delivery date and time, for improved resource planning.



▲ **Night Tech Gear**, a creator of industrial shoe lighting systems, launched Night Shift Shoe Lights, designed to help workers identify potential hazards and reduce workplace falls. The product has two ultra-light shoe lights illuminating the space ahead of the worker, while rear-facing lights keep the wearer visible to other workers or vehicles from all angles.



◀ **Honeywell Intelligated**, a provider of materials handling solutions and software, launched *TechSight*, a real-time augmented-reality maintenance solution for distribution centers. Designed to reduce repair time and operational disruption, it leverages smart glasses and a videoconferencing platform to connect on-site technicians with remote technical support experts, enabling live service instruction via two-way audio and visual communication.

//Transportation//

United Airlines and **Lufthansa Cargo** launched an air cargo joint venture to manage sales and booking of standard and express shipments on routes between Europe and the United States. The carriers will expand the geographical scope in the coming months.

A new **Gold Star Line (GSL)** service now operates on a weekly rotation, providing a direct connection between China, South East Asia, and South Africa. The SA1 service has a 63-day rotation comprising eight 3,300-TEU vessels. GSL also offers intermodal services to inland areas of South Africa, primarily via Durban.

Supply chain solutions provider **Panalpina** added Querétaro, Mexico, to its charter network, which also connects Mexico City and Guadalajara with its airfreight gateway in Huntsville, Alabama. Panalpina's 747-8F operates this route to Querétaro International Airport.

DHL Global Forwarding, the air and ocean freight arm of Deutsche Post DHL Group, deployed a second dedicated Boeing 747-400 freighter to connect the United States, Europe, and Asia. With a capacity of 100 tons, the aircraft provides freight space on the transpacific route from Shanghai Pudong Airport to Cincinnati, from where it returns to Incheon, South Korea.

Bansar, a freight forwarder in China, now provides rail freight service from China to Europe, Russia, and Central Asia. The new service includes customs clearance, loading, inspection, and packaging, and offers shippers three transport options: FCL, LCL, and rail.

//Technology//

FR8 Revolution, creator of the FR8Star.com marketplace for shippers and open deck carriers, unveiled a Price Lock feature that allows shippers to obtain a guaranteed fair market rate and immediately book freight for legal and permitted flatbed and open deck freight.

► Artificial intelligence company and robot maker **Geek+** launched the P800 picking robot equipped with laser navigation technology that allows it to follow floor markings or navigate point to point. The P800 has a maximum load of more than 2,200 pounds and can operate in temperatures ranging from -22 degrees to 122 degrees F, making it ideal for handling refrigerated goods or working in non-air-conditioned spaces.



//Products//

Pallet supplier **Litco International** introduced the Exporter, an engineered molded wood pallet providing a sustainable unit-load solution for one-way and export shipping. Nail-free and with curved corners, Exporter pallets are approved for export as-is per ISPM 15a.

TMS software provider **3Gtms** teamed up with **10-4 Systems**, a supply chain visibility technology provider, to expand visibility and automation capabilities for its users. The partnership lets 3Gtms customers track freight through a carrier integration or using 10-4's mobile tracking solution.

TMS provider **Kuebix** introduced *SupplierMAX*, a program designed to increase the efficiency of inbound freight operations. With *SupplierMAX*, companies manage all or a portion of their inbound freight and increase warehouse and distribution center efficiency through strategies such as consolidating LTL shipments into full truckloads.

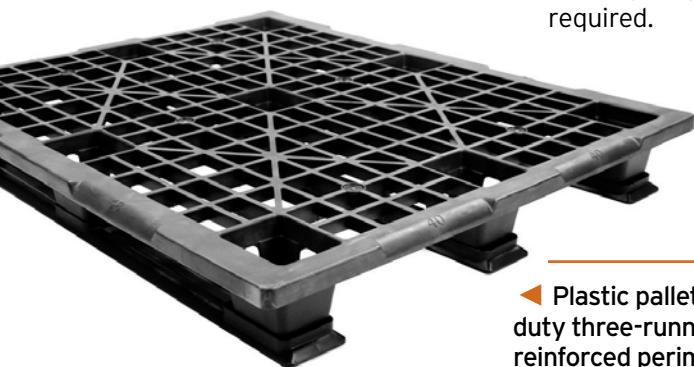
PayCargo, an online payment platform and provider of electronic invoicing and settlement solutions, and **Gemini Shippers Group**, an association of importers and exporters, unveiled an integrated payment solution for shippers. The new solution allows Gemini Shippers Group members to view, audit, and pay freight invoices directly from its platform.

BDP International, a logistics and transportation services company, updated *BDP Smart Tower* to streamline visibility and maintenance of ISO tanks. The improved platform makes compliance easier and offers a precise view of available assets when they are approaching a warning stage where inspection is required.

AeroVironment, a supplier of charging solutions for electric forklifts, introduced PosiCharge ProCore OC, the newest addition to its intelligent charging family. It charges all forklift batteries, regardless of type, chemistry, voltage, or size.

Rugged mobile device maker **Xplore Technologies** introduced the Xplore M60, a 6-inch handheld Android device for materials handlers. Weighing 0.81 pounds, the M60 is easy to grip for long periods. It's available with a built-in barcode scanner.

The latest solution from forklift maker **The Raymond Corporation** increases productivity by weighing product directly on the walkie pallet fork. The Raymond Model 8210, with an integrated mobile weigh scale, is available in two configurations: a legal-for-trade configuration in adherence to the National Type Evaluation Program (NTEP) or in a non-NTEP configuration.



◀ Plastic pallet maker **One Way Solutions** introduced a stackable light-duty three-runner plastic pallet, offering high capacity, low tare weight, and reinforced perimeter for increased impact resistance. The 40-inch by 48-inch pallet weighs 18 pounds and provides 2,800 pounds of dynamic capacity.

Rite-Hite's redesigned RHV-4100 Vertical-Storing Hydraulic Dock Leveler helps protect workers from injury and improves efficiency and security at the loading dock. With this interior dock configuration, trucks back up to the loading dock with their doors closed. When they are secured at the dock, the doors are then opened into the building, ensuring cold-chain integrity.



◀ Reflective insulation maker **TLX Cargo** introduced a cargo cover/thermal blanket that incorporates phase change material (PCM) into its structure to offset temperature spikes when the pallet is off-loaded onto the tarmac at hot locations. TLX PCM cargo covers have an outer surface that reflects 97 percent of thermal radiation.

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Midwest Association of Rail Shippers

2018 Summer Meeting

mwrailshippers.com | Lake Geneva, Wis. | JUL 16-17, 2018

AUDIENCE: Rail shipping executives
FOCUS: Railroad operating practices; resolving transportation and freight car supply issues; innovations in transportation and legislative matters; the North American oil & gas and petroleum supply chain and its latest impact on rail

SEPT 30 - OCT 3 Nashville, Tenn.

Council of Supply Chain Management Professionals (CSCMP)

CSCMP EDGE Supply Chain Conference & Exhibition

cscmpedge.org

AUDIENCE: Supply chain management professionals
FOCUS: Real-world strategies to maximize and transform supply chains; global supply chain best practices; increasing visibility; integrated business planning

OCT 16-18 Toronto, Canada

Clarion Events/Urban Expositions

Multimodal Americas

multimodalamericas.com

AUDIENCE: Stakeholders in the North American supply chain, logistics, and transportation sector
FOCUS: How blockchain will deliver smart and secure supply chains; adapting to warehouse robotics and the changing face of retail; exploring the possibility of a fifth industrial revolution

OCT 22-24 Nashville, Tenn.

Worldwide Business Research

Consumer Returns

consumerreturns.wbresearch.com

AUDIENCE: Reverse logistics and returns management professionals
FOCUS: Trimming costs through return reduction strategies and optimizing the reverse supply chain; partnering pre-sale to reduce returns; ensuring brand integrity while utilizing secondary market alternatives and channel partners; identifying and preventing return fraud

CONFERENCES

SEPT 11-12 New Orleans, La.

IWLA

IWLA Technology & Operations Solutions for Warehousing Conference

bit.ly/IWLAtech

AUDIENCE: Warehouse IT and operational professionals
FOCUS: Addressing operational challenges in the warehouse; increasing warehouse productivity and efficiency; measuring and improving return on investment and tracking new efficiencies

SEPT 11-12 New Orleans, La.

IWLA

IWLA Safety & Risk Conference

bit.ly/IWLASafety

AUDIENCE: Warehouse managers, safety managers, and operations personnel with risk responsibility
FOCUS: Best practices and strategies to minimize on-the-job risks and improve the bottom line; assessing the strengths and weaknesses of safety protocols; HR trends and challenges; creating a culture of safety; OSHA updates

SEPT 16-18 Long Beach, Calif.

Intermodal Association of North America

Intermodal Expo 2018

intermodalexpo.com

AUDIENCE: Intermodal freight stakeholders
FOCUS: The future of intermodal terminals; dealing with tight trucking capacity; intermodal network capacity in the face of unpredictable demand; what brokerage means for intermodal; the implications of the next generation of smart equipment on intermodal

SEPT 24-26 Chicago, Ill.

PARCEL

PARCEL Forum 18

parcelforum.com

AUDIENCE: Supply chain professionals
FOCUS: Evaluating distribution center efficiencies; the labor market and its impact on DC site selection; how e-commerce companies can succeed in fulfillment; parcel optimization for small- and mid-sized companies; effective analytics for controlling your spend

SEPT 24-27 Philadelphia, Pa.

International Quality & Productivity Center

Cold Chain Global Forum 2018

coldchainglobalforum.com

AUDIENCE: Cold chain professionals
FOCUS: Adapting cold chain processes and increasing collaboration to satisfy new user and regulatory requirements; building an agile and flexible supply chain while minimizing risk; creating supply chain synergy across the global marketplace

SEPT 30-OCT 2 Chicago, Ill.

American Production and Inventory Control Society

APICS 2018

apics.org/annual-conference

AUDIENCE: Supply chain, operations, and logistics management professionals
FOCUS: Best practices to drive supply chain innovation; key strategies to create more sustainable, strategic, and value-driven supply chains; optimization in complex manufacturing operations; building the next-gen high-technology supply chain; how supply chain management is being transformed by blockchain

SEMINARS & WORKSHOPS

NOV 15-16, 2018 Cambridge, Mass.

MIT Sloan Executive Education

Supply Chain Strategy and Management

bit.ly/MITsupplychainstrategy

AUDIENCE: Logistics and supply chain professionals
FOCUS: The next big trend in supply chain strategy, and the key skills required to be successful; guidelines for making strategic sourcing and make-buy decisions; integrating e-business thinking into supply chain strategy and management

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Put Your Back Into It

Exoskeletons—external braces providing lower-back support—are already being put to work by logistics provider GEODIS at its warehouse in Venlo, the Netherlands. Using a spring system that acts as a counterweight, the exoskeletons support workers' lower backs as they lift and carry objects during pick- and-pack activities. When the employee bends over, the spring pushes back, reducing the load on the back by 40 percent. While this exoskeleton is passive, GEODIS is looking into an active version that would support employees' arms as well.



Bold Shoulder

shoulderX is an industrial arm exoskeleton developed by US Bionics in collaboration with UC Berkeley. shoulderX reduces gravity-induced forces at the shoulder level, enabling the wearer to perform chest- to ceiling-level tasks for longer durations and with less effort. It can be tuned for different levels of support and can help with tasks such as picking, inspecting, paneling, and overhead assembly.



Firm Grasp

With potential uses in materials handling and manufacturing, the RoboGlove increases the wearer's strength and endurance. Researchers at the NASA Johnson Space Center, in collaboration with General Motors, designed and developed this lightweight robotic glove with pressure sensors that give users a sense of touch or haptic feedback. The glove is compact and self-contained; actuators, pressure sensors, and synthetic tendons are embedded.

Instantly Seated

Extra-long warehouse shift? No problem. Swiss company Noonee developed the Chairless Chair, an exoskeleton for workers' legs that lets them sit at the push of a button. The aluminum and carbon fiber exoskeleton weighs about 4 pounds, so it doesn't impede workers' movements. When they want to sit, the chair stiffens, giving them a spot to rest wherever they are, keeping their backs straight and saving on the floor space that a chair would have taken up.





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