

JUNE 2019

inbound logistics

PLUS:
CHEMICAL
LOGISTICS
SPECIAL
REPORT

a **THOMAS** company

THE MAGAZINE FOR DEMAND-DRIVEN LOGISTICS

SUSTAINABILITY SELLS

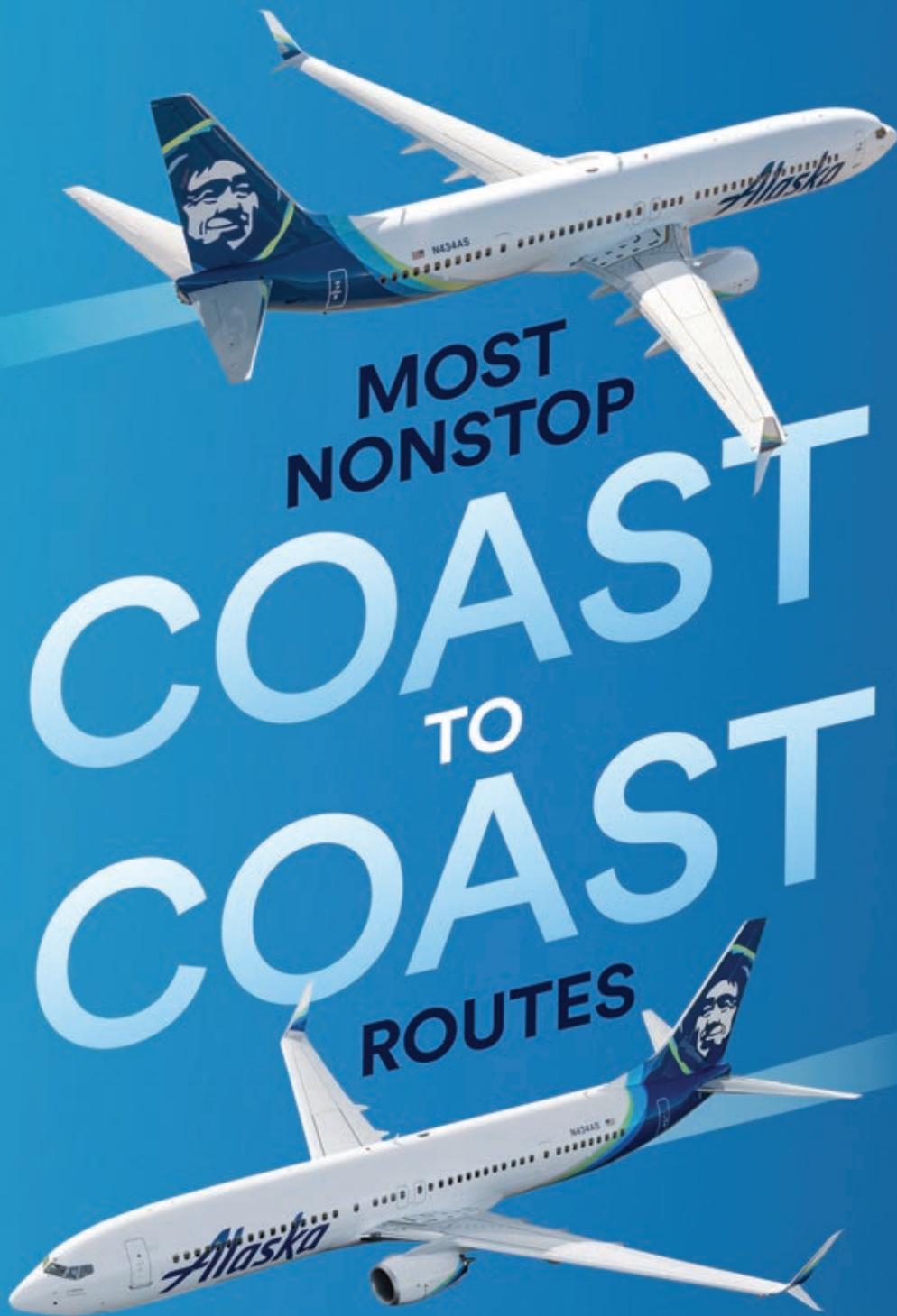
**MAKING
THE
BUSINESS
CASE FOR
GREEN**

G75

Top Green
Partners

•

Busting 5
Supply Chain
Myths



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TO
COAST
ROUTES

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Info **SNACKS**

BITE SIZED SUPPLY CHAIN/LOGISTICS INFORMATION

757,000+

Number of manufacturing jobs brought to the United States from other countries since 2010. This number accounts for an estimated 31% of the total increase in U.S. manufacturing jobs during that period and 3.3% of the 12.8 million people employed by manufacturing at the end of 2018. The Reshoring Initiative largely attributes the increases to greater U.S. competitiveness due to corporate tax and regulatory cuts. – *Reshoring Initiative*

Kick it to the Curb

Amazon might be the clear winner in delivery but Walmart is the leader in grocery pickup, with more than 3,000 stores set to offer free grocery pickup service by the end of 2019. Between 11% and 13% of Walmart customers use curbside service, and by next year it will account for 33% of the retailer's digital sales.

– *Cowen and Company*



Welcome to Taco Hell

An unhappy Taco Bell customer in Slidell, Louisiana, called the cops with a supply chain complaint: The restaurant ran out “of both hard and soft taco shells.”

“While this is truly a travesty, the police can’t do anything about this,” the Slidell Police Department posted on Facebook.

We can only hope the supply chain department got it together before Taco Tuesday.

37% of U.S. consumers and

24% of Canadian consumers

said they changed delivery preferences “on the fly” after placing their order.

– *MetaPack survey*



\$815 / WEEK

The average salary for warehouse workers in 2017, lower than its peak of \$836 in 2015. But the projected 2018 numbers show wage growth over the first three quarters of the year.

– *Bureau of Labor Statistics*

2019 TOP 25 SUPPLY CHAINS

1. Colgate Palmolive
2. Inditex
3. Nestlé
4. PepsiCo
5. Cisco Systems
6. Intel
7. HP
8. Johnson & Johnson
9. Starbucks
10. Nike
11. Schneider Electric
12. Diageo
13. Alibaba
14. Walmart
15. L’Oreal
16. H&M
17. 3M
18. Novo Nordisk
19. Home Depot
20. Coca-Cola
21. Samsung
22. BASF
23. Adidas
24. AkzoNobel
25. BMW

– *Gartner’s annual study identifying supply chain leaders and highlighting their best practices*

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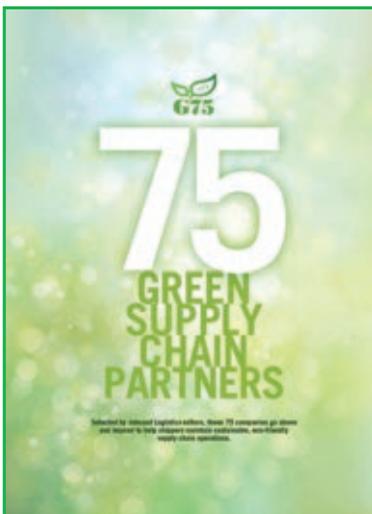
SUSTAINABILITY SELLS

Companies can take good care of the environment while also turning a profit.

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75 GREEN SUPPLY CHAIN PARTNERS

Inbound Logistics' annual G75 features a carefully curated list of 75 companies that go above and beyond to maintain sustainable, eco-friendly supply chains and operations.



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IL busts common supply chain career fallacies.



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FEEDING THE BABY PRODUCTS SUPPLY CHAIN

Managing the baby products supply chain is not child's play. Here's how manufacturers in this highly regulated product category stay hyper-vigilant to protect infants and toddlers while constantly adjusting to parents' ever-changing color, style, and flavor preferences.

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JOINT SPONSORED CONTENT WITH CHEMICAL WEEK

CHEMICAL SUPPLY CHAIN: INNOVATIVE SOLUTIONS IN THE MIX

From specialized requirements to capacity considerations, formidable challenges face chemical shippers. In reaction, logistics providers are rolling out solutions of substance.

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CAREER SOLUTIONS

5 SUPPLY CHAIN MYTHS—BUSTED

Whether you have established your career or are just starting out in supply chain management, you'll come up against persistent misconceptions. *Inbound Logistics* puts five of the most common myths to the test.



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It pays to be sustainable.



- Jeff O'Connor
Heniff Transportation



- Bob Verret
Dupré Logistics



- Joy Hoehler
Schwerman Trucking



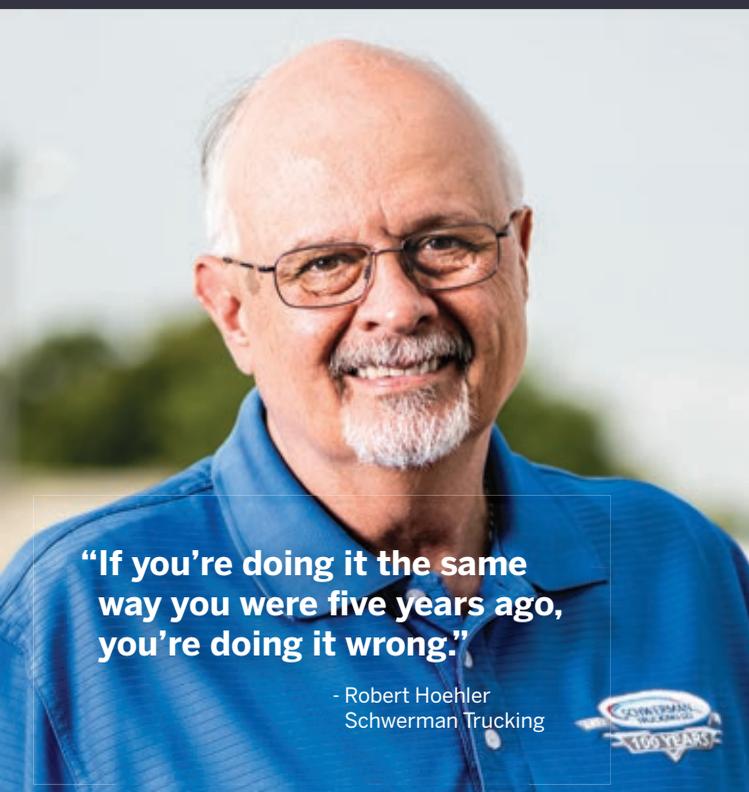
- Chad Ogden
Sunrise Logistics

Never stop evolving.

It's time to future-proof logistics.

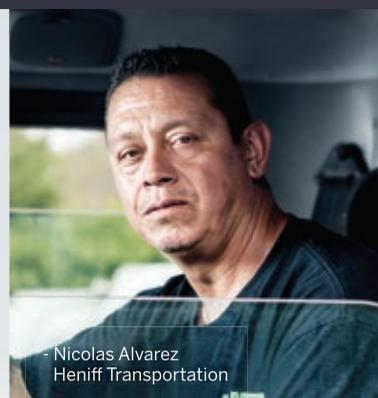
For more than 20 years, the companies of Trimble Transportation have been helping companies across the country stay ahead of the technology curve. Now PeopleNet, 10-4 and TMW are evolving together under one purpose: To make the movement of freight and goods all throughout the supply chain safer and more efficient than ever before.

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“If you’re doing it the same way you were five years ago, you’re doing it wrong.”

- Robert Hoehler
Schwerman Trucking



- Nicolas Alvarez
Heniff Transportation



- Elise Fournet
Dupré Logistics

See how we are helping our customers evolve at transportation.trimble.com/evolve.



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What's the most neglected part of the supply chain?

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99 CASEBOOK

When Newell Brands Inc. experienced truckload loading issues, costly shipping and driver detention rates, transportation inefficiencies, and a lack of electronic logging device data analysis, it turned to a third-party logistics provider.



112 These lifters handle e-comm parcels of all sizes.

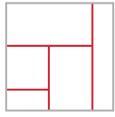


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Banana leaves replace plastic packaging.

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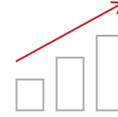
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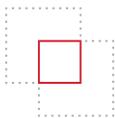
Integrated Supply
Chain Solutions



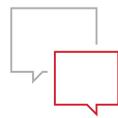
Transportation
Management



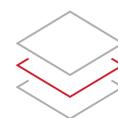
Supply Chain
Packaging Services



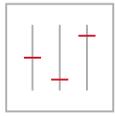
Business Process
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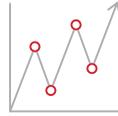
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Consulting



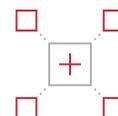
Omnichannel



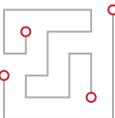
Logistics Center
Management



Business
Intelligence



Retail Consolidation
+ Requirements



Technology



Global Supply
Chain Network



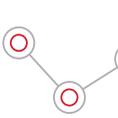
International
Freight Forwarding



Industry
Insights



Cross-Border
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Engineering, Systems
& Solutions)



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MORE NEWS ONLINE



HOW TO TRANSFORM LAST-MILE LOGISTICS

Not only do last-mile delivery costs make up a substantial portion of total freight spending, but most delivery networks aren't built to handle the increased customer demand for door-to-door white-glove service. But there are ways to turn things around. bit.ly/last_mile_howto



THE SUPPLY CHAIN GETS AGILE WITH AI

Shippers can leverage artificial intelligence for materials inventory and data management to avoid downtime and eliminate the manual aspect of resolving real inventory count. Here's how supply chains can get nimble. bit.ly/agilesupplychain



THE WORLD WIDE WEB TURNS 30: CAN THE SUPPLY CHAIN EMULATE ITS FEAT?

The World Wide Web marks its 30th year in 2019. Can the supply chain make the same strides and streamline product order fulfillment across a worldwide web of enterprises? bit.ly/web_lessons_for_SC

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Search our databases of the Top 100 providers in key segments of the supply chain industry.



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CHECKING IN

Conflicted



Keith Biondo, Publisher

As a culture, are we really committed to sustainability? Yes and no. Conventional wisdom can be contradictory. For example, some of you are reading this on paper. BAD! Yet studies show that fast-growth carbon capturing recyclable paper is much more sustainable than the gigawatts of energy and massive server farms needed to deliver *Inbound Logistics* content on your iPhone.

Logistics and supply chain professionals have hands-on experience with contradictory positions such as that every day. Yes, there are urgent calls for a Green New Deal or the world will end in 12 years, but it seems that supply chain impatience drives the dwindling commitment to sustainability.

Consumer demands for instant delivery strain SC operations, counteract sustainability initiatives, and sometimes seem to bend the laws of physics. Is there a connection between increased demand for delivery speed and an increase in energy usage? Bigger footprints? Ya think?

DESTRUCTION OF DENSITY

Logistics and transportation professionals spend entire careers striving to use truckload and rail to maximize shipment density. Besides saving on transport costs, those efforts boost sustainability measurements. Current buyer habits forcing smaller, more frequent shipments strain those efforts. New technology helps to make more frequent shipments more efficient, but technology can only do so much.

Mega distribution centers are now morphing into multi-mini DCs, meaning many more bricks serving inventory. It's true that newer, smaller buildings are built with an eye toward LEED. But are six new DCs more green than one big one when you consider all the factors? It is an open question.

Other sustainability topics are filled with conflict.

Packaging. Some packaging materials are greener, but smaller shipments mean more of it.

Electric vehicles. Turns out, studies show they are not that eco-friendly.

Infrastructure. We've been reporting on infrastructure's impact on efficiency for decades. For example, 1.2 billion hours of truck productivity are lost each year; the equivalent of nearly half a million drivers sidelined annually. The carbon impact is not good. Green energy goals? FAIL.

Ethos. Both businesses and consumers demand products and fulfillment operations that are often at odds with their sustainable pronouncements. The disconnect is striking.

So where's the good news in all of this? It's the strides that you make at your company to chip away at less-than-sustainable operations—a green grassroots effort to swim against the cultural “need it now” tide. ■

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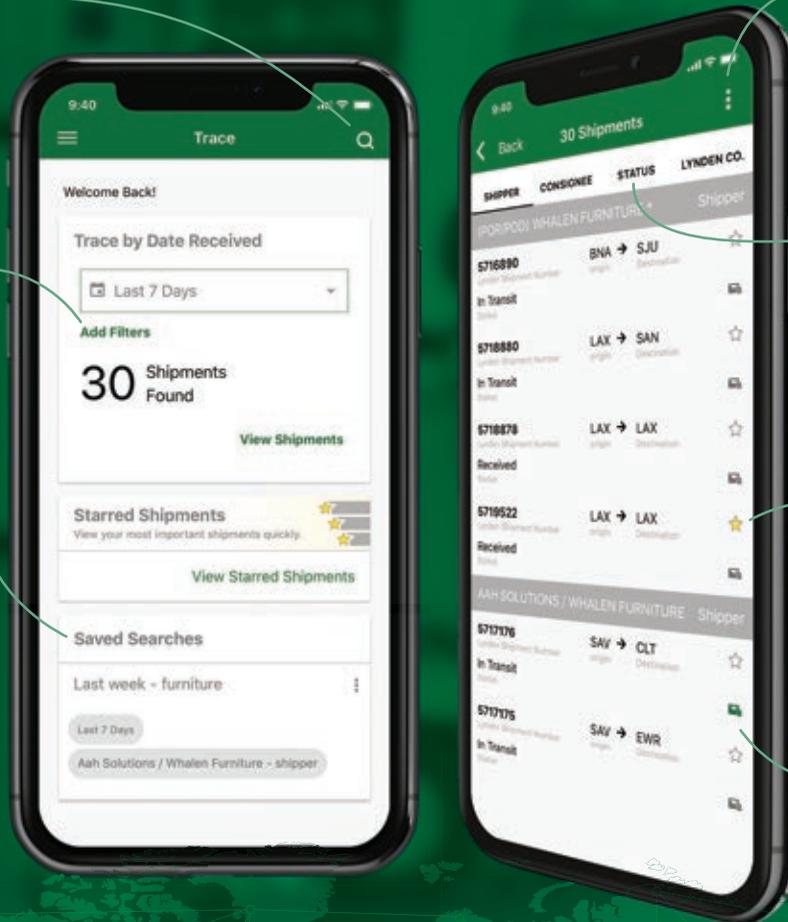
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GOODQUESTION

Readers Weigh In

What's the most neglected part of the supply chain?

Reverse logistics is usually an afterthought.

Heather Jarvis-Gann
Logistics & Dispatch
Crestwood Midstream Partners LP

Defining what supply chain management is for your company is key to writing the right job description and attracting the right talent.

Tyler Chamberlain, MBA
Supply Chain Manager
Capital One

Compliance is often viewed as a cost center and is overlooked and combined with other roles. This puts the supply chain at risk. Higher-level compliance can increase supply chain performance and profitability.

Pia Jala
Vice President of Operations
Labelmaster

Matching incoming raw materials to manufacturing processes, matching work in process to finished goods, and matching SKUs to retail demands. And, identifying which segment is the most critical.

Jerry Robertson
Chief Technology Officer
BOLT System

Recruiting, developing, and retaining talented employees. Future employees need to adapt to technology at a faster pace.

Danette Van Trump
Senior Vice President, Operations
Transplace

Visibility of the interaction of assets and freight. You can't remove waste and damage and improve service delivery without knowing how assets and people interact with and impact freight.

Craig Montgomery
Senior Vice President
Marketing & Business Development
I.D. Systems

Don't Forget Inbound Logistics

Inbound freight is one of the most neglected aspects of the supply chain because it may be difficult for an organization to gain visibility and implement a comprehensive plan. A well-crafted inbound freight management program will put cost controls in place through vendor compliance.

Erin Verranault
Senior Vice President
Domestic Transportation Solutions
Ascent Global Logistics

It's common to forget to manage the inbound supply chain. The inefficiencies caused by errors with inbound deliveries often go unseen. Having a process for monitoring your inbound supply chain's lead time and quality by supplier ensures you are preventing problems before they occur.

Amy Sartain
Director of Business Development
Sunland Logistics Solutions

Have a great answer to a good question?

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

Is "driver shortage" a misnomer?

We'll publish some answers. Tell us at editorial@inboundlogistics.com or tweet us @ILMagazine #ILgoodquestion

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DIALOG

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Quick TIP

Don't buy transportation the same way you buy commodities.

Efficiency comes in process change—not procurement—and the best strategy is to utilize your most efficient and cost-effective transit modes for the longest possible duration across your supply chain. Plan for year-round committed capacities to leverage your total spend and ensure you have coverage during peak seasons.

—Tray Anderson

Logistics & Industrial Services Lead, Americas
Cushman & Wakefield

Re. Overcoming Supply Chain Challenges with TMS Technology

bit.ly/TMS_techtips

I agree with this article, particularly that the “control” information has to be passed end to end in an industry that thrives on a diverse ecosystem of products with data to manage, control, and ultimately forecast from. I would add that the ability to use historical data to retro test changes and adoptions in an off-line system in real-world situations before going live is a significant advantage for continuous improvement.

— John Darroch
QAD Inc.

Re. Solving the USPS Dilemma

bit.ly/USPS_solutions

The current model brings the liabilities of government operation (highly regulated and inflexible) and does *not* capture the benefits of the marketplace (demand-based pricing). The best of both worlds would be to allow the pricing to be totally market-driven *and* to have the government regulate profits so that they are not profit-driven but rather operate like a non-profit.

— Bruce, via online



Re. Good Question: What's the first thing you would do to address the supply chain talent gap?

bit.ly/SC_shortage

Companies need to start emphasizing that the future workforce will need skills in robotics, artificial intelligence, blockchain, etc. This should help attract the younger demographics.

— Armand Castro

Vice President,
Application Engineering
Elemica



I had a baby in 1998. She'll graduate with a supply chain management degree later this year. You're welcome.

— Lori Lockman

American Logistics Aid
Network
Mother of a future supply
chain professional (pictured)

Fast TAKE

Cyber criminals are testing and finding successful new attack strategies and then rolling them out across industries. They are escalating their efforts and maximizing their results with fewer attacks. These attacks have put pressure on the entire supply chain, especially on smaller companies that may not have the IT expertise to defend themselves. To stay on top of these dynamic cyber attacks, companies must automate continuous monitoring of the supply chain to spot holes in security before cyber criminals leverage them.

— Matan Or-El

Co-founder and CEO, Panorays
On supply chain attacks in 2018 nearly doubling in number from the year before, according to the latest Symantec Internet Security Threat Report



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10 TIPS

Maximizing Packaging Efficiency

Your packaging strategy and processes can significantly impact your ability to maintain a smooth and efficient supply chain.

1 COLLECT RELEVANT PRODUCT DATA AT THE OUTSET.

Get all relevant product information—size and weight, shipping mode, and safety requirements—up front to help develop and execute an efficient, compliant packaging strategy. This information will help ensure you use the appropriate packaging and train your employees properly.

2 KNOW EACH STEP AND MATERIAL NEEDS.

The packaging process and the materials needed can vary by product. Know each step of the operation, the materials needed (from box type to inserts to seals), and how to properly use those materials to ensure personnel have the right items when and where they need them and won't have to halt operations to get unexpected items or ask questions.

3 LEARN THE REGULATIONS.

Stay up to date on packaging and labeling requirements for each item you ship—from materials to warning labels to employee training. Understand how they impact your operations.

4 MAKE PACKAGING PART OF BUDGETING DECISIONS.

Understand your budget from the beginning to design the best packaging for your needs without having to make last-minute design or material changes to stay within budget.

5 WORK WITH AN EXPERT.

A partner that specializes in areas relevant to your business—custom design or hazardous materials for example—can help you design packaging that fits your needs while considering ease of use, regulatory compliance, and other factors.

6 MINIMIZE WASTE.

Understand specific packaging, labeling, and testing requirements

for the items you ship to better identify opportunities to eliminate waste. Reducing unnecessary steps and overpacking will help streamline operations while reducing costs.

7 ELIMINATE LAST-MINUTE DECISIONS.

Know your products and their packaging requirements up front, communicate relevant information with internal personnel and supply chain partners, and proactively plan for potential disruptions.

8 USE THE RIGHT TOOLS FOR THE JOB.

The complexity of the packaging process can vary depending on

the product you ship—especially if it is classified as “dangerous” and therefore highly regulated. Consider what tools could streamline the operation—for example, assembly/closure instructions or shipping software to automate processes.

9 LEVERAGE ADVANCED PACKAGING.

Some solutions have been engineered so the box provides adequate protection and meets regulations without the need for gel packs, heavy liners, pellets, or fillers. These advanced solutions reduce the need for additional protective materials.

10 STAY INNOVATIVE AND THINK OUTSIDE THE BOX.

Don't do things just because that's how you've always done them. Refine packaging strategies and tap innovative solutions to further improve efficiency. Whether it's using specialty materials instead of standard cardboard boxes to ship high-risk items or simply evaluating the steps in your procedures, changes big or small can make a huge difference.

SOURCE: BILL BARGER, SENIOR PACKAGING PRODUCT MANAGER, LABELMASTER

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UTILITIES

THE GAS SUPPLY CHAIN NOW EXTENDS TO YOUR CAR

Recently fueled with more than \$15 million in funding and an operating space that has grown from three to 18 cities in less than one year, California-based startup Yoshi offers a monthly subscription service that delivers gas for your car directly to your residence. In addition to providing convenience without the hassle of driving to a standard gas station, the startup is benefiting from a dip in the number of gas stations around the United States.

The company charges a \$16 monthly fee on top of the cost of the fuel. Yoshi sources the gas from ExxonMobil, a company backer.

“STARTUP COMPANY YOSHI IS CAPITALIZING ON A 25% DROP IN U.S. RETAIL FUELING SITES OVER THE PAST 20 YEARS.”

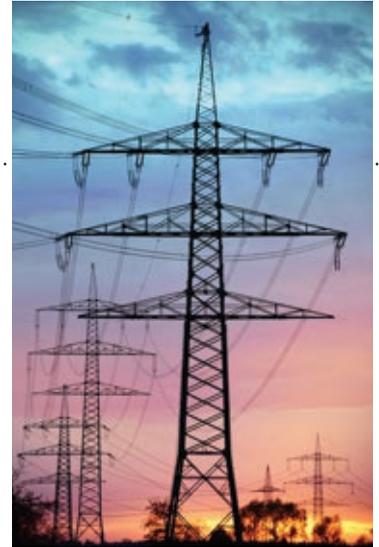
It also offers services such as oil changes and wiper blade replacements, and customers earn gas discounts when they select add-on services. Customers can manage all services through Yoshi’s app.

Drivers do not need to be present while Yoshi employees work on the vehicle, but the company asks customers to leave the fuel door ajar. Yoshi can also install a magnetic fuel vault that makes it possible to complete a fill-up when the fuel door is closed.

Despite safety concerns expressed by some fire departments,

Yoshi states that its fuel transportation tanks, which often carry 1,000 gallons of gas, are certified by the U.S. Department of Transportation and adhere to local laws.

Yoshi estimates that customers can save up to \$240 annually with this service.



POWERING THE UTILITIES SUPPLY CHAIN:

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THE AMOUNT OF OIL THE UNITED STATES CONSUMES PER DAY

14%

THE PORTION OF CALIFORNIA'S ELECTRICITY SUPPLY THAT COMES FROM SOLAR POWER

ABOUT 40%

THE AMOUNT OF GROSS PETROLEUM IMPORTS FROM CANADA

23% BY 2040

THE PROJECTED INCREASE IN CONSUMER DEMAND FOR ELECTRICITY

UTILITIES SWITCH ON INFRASTRUCTURE SPENDING

U.S. infrastructure spending seems to be having its moment in the sun, but in specific industries, infrastructure spending has been on the rise for years.

Utilities, in particular, is an area that has shown a steady uptick in expenses related to energy transmission products and technology over the past decade.

Federal Energy Regulatory Commission reports offer insight into the spending

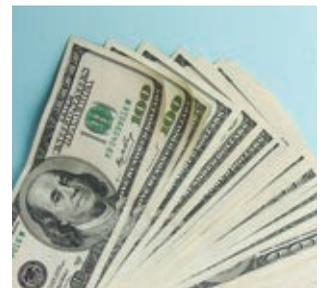
habits of the major utilities companies that account for more than two-thirds of the electric grid load.

These companies have been focusing on replacing and upgrading station equipment, fixtures, poles, and other devices, as well as building new stations.

The utility companies committed about \$21 billion in capital spending to these areas in 2016 alone, according to the report.

The lion’s share of this spending, according to the U.S. Energy Information Administration (EIA), was in the area of transmission infrastructure, followed by maintenance and operational costs such as operating the transmission grid and maintaining power lines.

Aging infrastructure will likely impact the future spending habits of utilities companies, as will efforts



to improve compliance and security standards.

The EIA report also suggests that integrating renewable energy and natural gas will also play a role in future budgets.

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LEADERSHIP

Conversations with the Captains of Industry

Communicating in Real Time, All the Time



Scott Pruneau relishes the pace of change in logistics and embraces the daily opportunities to meet new challenges with resilience, empathy, and constant communication.

by Merrill Douglas

Sticky notes and pagers were tools of the trade when Scott Pruneau started out in logistics in the 1990s. Pruneau spent the first 11 years of his career in C.H. Robinson's fresh produce business, first as a broker and later as general manager. He and his team bought and sold fruits and vegetables, built loads, and tracked the progress of deliveries—mostly without the aid of digital technology.

“People would have sticky notes on their desks: ‘Pick up four pallets of limes in Arvin,’ or ‘Pick up eight pallets of peaches in Reedley,’” Pruneau recalls. Drivers gave updates by parking their trucks and using pay phones to report their progress. Pruneau and his colleagues carried pagers and maintained toll-free numbers at home to make sure they received those calls.

It's a bit hard to believe from where Pruneau sits today, at the head of ITS Logistics in Sparks, Nevada. Like their counterparts at most third-party logistics (3PL) companies, Pruneau and his team command a range of advanced technology tools. “Compared with what it took in the past, it's amazing how fast you can do the work now,” he says.

We spoke with Pruneau about his development as a leader and his leadership strategies at ITS Logistics.

IL: How did you get started in logistics, and why did you stay?

I played baseball in college and the only plan I had was for my sports career. When that didn't work out, I fell into an opportunity with C.H. Robinson. I stayed in the business because I loved the pace and the opportunity to solve different problems every day. Until somebody can figure out how to make something disappear and show up at the other end, there will always be a demand for logistics services. The longer I've been in the industry, the more I appreciate that fact.

IL: What's one early experience that shaped you as a leader?

My first boss in the industry modeled what I would call participant leadership from day one. He never expected more from us than he expected from himself. And he got to know you as a person. Our office was a family.

As a leader, you have to be resilient. You have to have empathy. You have to be ready to hear opinions and suggestions from all members of your team and never stop evolving. Having a boss who modeled that behavior early in my career helped me to move forward as a leader.

Fatherly Advice

The best advice anyone ever gave Scott Pruneau came not in words, but through example. The source was his father, who owned a small auto body shop and also made hand-lettered signs.

“If he did a job for you, and it wasn’t exactly the way you wanted it, or it didn’t meet your expectations, he redid it,” Pruneau says. “What I took from that is, don’t just go through the motions. If you’re tasked with doing something, do it to the best of your abilities. I think about that every day.”

IL: Is there something you once believed strongly, but have since decided isn’t true?

I used to think you could outwork everything: Bring together people with a common work ethic and attitude, and they can move the world. While those traits are important elements of success for individuals and companies, I now know they’re not the whole story. You also have to be innovative and creative.

IL: What keeps your customers awake at night?

The question, “How do I continue to exceed customer expectations when that bar is rising daily?” Buying behaviors in both the B2B and B2C world are evolving so fast, putting pressure on supply chains from every direction. In many cases, the customer experience is just as important as the quality, the price, and the product.

ITS Logistics helps our customers deliver on their promises to their customers. Our customers choose us because we execute a service mix that drives value and allows them to focus on building their businesses.

IL: Tell us about a tough logistics challenge you’ve faced and how you overcame it.

The most demanding challenges I’ve faced came in the early days when I was moving produce. The second you pick produce from the field it starts dying, so you have to get it on the shelf as fast as possible. We were taking refrigerated less-than-truckload orders from California to the distribution centers of clients across the country, all within 72 hours.

What I learned then and continue to apply today is that solving the biggest challenges requires communication in every phase of the process, in real time, all the time.

IL: What qualities make you an effective leader?

I enjoy learning new things and collaborating with people. I’m willing to listen. Also, I’ve been fortunate in my career to be exposed to great people, great companies, and a wide range of experiences. I’ve been involved in all three of our business verticals—asset-based transportation, freight brokerage, and warehousing and distribution. I know just about enough to be dangerous in all of them. That experience helps me with context when we’re talking about problem-solving in our own business. Finally, I’m passionate about our business and the

people we serve, internally and externally. Every day, I try to hold myself accountable to that stakeholder group.

IL: What has been one of your best days at ITS Logistics?

I went to a recent executive meeting prepared to present a solution for an opportunity we had been working on. I expected we’d have a quick conversation, the group would be all in, and we’d get started. I explained my idea, and the response was—crickets.

Then the conversation started. I walked to the whiteboard and got some suggestions, asking, “What don’t you like about this, and what do you like?” By the end of the meeting, we were all aligned and ready to move forward, but the solution didn’t look anything like the one I brought into the room. The important thing was that our executive team developed the idea together. It’s rewarding to have an environment where you can have real conversation.

IL: What’s your advice to anyone starting a career in supply chain management?

Be a sponge. Take every opportunity to learn about your company and your industry. And don’t expect someone else to give you the knowledge you need to be successful. Use all the wonderful tools we have today to educate yourself.

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

My wife and I do a lot of day hiking. My kids are older; one is graduating from college and one from high school. We watch a few TV shows together as a family. I play golf in the little time I have on my own and I enjoy reading business books. ■

READERPROFILE *as told to Karen Kroll*

Losing Waste, Finding Value



MICHAEL WASSON is chief operations officer of Tosca, which provides reusable packaging solutions for perishable food supply chains.

RESPONSIBILITIES: Lead and direct Tosca's supply chain and plant operations, including asset management, logistics, supply chain planning, environmental health, and food safety.

EXPERIENCE: Vice president, supply chain and operations, Tosca; several director- and manager-level supply chain planning roles with Coca Cola Refreshments; senior manager, hub operations, DHL Express; service center manager, Roadway Express; manager of logistics, Hammacher Schlemmer

EDUCATION: B.S., Business Administration, Lewis University, 1990

The reusable packaging supply chain is complicated. In a traditional supply chain, you know your bill of materials and where every product is sourced from. But when we get a trailer in one of our 14 service centers, we don't know what's on it.

Once a container comes back to one of the service centers, we inspect, clean, process, and repair it if necessary, so it's ready to go back out. We don't use a big, fancy software system to manage this. We once implemented a premiere supply chain optimization software

and broke it trying to input all of our systems.

Instead, it takes terrific people on our supply chain planning team working with homegrown business optimization software to manage our supply chain. We manage our supply chain through great people, not through great software.

So, we need good people and leaders. Like many companies, one of our biggest challenges is staffing. Our sustainability platform and our ability to reduce food, packaging, and landfill waste give us an edge. This work is

Michael Wasson Answers the Big Questions

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

The lemonade stand game helps a five-year-old understand that lemonade doesn't just magically appear. You need lemons, sugar, and water. Then you have to combine these different pieces to create a product.

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

About 12 years ago, I was considering an MBA program. My boss told me, "An MBA will look great on paper, but you've already had responsibility for multi-million-dollar profit-and-loss statements. You're not going to learn anything from an MBA."

Instead, he recommended earning an APICS certification, which would make me more focused in supply chain. I

followed his advice. APICS helped me develop different skills and capabilities so I could grow my career and provide value to my employers.

3 What's your hidden talent or guilty pleasure?

I wish I had a hidden talent. As far as a guilty pleasure—when I'm off work, I try to be really off work and spend as much time as I can with my family.

4 What you would tell your 18-year-old self?

I got into this career by accident, so I'd tell my 18-year-old self to be a bit more intentional. Spend time reflecting on the things you're passionate about and the things that get you excited, then figure out what your career path can look like. Also study harder and pay more attention in school.

something employees can get excited about and be proud of.

We constantly look for opportunities to take waste out of perishable supply chains. For example, eggs in transit have one of the highest shrink and breakage percentages. We worked with our engineering team and customers, retail partners, and egg farms to build a container that protects eggs through the supply chain, cutting shrink in half.

The containers also reduce labor by about the same percentage. Because

the packaging is retail-ready, we're able to take products from the refrigerated truck straight to the shelf.

My first college internship was with the vice president of sales and operations for a small manufacturing company. I gravitated toward the operations side. I was interested in figuring out how delivery could live up to the expectations that sales and marketing created.

Every job I've held since then has been on the supply chain side, with

a focus on continuous improvement. How do you take waste out of the system and make a more efficient supply chain operation? How do you manage fleets and drivers to run an efficient operation? I like to know how things work, and then make them better somehow. That's a natural fit for the supply chain.

Supply chain traditionally has been a cost center. Going forward, however, supply chain will be viewed as a value creator. ■

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[IN FOCUS]

NOTED

The Supply Chain in Brief

> GREEN SEEDS



• **Nestlé** aims to make all of its packaging recyclable or reusable by 2025, starting with using paper packaging to replace the

plastic materials used for Smarties candies, Nesquik, and YES! snack bars. The company will also eliminate plastic straws from its products and reduce plastic waste impact by increasing recycled PET content in bottles to 35%.

• **Panalpina Singapore** launched new trucks to align with L'Oréal Travel Retail Asia Pacific's sustainability program, Sharing Beauty With All. The trucks run on biodiesel fuel derived from vegetable oil or animal fat. Panalpina's biodiesel fuel supply comes from collecting waste cooking oil from restaurants across Singapore.

• Beauty company **L'Occitane Group** signed a multi-year agreement with Loop Industries to support its goal of 100% sustainable product packaging. Loop Industries' patented upcycling technology breaks down polyester plastics and fibers in products and repurposes them in virgin-quality polyester plastic packaging.



Tom Cronin, president, and Tom Cronin III, vice president of employee relations & maintenance, Dayton Freight Lines, receive Technicolor's LTL Carrier of the Year award.

> RECOGNITION

• Technicolor honored **Dayton Freight Lines** with its **LTL Carrier of the Year** award (see photo above). The content creator awards one carrier that excels in on-time pickups and deliveries with preassigned arrival times, electronic data interface capabilities, and customer support.



• General Motors presented **Penske Logistics** with the **2018 Supplier of the Year** and **Overdrive** awards. The Supplier of the Year award recognizes companies that consistently exceed expectations and introduce innovations to supply chain operations; the Overdrive award honors organizations that exhibit leadership in cultural change and commitment initiatives.

• The Alaska Trucking Association presented **Alaska West Express** with the **2018 Alaska Safe Truck Fleet of the Year** award. The distinction honors carriers with impressive safety performances, including accident frequency rates; Compliance, Safety and Accountability (CSA) scores; and OSHA-recordable injuries.

> UP THE CHAIN

Walgreens appointed **Colin Nelson** as its first global chief supply chain officer. In this new role, Nelson is in charge of managing the end-to-end supply chain, improving efficiencies, and building on the current network to enhance customer satisfaction as the pharmacy store chain continues to build its digital presence.



> GOOD WORKS

Old Dominion Freight Line donated more than 12,000 baseballs to Pitch In For Baseball & Softball, a charity that gives children access to recreation and contributes to positive youth development. Old Dominion transported the balls in its “clear” trailer (photo, bottom right), which traveled around the country in 2017 and 2018, visiting the All-Star Game, major league stadiums, and Old Dominion service centers.



m&a

■ **Americold Realty Trust**, a publicly traded real estate investment trust focused on temperature-controlled warehouses, acquired **Lanier Cold Storage**, which consists of two temperature-controlled facilities.

■ **Wind Point Partners**, a private equity firm, bought **A&R Logistics**, a provider of integrated dry bulk logistics solutions for the chemical and plastic industries.

■ **C.H. Robinson**, a provider of multimodal transportation services and third-party logistics, acquired **Dema Service**, a provider of European road transportation.

■ **Descartes Systems Group**, a multinational technology company, bought **Core Transport Technologies NZ Limited**, an electronic transportation network that provides global air carriers and ground handlers with shipment scanning and tracking solutions.

■ **Burris Logistics**, a supply chain solutions provider, acquired **Trinity Logistics**, a third-party logistics company specializing in freight arrangement and supply chain solutions.

> SHOVEL READY

• **Amazon** broke ground on a 3-million-square-foot air cargo hub and 250,000-square-foot loading dock at the Cincinnati Northern Kentucky International Airport. The new hub will support more than 100 Prime Air cargo planes, and its centralized location will allow Amazon trucks to reach 11 fulfillment centers within a few hours.

• **Chewy**, an online pet food and supplies retailer, plans to build a distribution facility in Rowan County, North Carolina. In addition to creating 1,200 jobs, the new location will enhance the company’s delivery network across the southeastern United States, allowing it to service customers with faster delivery times.



> SEALED DEALS

• **Pentair PLC**, a water solutions provider, adopted **RateLinx’s** global transportation management, track and trace, and freight audit and payment system to automate processes, streamline supply chain operations, and consolidate data sources and systems.

• **Goodwill South Florida** and global transportation and logistics company **Ryder System** have joined forces to create the Ryder Apparel Manufacturing Division at the nonprofit’s headquarters in Miami. Ryder has invested in the division, which employs more than 1,100 people with disabilities and other barriers to work and produces approximately 6,000 U.S. military uniforms and veteran interment flags daily.

[IN FOCUS]

TAKEAWAYS

Shaping the Future of the Global Supply Chain



Port of Savannah: Meet Me In St. Louis

The St. Louis Regional Freightway and the Port of Savannah are forging a partnership to create a new connection between the St. Louis region and the largest single-terminal container facility in the western hemisphere.

In response to record movement of 4.3 million TEUs in fiscal 2017, the Port of Savannah is investing \$3 billion to increase its containerized cargo capacity from 5 million to 8 million TEUs by 2028. The investment will accelerate the efforts of the nation's third-busiest container gateway to better support retailers and manufacturers and distribute more goods to and from the interior of the United States. The growing Port of Savannah has identified the St. Louis region as a key import/export market where containers can consistently be distributed at a lower cost for shippers.

An important component of the Port of Savannah's development plan is a new \$220-million rail terminal that will be the largest on-terminal rail facility in North America by 2020. The expansion will improve efficiency and double terminal rail lift capacity to about 1 million containers per year.

The unit train capacity on terminal will build density into the system, and enable rail providers CSX and Norfolk Southern to deliver faster, more frequent rail service to Midwest markets, including St. Louis, where both rail companies already have established intermodal yards. Both are Class 1 railroads providing a direct link between the Port of Savannah on the East Coast and the St. Louis region in America's heartland.

THE ROAD TO ROUTE PLANNING

Customers in the digital era expect deliveries to be reliable, fast, and transparent; they want to be able to track a delivery, even when it takes only a few hours to reach them. Route planning can help meet this demand.

Many businesses employ route-planning systems to gain a competitive advantage. These digital tools consider products, personnel, vehicles, regulations, and possible routes to help amp delivery agility. Powered by machine learning and artificial intelligence, this digital tech can accommodate short-notice changes in transportation, driver, or route availability.

Here are five reasons why route planning is essential to a healthy supply chain:

1. Reduce daily planning efforts. A route planning system can adapt to daily or weekly order quantity variations. The software automatically plans for efficient, multi-stop schedules to improve asset utilization. At the same time, it incorporates information about customer delivery requirements, truck capacity, driver availability, and other limitations.

2. Enhance transportation scheduling. With a route planning system calculating the most efficient routes, businesses can lower mileage, reducing fuel usage and carbon emissions. Because route planning links to live vehicle tracking, businesses can better identify unexpected detours and communicate proactively to enhance service and improve customer satisfaction.

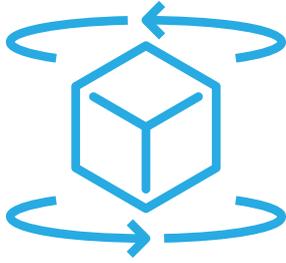
3. Provide continuous optimization. Route planning algorithms continually review incoming data (new orders, available resources, vehicle breakdowns) to maximize efficiency. The best route planning software also uses historical data to constantly improve.

4. Centralize scheduling. With route planning software centralizing logistics operations, businesses can gain insight into scheduling on a regional or national scale. This can help avoid trucks driving with empty cargo space, drive consolidation of supplier pickups, and identify other opportunities to streamline processes and reduce costs.

5. Add business intelligence. By tracking key performance indicators and business metrics, the software makes it easier for route managers to identify trends, anticipate cost concerns, and locate savings opportunities.

TAKEAWAYS

Can Your Supply Chain Turn on a Dime?



Shifting and more demanding consumer expectations are changing the way organizations work. According to the EY Americas Supply Chain Reinvention Survey 2019, 53% of respondents say fast-changing customer

preferences require supply chains that can turn on a dime.

The survey covers topics including technology adoption, leadership and talent, investment prioritization, sustainability, and other factors in creating a successful supply chain. Key findings include:

A LONG ROAD TO 2025. More than **50%** of senior-level supply chain executives expect autonomous supply chains by 2025. But only 25% of supply chains are currently digitally networked or autonomous.

THE SECRET SAUCE. Autonomous supply chains see greater improvements in market share and customer satisfaction, compared to linear counterparts.

- **90%** of respondents with autonomous supply chains report that their market share increased somewhat or significantly in the past year, compared to 7% with linear supply chains.

- **97%** of respondents with autonomous supply chains report their customer satisfaction somewhat or significantly increased in the past year, compared to only 8% with linear supply chains.

TALENT SHORTAGE. 55% of companies report they are retraining employees in the supply chain function for digital technologies, but a lack of skilled employees is cited as the #2 obstacle to a successful supply chain.

- Just **44%** of respondents say their employees are prepared for digital innovation in the supply chain.

SUSTAINABILITY PRIORITIES. Over the next three years, sustainability is the #2 priority for supply chains, behind increased efficiency.

- **90%** of companies with autonomous supply chains say sustainable management reduces costs in the long term, versus 25% of those with a mostly linear supply chain.

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TAKEAWAYS

SURVEY

HOW EVOLVING CONSUMER BEHAVIOR IMPACTS GLOBAL SUPPLY CHAINS

The impact of evolving consumer shopping behaviors on retailers and manufacturers is the focus of a new supply chain study by DiCentral, a B2B integration services provider, along with the Center for Supply Chain Research at Lehigh University.

The study, *Supply Chain Collaboration in Transformative Vertical Industries: Implications of Omnichannel and Dropshipping*, examines the motivations, challenges, benefits, and supply chain implications of online shopping and home delivery from the perspectives of more than 180 C-level executives, vice presidents, and senior managers in both retail and Consumer Packaged Goods (CPG) manufacturing.

Study participants share the operational and financial implications associated with the journey from brick-and-mortar stores to online e-commerce, particularly with regard to home delivery and order fulfillment models in which products are shipped directly from the manufacturers and the retailer no longer carries the physical inventory.

The study also describes the efforts being made to keep up with the pace of change, the technological investments necessary to accommodate the change, and the benefits and risks associated with this new online retail reality.

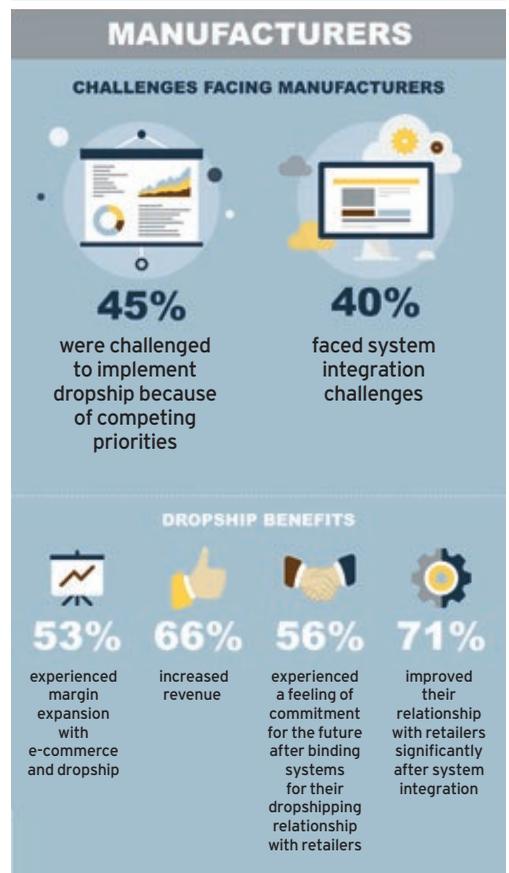
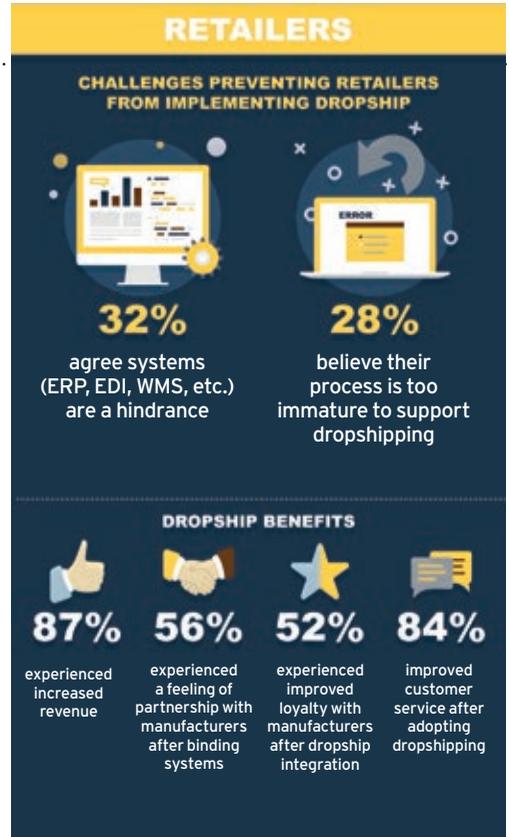
The study suggests that retailers and manufacturers that have adopted a high degree of electronic collaboration have

benefited most from dropshipping.

Retailers gain increased visibility into the manufacturers' behaviors which, in turn, increases the retailers' confidence that products ordered are acknowledged and shipped within the promised time frames. Barriers to achieving this goal include a lack of executive involvement and budget constraints (among other factors), but retailers overwhelmingly point to a lack of systems integration (EDI, ERP, WMS) as the biggest barrier to dropship implementation. Manufacturers' largest barrier was competing priorities followed by lack of systems integration.

While manufacturers share many of the same goals as retailers, they have the additional pressure of supporting volume growth and fulfilling orders quickly and accurately. Despite this, 66% of manufacturer respondents indicate that dropship implementation has already led to increased revenue, particularly those that provided dropship for no more than 40% of their total business.

Both retailers and manufacturers face several key challenges to keeping up with consumer expectations. Although the research clearly demonstrates that successful e-commerce and dropship programs are highly correlated to the level of collaboration and technology integration between the manufacturer and retailer, 46% of retailers are reluctant or unable to share e-commerce sales forecasts with manufacturers.



TAKEAWAYS

Digital Forwarders Gain Traction

Digital forwarding platforms are rapidly gaining traction in a global forwarding market characterized by uneven change, according to Global Freight Forwarding 2019, a new study from Transport Intelligence.

Technology is creating a vast range of forwarding options available to shippers across the globe—from online booking and quotation to visibility tools and control towers.

However, “perhaps the most salient characteristic of the present freight forwarding market is that it has not seen a greater level of change,” says Thomas Cullen, one of the report’s co-authors. “Markets and technologies have both developed significantly, but the overall landscape is broadly similar to that of the previous 10 years and there appears to be little drive within the sector to change things fundamentally.”

Technology-enabled forwarders are a catalyst for change in the global forwarding market, the report finds, but a still-unanswered question is the extent to which online marketplaces, booking platforms, and digital forwarders will fundamentally change the market’s landscape. What does seem certain is that if forwarders do not prove agile in their adoption of new technology, they will find that they rapidly lose customers looking for the types of visibility, quotation, and easy booking which digital forwarders can provide.

An extensive market-wide survey carried out for the report supports this conclusion. The survey finds that not only had 49% of participating shippers used an online forwarding platform, but that respondents expect nearly one-fifth (18.7%) of all their volumes to be booked/shipped through such a platform by 2023.

AMONG THE SURVEY'S KEY FINDINGS:

- Traditional forwarders must recognize online forwarding disruptors as a catalyst of change—they will rapidly lose customers looking for better visibility, quotation, and easy booking options if they don't.
- 49% of shippers that took part in a market-wide survey have used an online forwarding platform.
- By 2023, nearly one-fifth (18.7%) of volumes are expected to be booked/shipped through online forwarding platforms, according to survey respondents
- The global freight forwarding market grew 3.9% in 2018. Growth slowed from the levels seen in 2017, but the expansion is still one of the fastest seen since 2010.

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TAKEAWAYS

TECHNOLOGY TRENDS YOU CAN'T IGNORE

Strategic technology trends have the potential to drive significant disruption and deliver significant opportunity. Enterprise architecture and technology innovation leaders must evaluate these trends to identify opportunities, counter threats, and create competitive advantage, according to a recent Gartner report.

Key Report Findings

Artificial intelligence (AI) opens up a new frontier for digital business. This is because virtually every application, service, and Internet of Things (IoT) object incorporates an intelligent aspect to automate or augment application processes or human activities.

The way we perceive and interact with technology is undergoing a radical transformation. Conversational platforms, augmented reality, virtual reality, and mixed reality will provide more natural and immersive ambient experiences within the digital world.

Digital representations of things and organizational processes are increasingly used to monitor, analyze, and control real-world environments. These digital twins combined with AI and immersive experiences set the stage for open, connected, and

coordinated smart spaces.

Formal mechanisms to identify technology trends and prioritize those with the biggest potential impact on the business create competitive advantage.

Recommendations

Enterprise architecture (EA) and technology innovation leaders driving business transformation through technological innovation must:

- Explore ways that AI-driven autonomous capabilities can power essentially any physical device within the organization or the customer's environment.
- Educate, engage, and ideate with senior business leaders about their strategically relevant priorities and where AI can automate or augment human activities.
- Develop and deploy a mix of platforms that incorporate conversational interactions with virtual, augmented, and mixed reality for targeted use cases to create an immersive user experience.
- Support IoT initiatives by developing and prioritizing targeted, high-value business cases to build digital twins of physical things and organizational processes.

■ Learn about and monitor quantum computing while it is still in the emerging state. Identify real-world problems where it has potential and assess its possible impact on security.

Strategic Planning Assumptions

- **By 2021**, 10% of new vehicles will have autonomous driving capabilities, compared with fewer than 1% in 2018.
- **By 2021**, half of large industrial companies will use digital twins, resulting in a 10% improvement in effectiveness for those organizations.
- **By 2021**, organizations that bypass privacy requirements and are caught lacking in privacy protection will pay 100% more in compliance costs than competitors that adhere to best practices.
- **By 2022**, at least 40% of new application development projects will have artificial intelligence co-developers on the team.
- **By 2022**, 70% of enterprises will be experimenting with immersive technologies for consumer and enterprise use, and 25% will have deployed them to production.
- **By 2022**, more than 50% of all people collaborating in Industry 4.0 ecosystems will use virtual assistants or intelligent agents to interact more naturally with their surroundings and with people.

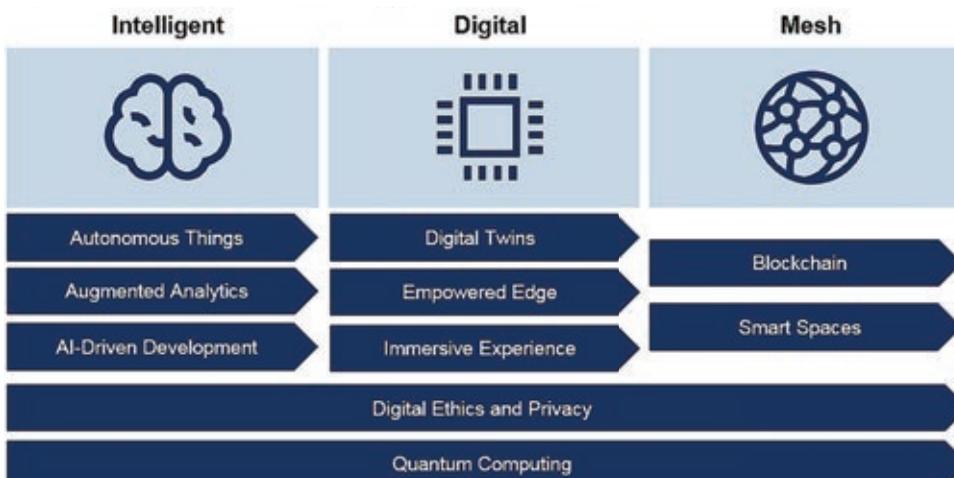
intelligent agents to interact more naturally with their surroundings and with people.

• **By 2023**, 20% of organizations will be budgeting for quantum computing projects, compared to fewer than 1% in 2018

• **Through 2028**, storage, computing, and advanced AI and analytics technologies will expand the capabilities of edge devices.

• **By 2030**, blockchain will create \$3.1 trillion in business value.

TOP 10 STRATEGIC TECHNOLOGY TRENDS FOR 2019



SOURCE: GARTNER, THE 2019 TOP SUPPLY CHAIN TECHNOLOGY TRENDS YOU CAN'T IGNORE, MARCH 2019, ANDREW STEVENS, CHRISTIAN TITZE

TAKEAWAYS

SUBCOMS FOCUSED ON THE FUTURE

In a retail environment focused on customer experience and convenience, subscription commerce (subcom) companies are maintaining

a foothold. According to the 2019 SnapFulfil and Subscription Trade Association (SUBTA) State of Subscription Commerce survey, 46% of today's subcom offerings now have 2-5 years of operational experience; 40% have more than 5,000 customers, and 29% have more than 10,000 customers.

The industry is growing at a healthy rate, with 37% of subcom offerings predicting revenue growth of 26% to 100% in 2019, and 65% predicting at least doubled sales over the next five years.

But now that consumers are more familiar with the industry, some boxes are considering expansion outside the subscription. Thirty-four percent have expanded into traditional e-commerce in the past year, while another 30% are considering a similar move soon. Eighteen percent are considering an expansion into brick-and-mortar operations.

Despite plans to expand into other channels, some subcom offerings aren't sure how they'll meet increased customer expectations. Nearly half say demand forecasting is one of their greatest fulfillment challenges.

Among other challenges keeping subcom professionals up at night:

- On-time shipping: 32% of respondents
- Inventory accuracy: 24% of respondents
- Kitting: 24% of respondents
- Inventory obsolescence: 16% of respondents

However, many subcom companies don't plan on significantly changing their operations from today. They're keeping their teams small—60% regularly employ five or fewer people in their fulfillment operations. Seventy-two percent keep their operations in-house, and two-thirds of those aren't considering a 3PL. Of the 28% that contract a 3PL, 64% have no plans to end their relationship.

When it comes to reverse logistics, most subcom offerings (73%) are willing to work with customers on returns, but it's all-or-nothing: 75% won't offer partial refunds for returning only select items.

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Three Ways Data Is Enabling Smarter Transportation Management



Jim Monkmeier
 President, Transportation
 DHL Supply Chain
 North America
logistics.dhl.com

The rise of e-commerce continues to drive greater expectations around speed, agility, and visibility. Transportation and warehousing providers have been forced to evolve rapidly to keep pace with increasingly high service-level demands—from manufacturers, retailers, and consumers. Supply chain technology—powered by data and analytics—is enabling that evolution.

Ensuring Consistency and Quality

Within the last few years alone, technology has propelled the industry beyond simple track-and-trace data into a whole new world of supply chain visibility. Now, customers not only track their packages through transport, they can receive text or email alerts along the way. The same data can indicate that the delivery is within a mile of its destination, allowing receiving facility managers to plan ahead and eliminate surprises.

This greater visibility has implications beyond on-time deliveries. This data will ultimately lead to companies being able to carry less inventory, because they will know with greater certainty where their products are located and exactly when they are needed. This could lead to significant cost savings over time.

Enabling Efficiency and Productivity

Fleet management systems are also playing a large role in driving greater transportation efficiency. Systems communicate with vehicles on a constant basis, gathering data about how long a vehicle has been on the road, where it is headed, and which route is the most efficient. These systems reduce idle driver time, optimize fuel efficiency, enhance

safety, and reduce paperwork while also providing the warehouse with greater flexibility and real-time responses to unplanned events.

Digital freight marketplaces are also enabling companies to think beyond today's shipment by providing greater transparency in the trucking industry. All these insights can help drive lower operating costs without sacrificing service.

Saving the Roads

Finally, data will coordinate with other technologies to play a role in one of the most exciting developments in transportation: platooning. Platooning links three or four trucks for trips on long stretches of interstate highways. A driver is required for the lead vehicle, and the remaining trucks follow on a digital tether, a short distance apart. The lead vehicle controls the speed, direction, and braking of all vehicles, which respond with near-zero reaction time.

Platooning is likely to be a game changer for transportation, saving driver labor costs, increasing road safety, and providing environmental benefits.

Transportation is evolving rapidly, thanks to supply chain technology powered by data and analytics. Digitization is driving big changes that can help meet the pace of change.

Sharing the Cost of Technology

Carriers and 3PLs are working together today to leverage these and other technologies to drive greater efficiency and cost savings across the supply chain without compromising service levels. 3PLs have proven experience leveraging emerging technologies and can often help organizations quickly take advantage of what's available (and on the near horizon) at a scalable cost.

To learn more about how digitization is driving changes in transportation, visit bit.ly/DHLTransportSolutions



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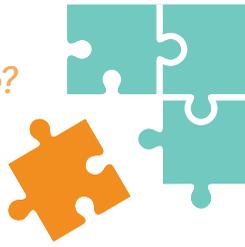
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Supply Chain Challenge?
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Eliminating Costs With End-to-End Visibility

CPG manufacturer uses Hub Group's innovative technology to make better business decisions.

THE CHALLENGE

Servicing a retailer with strict delivery standards, a niche CPG manufacturer faced the unfortunate choice between taking retailer non-compliance penalties or accumulating rail storage fees.

With minimal visibility to their supply chain, the CPG manufacturer couldn't plan their shipments effectively and had been incurring costly rail storage fees while shipments waited days for their delivery appointment.

This trend continued to accelerate and began to negatively impact budget performance. Wanting to more proactively

manage their relationship with their retailer partner, the manufacturer searched for tools to enable better decision making.

THE SOLUTION

Engaging with Hub Group, the manufacturer quickly found value working with Hub Connect, Hub Group's online platform for freight management. This platform not only delivered pinpoint GPS tracking of Hub Group's enormous network of IoT sensor-equipped capacity, it now featured innovative and dynamic ETAs enabled by AI and machine learning.

Using this information, the manufacturer now had up-to-the-second shipment insights to deliver more accurate ETAs for their shipments in transit.

When a customer identifies a shipment arriving sooner than their initial delivery date, the manufacturer works with the retailer to schedule an earlier delivery appointment, bypassing rail storage fees. By quarter-end, their equipment storage costs dove 53%, helping them stay ahead of their budget.



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THOUGHT LEADERS

Simplifying the Sophisticated Warehouse To Drive Efficiency



John Carroll

Vice President, Sales and Marketing
Loading Dock Products
Kelley Entrematic
kelley@entrematic.com
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As the equipment and resources in warehouses, manufacturing facilities, and distribution centers become more technologically complex and sophisticated, well-designed processes and systems can help build a simplified, straightforward operation that is safer and more efficient.

Q: *How can shippers, especially those in retail and high-volume distribution, accommodate the increasing demands of e-commerce with their warehouse equipment selection?*

A: Those facilities focus heavily on throughput and efficiency and need equipment that has a high level of reliability. Our Kelley aFX air-powered dock leveler is extremely popular with this market segment and provides tremendous up time with a very low cost of ownership. Due to the high volume at those facilities and the speed at which they operate, strong safety practices become imperative. That means a strong recommendation for vehicle restraints that are interlocked with the dock levelers to operate in the proper sequence. Dock safety gates for fall-off protection are a great add as well. These operations are typically very concerned about moisture control at the dock, as they have zero tolerance for wet product, so proper environmental control is necessary. This can include a dock seal or shelter with an integral rain hood, like the Kelley Aqua-Shield.

Q: *In today's technologically sophisticated warehouse, what are the biggest challenges to centralized management of the various facets of an operation?*

A: Visibility to actions and status at the loading dock is a challenge. Which docks are in use and which are empty? If in use, what is the status? Not loaded or unloaded yet, in process, or finished but trailer is still present? Access to that visibility at a central location can provide powerful advantages to maximizing throughput.

Q: *How does Kelley's Digital Master Control Panel help solve those challenges?*

A: The Kelley Digital Master Control Panel features a Human Machine Interface (HMI) touch screen to control all of the dock equipment. A very intuitive, easy-to-use system only displays control buttons for the next proper operation in your chosen equipment sequence. That enhances efficiency and safety since the operator is not guessing which button to push next. Training new workers is greatly simplified. We use all symbols and no text, so multilingual operations are no issue.

The HMI includes a timer feature that gives the time elapsed since a trailer was restrained, so loading times can be easily monitored. That loading time metric is important to facilities for getting better throughput. It also tracks equipment cycles for both the lifetime of the equipment and since a reset, so maintenance can be better planned and budgeted. A service technician can check the status of the unit's power line carrier (PLC) without opening the panel door, saving time and expense. All of these data points and more can be viewed remotely via our 4Sight Connect cloud-based platform as well.

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[INSIGHT]

SMARTMOVES

by *Pete Butler*

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Filling the Manufacturing Skills Gap

The manufacturing skills gap may leave a projected 2.4 million positions open in the coming decade, with a potential economic impact of \$2.5 trillion. How can manufacturers prepare and fill positions with qualified individuals? What training and ongoing education strategies will enable the necessary skills?

Predictive analytics and machine learning can eliminate the guesswork in quickly finding the strongest, most qualified individuals for manufacturing positions. Coupled with the capability of the gig economy, these innovations can save industry manufacturers and suppliers costly energy and resources, ultimately impacting their bottom line. The gig economy utilizes a temporary workforce for short-term engagements, a strategy that can be applied and scaled to meet the needs of most businesses. This offers a substantial benefit to manufacturers that often require on-demand talent.

Growth of the gig economy can be attributed to the high cost of healthcare and other benefits for full-time employees, constant supply and demand fluctuation, and inflated overhead costs. Manufacturers and top-tier suppliers are no strangers to these issues, making them compatible with the use of gig economy principles and predictive analytics

capabilities to more efficiently and effectively fill workforce gaps.

Here's how we can put this two-pronged solution into action.

1. Leverage predictive analytics to improve placement and productivity.

By examining the performance metrics of their existing workforce, manufacturers can assess which employee factors impact productivity most. Data-driven decision-making helps target and hire freelance workers who possess necessary skills. Companies that provide and screen large talent pools of freelance workers for manufacturers can use predictive analytics to identify the candidates most likely to excel at the unique demands of each manufacturing plant.

Looking beyond traditional talent pools that no longer yield enough workers with the right skills, manufacturers can leverage the gig economy to locate employees with the analytical, technological, and

problem-solving skills required for high-demand jobs. Reviewing key performance metrics can also determine the number of freelance workers needed to meet production goals.

2. Utilize quality digital platforms to optimize outcomes.

To maximize workforce operations, manufacturers should utilize a digital technology platform that aggregates all data and logistics; supports two-way employer and employee communication; and provides employees with the training, education, and work-site information they need for success.

Gig workers are best engaged through mobile solutions, which can include a training component that enables freelance employees to arrive on the job with sound comprehension of their tasks. Mobile technology can also provide employers with real-time analytics such as tenure, attendance, and performance reviews across the supply chain to inform workforce needs. Integrating these affordances into one cohesive platform is key to optimizing operations from placement to production.

Manufacturers that tap the power of the gig economy, paired with innovative predictive analytics and engaging digital platforms, will be well-positioned to improve productivity, meet customer demand, and increase earnings. ■



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[INSIGHT]

VIEWPOINT

by *Bill Mathews*

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Stop Calling It Backhaul

A backhaul is a means of returning drivers and equipment to their origin or domicile. It's that happy place where sales can command the highest rates for haul and the customer connection is at its best.

It stands to reason, however, that one company's origin point is another company's wasteland in terms of relationships and sales coverage. But why should the value of transportation be less for the latter company? This is the mentality surrounding the backhaul. It is the reason we need to stop using that word and simply say loads.

The level of backhaul discounting is obviously market-driven for the most part. In cases where fronthaul trips are destined to weak outbound markets, fleets must make the money on the outbound trip to compensate for the weaker return market.

A problem arises when this becomes entrenched in the psyche of a company's operations personnel. Not all markets exhibit excess capacity, but somehow all backhauls become eligible for steep discounts. In many cases, companies discount backhaul rates by 40% or more. This discounting presents the shipping public with an unconscious and unrealistic view of the company's overall service value. While you may never get a great rate out of Miami, it is

likely that you are losing price control in other markets.

It is a sobering fact that, even with driver shortages and capacity constraints, more than 20% of truck miles are driven empty. It may be more sobering to contemplate that the empty percentage number should possibly be higher.

One key performance indicator (KPI) that determines good trips from bad for most companies is the percent of empty miles to total distance traveled. You can make the case that this KPI is used incorrectly and can be a factor in making less-than-optimal decisions.

A good counter to the percent of empty miles is total revenue per day per truck. This KPI introduces time into the equation. It makes no sense for a company to accept a load that parks a truck for too long. Companies need to achieve a balance between these two metrics to increase profitability. This is all basic business. But companies should take a fresh look into how this plays out as it relates to getting drivers home.

One of the best ways companies can minimize the effects of hauling out of

a weak market is to utilize the closest stronger market as a springboard. For example, they may have to take \$1 per mile to get out of Philly, but the rates out of Pittsburgh are much better. Ideally they would take a shorter trip to Pittsburgh at depressed market rates to minimize the impact of the low rate. Once in the better market, companies can take advantage of higher rates for a greater percentage of the haul.

It often works out that a deadhead into the better market is the best option for the company's business. This may seem onerous since operations has to deal with at least two transactions instead of one, but technology exists to automate this decision process for the team and even optimize to preferred KPI. There is potential to sharply increase profitability. The cost of that increase is the backhaul mindset.

Yes, drivers need to get home on a predictable schedule and this sometimes requires fleets to make tough decisions to maintain a dependable workforce. Companies can stop depressing the overall market (and therefore driver's wages) by negotiating against themselves from the outset. The concept of backhauls taints how the value of capacity is calculated and has made some fleets lazy in their operations. Stop calling it a backhaul and get your fleets on board. ■

ON AIR



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[INSIGHT]

GREENLANDSCAPE

by Pervinder Johar

CEO, Blume Global

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Operating a Purpose-Driven Supply Chain

Leading with purpose creates an impact that resonates across a business—including employees, customers, partners, and shareholders. It can often be a complicated process, but it doesn't need to be.

For global brands that source raw materials, move products through global supply chains across borders, and ultimately deliver a product or experience to a customer, understanding the impact of a supply chain on our communities, the environment, and the bottom line is incredibly valuable.

A supply chain is the ultimate platform for purpose because it is bigger than the company. It connects every organization that brings a finished product from raw materials to end customers. The supply chain offers tremendous opportunities to drive real societal change—not just at a single organization, but within every organization along the supply chain. Think of it as the “network effect” for a greater purpose.

To start, a purpose-driven supply chain means the seller or shipper has taken steps to improve internal procurement and shipping processes to eliminate unproductive practices. That includes everything from reducing unnecessary miles by improving shipping routes to

cutting back on emissions by upgrading trucks. A purpose-driven supply chain is optimized, efficient, effective, and beneficial to the larger supply chain ecosystem.

To operate a purpose-driven supply chain, consider the following strategies.

Simplify supply chain processes.

Good analytics and reporting work with machine learning to continually improve processes throughout the supply chain. Every change that even slightly reduces waste, speeds delivery, or enhances quality can incrementally improve sustainability.

Supply chains can be improved through major changes, but it's more common to see results through small, iterative improvements.

Consolidate shipments and forecast for supply and demand.

An empty container is a wasted container. Predictive analytics can predict where and when goods will arrive and consolidate shipments from multiple suppliers destined for multiple final destinations. At the same time,

predictive analytics, combined with artificial intelligence and machine learning, can predict likely demand and ensure more efficient supply and manufacturing processes.

Ultimately, this makes the most efficient use of assets and transportation, reducing the amount of greenhouse gases generated per unit of cargo by minimizing empty miles.

Create transparency. Blockchain technology is increasingly used to capture and verify supplier sourcing practices, and IoT devices can monitor and report on working conditions and environmental factors. Utilizing these technologies, supply chain managers can help enhance visibility into how suppliers extract or produce raw materials to ensure they're following sustainability standards.

The supply chain is an essential part of any company that provides products to end users. For a supply chain to be purpose-driven, a purchase must be processed, shipped, and delivered in the most economical, socially responsible, and environmentally friendly way possible.

Our collective goal should be to make the complex and fragmented supply chain sector a simplified, open, and collaborative network of networks that's not only focused on growth, but also purpose-driven. ■

CAN EVERYONE
ON YOUR TEAM
SOLVE THIS?

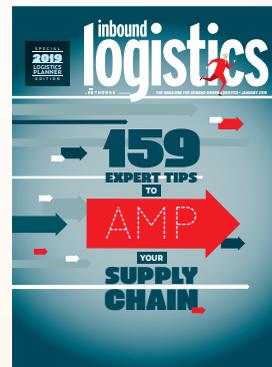
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GREEN SUPPLY CHAINS

SUSTAINABILITY

\$SELL\$

Companies can take good care of the environment while also turning a profit.

BY MERRILL DOUGLAS

What's good for Planet Earth may also be good for the bottom line. That seems to be true of consumer products. Nearly half of U.S. consumers would definitely or probably change their consumption habits to make a more benign impact on the environment, according to market data analysis company Nielsen. Among millennials, that number climbs to 75%.

Sustainability sells. As of December 2018, American consumers had spent \$128.5 billion on sustainable fast-moving consumer goods (FMCG), up 20% over such sales in 2014, Nielsen says.

We checked in with three companies that place green principles at the center of their brands. Here's a look at how those companies weave sustainable practices into their supply chains, and why they find this to be a beneficial way to do business.



1 GREEN TOYS RECYCLING IS CHILD'S PLAY

For Green Toys, the supply chain starts at the curb. The Sausalito, California-based company makes its products from 100% recycled plastic, mainly from milk jugs, juice bottles, and other containers that people drop in household recycling bins. A materials recovery facility cleans the plastic and transforms it into pellets.

“Our contract manufacturers buy

**As of December 2018,
American consumers had spent**

\$128.5 B
on sustainable
FMCG

(fast-moving consumer goods)

**up 20% over such sales in 2014,
according to Nielsen.**

that material and use it in the injection molding process,” says Shahram Baradaran, senior quality assurance and compliance manager at Green Toys.

The company also keeps the earth in mind when it packages the toys. “All of our packaging is 100% recyclable, and there is some recycled content,”

Baradaran says. In addition, Green Toys uses soy- or water-based ink on packaging, rather than ink made from petroleum. What little plastic the company uses in packaging comes from recycled water bottles.

“The goal is to use the greenest materials and packaging that we have access to that are not outrageously priced,” Baradaran says.

Green Toys sells through retailers and directly to consumers. The company promotes the fact that its playthings are made in the United States, but Green Toys hasn't merely resisted the lure of low-cost overseas production. It has also designed a regional supply chain, with contract manufacturers, plastic suppliers, and distribution facilities all on the West Coast, mainly in California.

“The fact that we have such a tight, local supply chain cuts down on CO2 emissions,” Baradaran says. “We don't truck product all over the country.”

A few years ago, an intern at Green Toys conducted a study on how transportation affects the environment. The results pointed to the crucial role

of local sourcing and production. “Shipping from somewhere like Chicago, for instance, would negate the fact that we make our products from recycled materials,” Baradaran notes.

A shorter supply chain also helps Green Toys control transportation costs and maintain just-in-time production.

“We produce as we go and can fulfill our orders almost as soon as they come in,”

Baradaran says.

Despite those benefits, environmental sustainability doesn't come cheap.

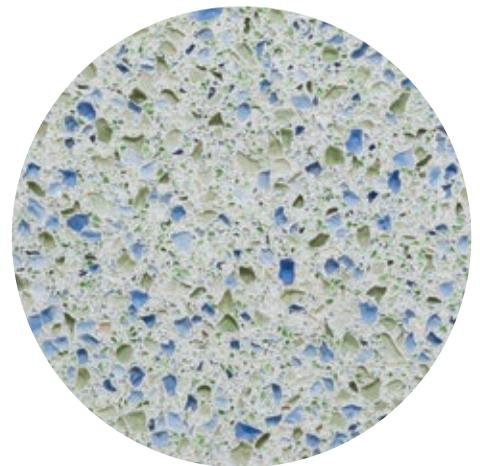
“Using a recycled material is harder than using a virgin material that's specified exactly for the application of making a complex toy,” he says. Still, Green Toys is able to make a profit while fulfilling

its mission to create safe, well-designed, earth-friendly playthings and create jobs in the United States.

The “earth-friendly” part of that commitment is definitely a plus in today's marketplace. “People feel good about buying a product that's made from recycled material and manufactured in the United States,” Baradaran says. That's especially true of millennial parents, he adds.

In the future, officials at Green Toys hope to add a “take-back” program, encouraging consumers to return Green Toys they don't want any more, so manufacturers can recycle the material into new toys. The company plans to test the concept soon, starting with a new line of bath toys made of foam—a new material for Green Toys, and one that's easier and less expensive to ship than high-density polyethylene.

“As a small company, we don't have the funds to get all these products back from consumers and then back into the process,” Baradaran says. “But with this new foam product we'll run a pilot to see how it works and if we can scale up.”



2 ICESTONE GREEN ICE

Team members at IceStone aim to make the company's production site into a zero-waste facility. They're getting close. “Right now we're probably close to 90%,” says Ashon McCollin, marketing

manager at IceStone, based in Brooklyn, New York.

Housed in the former Brooklyn Navy Yard, IceStone makes countertops from recycled glass. It also distributes countertops other companies make from recycled paper mixed with resin, recycled plastic, or crushed waste stone retrieved from quarries. IceStone sells its countertops to architects, interior designers, fabricators, distributors, retailers, and homeowners.

The glass used in the company's IceStone line comes from two suppliers in the Midwest, both manufacturers of bottles and other glass products. When those companies run quality checks, they set aside defective items for sale as recycled material.

"The glass comes to us already broken down and sanded so the edges are not sharp," McCollin says. The material comes in various colors and sizes—from small chunks to grains as fine as sand.

IceStone mixes the glass with cement and, in some cases, pigment to provide a background color. After mixing, the material goes into molds to form slabs, and then to a steam-powered kiln for 12 to 16 hours of curing. A calibrating machine ensures that the slabs are of uniform thickness, removing a few millimeters when necessary. The slabs then air dry for about two weeks. Finally, they're polished, and workers correct any small imperfections they find.

Since its founding in 2003, IceStone

THE CIRCULAR SUPPLY CHAIN

Accenture has introduced a circular supply chain capability that leverages digital identity, payments, and blockchain to directly reward small-scale growers and suppliers for sustainable practices.

To build upon this capability, Accenture is working with Mastercard, Amazon Web Services, Everledger, and Mercy Corps to explore solutions that empower consumers, enable transparency, and promote financial inclusion for small-scale producers.

With two-thirds of consumers stating a preference for sustainable brands, the ability to promote ethical and environmentally mindful practices across the supply chain has never been more important. Until now, however, consumers have had few ways to connect with small-scale suppliers at the base of the supply chain pyramid and limited opportunities to support and incentivize sustainable practices.

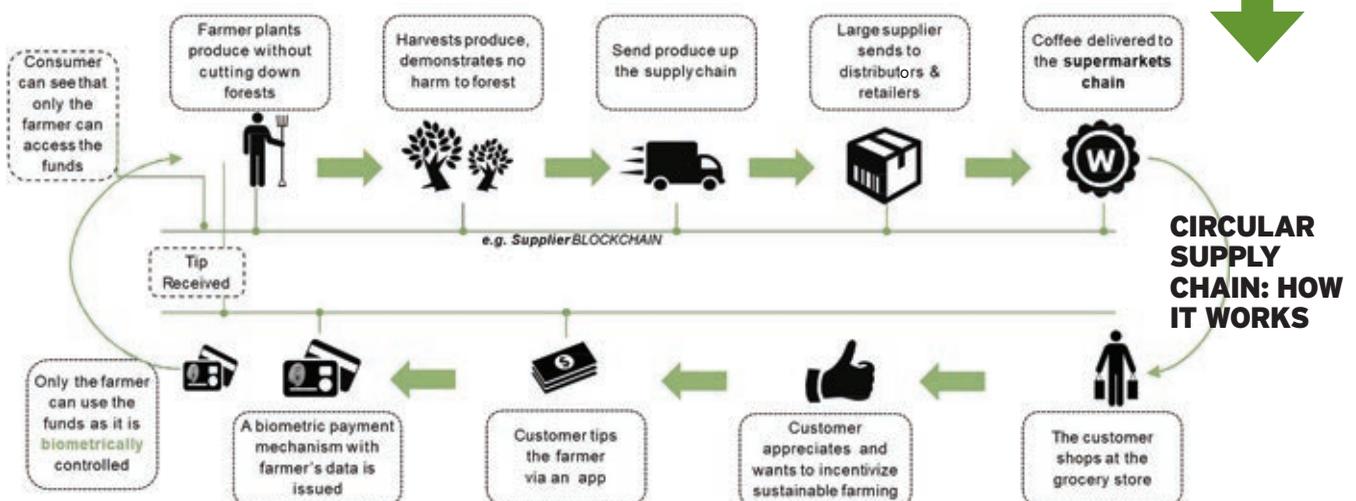
The circular supply chain capability is intended to meet this need by combining blockchain, digital identity, and payment technologies to allow customers to identify individual producers who use sustainable methods and financially reward them with a "tip" made by direct payment.

In addition to empowering customers and connecting them with small-scale producers, the capability

is designed to enable producers, manufacturers, and retailers to better manage their inventory and reduce waste; create better transparency across the supply chain; ensure the authenticity of produce; and provide producers with more-equitable compensation for their produce by enabling consumers to reward them directly.

Digital identity is a critical enabler of the offering. Through each producer's unique digital identifier, data about the "first mile" of their goods is established and linked to their products as they move through the supply chain. End consumers, through a simple label scan, can access details of the product and further, can be empowered to direct a secure "tip."

With the use of distributed ledger solutions, the circular supply chain capability could benefit large global enterprises, governments, and non-governmental organizations by providing a new mechanism for them to track complex supply chains to small originating producers and helping them manage issues relating to accountability, waste, and information transparency.



has diverted more than 16 million pounds of glass from landfills, according to its website.

Besides basing its business on the use of recycled materials, IceStone abides by green principles in its operations. One focus is the calibrating process, which uses a great deal of water. “We have a recycling system that filters out any debris, so we’re able to use the water again,” McCollin says.

A large skylight in the factory’s ceiling reduces the need for electric lighting, as does the use of steam to power the kilns. “Our forklifts are electric and hybrid,” he says. Also, the company uses its own IceStone countertops, with their recycled content, for office desktops and conference tables.

IceStone maintains eco-friendly principles in its marketing activities,

too. “We try to work with vendors that have the same kinds of practices as we do,” McCollin says. “And our marketing materials are made from recycled paper.”

It’s hard to say whether IceStone’s devotion to sustainability saves it money or costs extra. “Some people think that recycled material is going to be super cheap; it’s actually not,” McCollin says.

Recycled materials do give IceStone an edge with architects whose clients seek certification through the Leadership in Energy and Environmental Design (LEED) green building rating system. Among customers in general, IceStone’s green principles may or may not be a prime selling point.

“Some customers like our material just because of the

way it looks,” McCollin says. “Once we mention the eco-friendly, sustainable factor, that’s an added bonus. And then we have some customers that like it because of the sustainability factor, and the design of the material, the way it looks, is a bonus to them.”



THE DAWN OF AMAZON DAY

A new option for Amazon Prime members promises to shrink the retailer’s carbon footprint while also saving money on fulfillment.

Amazon Day lets a Prime member schedule all deliveries on a chosen day of the week. For example, you might place orders on Wednesday, Thursday, and Friday and then receive all of those products the following Tuesday. You trade fast fulfillment—Amazon’s free, two-day shipping for Prime members—for the convenience of fewer deliveries on a regular schedule.

There’s definitely a green business case for Amazon Day. “One of the primary drivers is just to reduce the number of packages that are being shipped,” notes Danielle Roberts, senior product manager at Kibo Commerce, a Dallas-based e-commerce and order management technology firm. Consolidation lets Amazon ship in fewer boxes or bags, and delivery drivers burn less fuel while serving Amazon customers.

At the same time, consolidated

shipments reduce shipping costs. “It’s common knowledge that Amazon loses money on two-day shipping,” Roberts says. When Prime members switch to once-a-week delivery, Amazon can use cheaper transportation options.

This model could work for other companies, especially for those where a typical order contains four or more products, Roberts says.

To consolidate orders for delivery, a company needs the right combination of processes and technologies. For example, it needs e-commerce technology that can delay order fulfillment, so it doesn’t ship product too soon. It also needs full inventory visibility.

“If you utilize stores for fulfillment, you need to understand what inventory is in each store, and have super visibility into warehouse inventory,” Roberts says.

3 LUSH BARE IS BEAUTIFUL

From its product ingredients (fresh, vegetarian, ethically sourced) to the furniture in its retail stores, Lush Fresh Handmade Cosmetics tries to infuse green principles into every aspect of its business.

Founded in the U.K., Lush operates more than 900 stores worldwide, including more than 250 in North America. Its North American business is based in Vancouver, British Columbia, with manufacturing there and in Toronto. Lush’s environmental initiatives stretch across the supply chain, including:

Product development. As much as possible, Lush designs products it can sell “naked”—with no packaging at all, says Katrina Shum, sustainability manager for Lush in Vancouver. Take the shampoo bar. “Rather than doing a liquid shampoo, which requires a container, we formulate it so it’s a solid.”

Sourcing. When procuring ingredients, Lush looks for ways to benefit producers and their communities, Shum says. Through the company's charitable arm, the Lush Fund, it invests in projects to regenerate agricultural and forested lands. "For example, we take places that were formerly cow-grazed and run-down and reforest them to help grow our ingredients, and also to sequester carbon through those ecosystems," she says.

Transportation. While Lush's leadership would like to reduce the distances its ingredients travel, Shum concedes that this is tricky, given the need for ingredients that grow in different climate zones. But when crossing those distances, Lush tries to use less-carbon-intensive transportation modes such as ocean or rail.

Packaging. Lush has been redoubling its commitment to package-free products. In Europe, it recently opened three Naked Shops, which carry only products the company can sell bare. Customers looking for an ingredients list or other details normally found on packaging can use Lush Lens, a phone app, to scan an item and pull up that information and more.

For products that simply must go in containers—bath gels, lotions and the like—Lush tries to source packaging

made from 100% recycled content. "Where we have to use things to help cushion products in transport, we use compostable items," Shum says.

strategies to reduce energy use, water use, and waste in its manufacturing facilities and shops. For example, a new energy management system in the shops lets the company control heating and cooling, lighting, and other systems from a central location. "We're saving roughly 25% of our energy consumption per shop," Shum says.

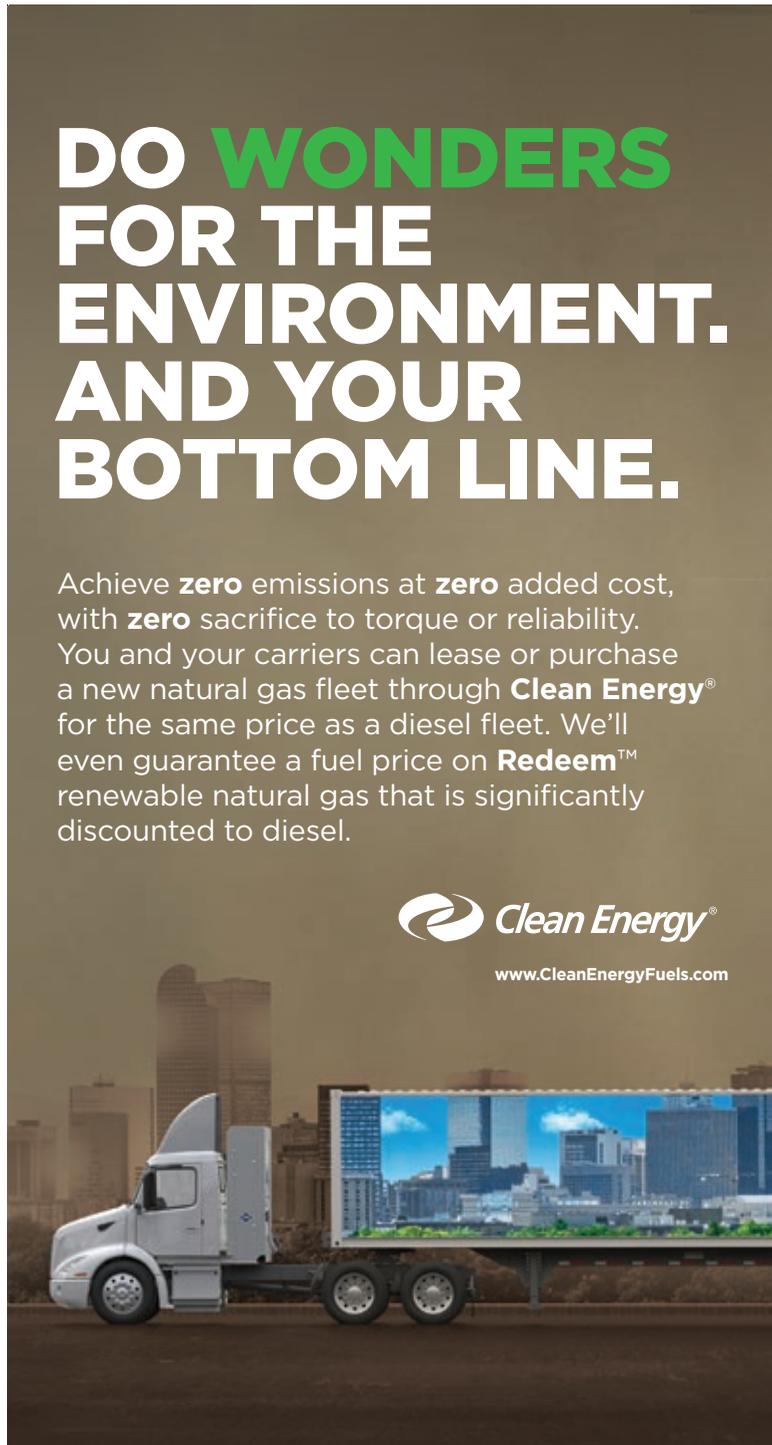
In another program, one of Lush's suppliers now takes back the cardboard cartons it uses to ship product to Lush in Vancouver. "We're sending back 750 boxes a month that can be reused," Shum says.

That's just a partial list, but it offers a good picture of Lush's green initiatives.

Some of those efforts, such as energy management, obviously save Lush money. Some are cost-neutral, and some add a bit of expense. But Lush's green principles do seem to inspire customer loyalty. Consumers come to Lush first because the products support their lifestyle choices, she says. "And then through further learning about the brand, they support our values," Shum says.

The real bottom line for Lush is that the cost of environmental sustainability is beside the point. "We often do things that don't make

financial sense, but they're the right thing to do," Shum says. "They align with our ethics and values." ■



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The company's alternative to packing peanuts, for example, dissolves in water.

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75

GREEN SUPPLY CHAIN PARTNERS

Selected by *Inbound Logistics* editors, these 75 companies go above and beyond to help shippers maintain sustainable, eco-friendly supply chain operations.

AAA COOPER TRANSPORTATION

aaacooper.com

AAA Cooper is a SmartWay partner. The company 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.

CURRENT GREEN INITIATIVES:

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

NOTABLE ACHIEVEMENTS:

AAA Cooper's data centers are designed to reduce HVAC demands and overall utility consumption.

AGILITY GLOBAL INTEGRATED LOGISTICS

agility.com

Agility provides free emissions reports to more than 800 customers. It offers training on green logistics implementation and seeks to reduce emissions and waste along its shared supply chains. Agility also participates in the Clean Cargo Working Group and the Sustainable Air Freight Initiative.



CURRENT GREEN INITIATIVES:

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

NOTABLE ACHIEVEMENTS:

Agility has reduced emissions by 23% since 2011.

ALASKA AIR CARGO

alaskaair.com



Alaska Air Cargo introduced three next-generation Boeing 737-700 aircraft with greater fuel efficiency and increased freight lift capacity compared to previous 737-400 freighter and combi aircraft. Parent company Alaska Airlines is ranked as the most sustainable domestic airline by the Dow Jones Sustainability Index.

CURRENT GREEN INITIATIVES:

- Compost in-flight waste
- Use alternative fuels or energy sources
- Increase airspace efficiency

NOTABLE ACHIEVEMENTS:

Alaska Air Cargo's "Greener Skies Over Seattle" project is set to save 87 gallons of fuel per flight and reduce carbon emissions by nearly 1 metric ton.

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 the company to always have a GPS location on assets, as well as turn the refrigeration unit on or off at any time. Solar panels allow Alliance to use natural energy to continuously charge the batteries on its trailers.

CURRENT GREEN INITIATIVES:

- Reduce greenhouse gas emissions
- Use alternative fuels or energy sources
- Reuse/recycling program
- Reduce energy usage
- Solar panels
- Energy-efficient lighting

NOTABLE ACHIEVEMENTS:

Alliance Shippers' trailers are moved via railroad, reducing CO2 output by 67% versus moving the same goods over the road.

AMERICAN AIRLINES CARGO

aacargo.com

American Airlines Cargo deploys more than 5,000 reusable lightweight composite cargo containers, reducing weight and saving more than 1 million gallons of fuel every year. Its eFreight initiative cuts down on thousands of pounds of paper every year.



CURRENT GREEN INITIATIVES:

- Reduce energy usage
- Reduce greenhouse gas emissions
- Reuse/recycling program
- Paperless initiatives

NOTABLE ACHIEVEMENTS:

In 2005, American Airlines Cargo introduced a Fuel Smart initiative, which aimed to implement more creative ways to save energy. Since then, the program has helped save millions of gallons of fuel from consumption by aircraft and support vehicles, as well as reduce CO2 emissions.

ARCBEST

arcb.com

ArcBest chooses optimal vehicles for its fleet to reduce energy usage and emissions. These vehicles have aerodynamic features to achieve maximum fuel efficiency, as well as computerized engine shut-offs to reduce idling time.

CURRENT GREEN INITIATIVES:

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

NOTABLE ACHIEVEMENTS:

ArcBest purchased 800 new 28-foot trailers with aerodynamic skirts to improve the fuel economy and wind resistance of its fleet.

AVERITT EXPRESS

averittpress.com

Averitt was one of 52 partners to launch the Environmental Protection Agency's SmartWay Program in 2004. With the help of this program, Averitt established a systematic approach to emissions reduction and fuel conservation. The company voluntarily commits to meeting specific environmental and energy-saving goals and sharing its progress annually with the EPA.



CURRENT GREEN INITIATIVES:

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

NOTABLE ACHIEVEMENTS:

Since 2004, Averitt has lowered its CO2 emissions by an estimated 36%.

BNSF RAILWAY

bnsf.com

BNSF Railway recently used the Global Reporting Initiative G4 Guidelines as a framework to report on its sustainability initiatives. The company continues to expand and invest in its rail network and upgrade its locomotive fleet to optimize throttle and brake use and prevent unnecessary idling.



CURRENT GREEN INITIATIVES:

- Reduce greenhouse gas emissions
- Fuel-efficient locomotives
- Reduce energy usage
- Recycle waste materials

NOTABLE ACHIEVEMENTS:

As of 2017, BNSF Railway averaged a total of 846 gross ton miles per gallon of diesel, a 7% improvement since 2008.

C.H. ROBINSON

chrobinson.com

SmartWay partner C.H. Robinson provides carbon reporting to help customers understand their footprints and works to find reduction opportunities through services such as LTL, consolidation, reverse logistics, and mode shifting. C.H. Robinson recently completed its first greenhouse gas inventory to measure its own emissions.



CURRENT GREEN INITIATIVES:

- Reduce greenhouse gas emissions
- Reuse/recycling program
- Reduce energy usage
- Sustainable packaging
- Energy-efficient lighting
- LEED-certified building
- Reduce paper and waste usage

NOTABLE ACHIEVEMENTS:

C.H. Robinson brokers 44% of its shipments using SmartWay carriers and offsets all its European travel with carbon credits.

CANADIAN NATIONAL

cn.ca

Canadian National continues to improve locomotive operating efficiencies to reduce its environmental impact. The company consumes 15% less fuel per gross ton mile than the industry average.

CURRENT GREEN INITIATIVES:

- Reduce energy usage
- Manage waste
- Biodiversity and land management
- Promote sustainable materials
- Reduce packaging
- Reuse/recycling program

NOTABLE ACHIEVEMENTS:

Canadian National implemented a partnership program, EcoConnexions, which resulted in 29% overall energy savings, and diverted 90% of operational waste from landfills.

CHEP

chep.com



CHEP makes its consumer packaged goods customer companies more sustainable through its Better Planet initiative. With its 2015 and 2020 sustainability targets, CHEP is moving toward being a zero-deforestation, zero-emissions, and zero-waste company.

CURRENT GREEN INITIATIVES:

- Reuse/recycling program
- Reduce greenhouse gas emissions

NOTABLE ACHIEVEMENTS:

As of May 2016, CHEP's Value Stream Mapping Solution has eliminated 4.5 million empty truck miles and 23.6 million pounds of CO₂ gas.

CROWLEY

crowley.com

Crowley's commitment to sustainability includes the design of hybrid energy and ultra-low emission tugs; energy-efficient practices for potable water, ballast water, power, and equipment at its headquarters, offices, and vessels; transportation management systems that reduce idling times; and alternative fuel ships. In 2018, 109 Crowley vessels received Certificates of Environmental Achievement from the Chamber of Shipping of America. In the same year, the company delivered 556 million barrels of petroleum products.

CURRENT GREEN INITIATIVES:

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

NOTABLE ACHIEVEMENTS:

In 2018, Crowley's liquid natural gas-powered combination container/roll-on-roll-off ships successfully began service with a 100% reduction in sulfur oxide and particulate matter.

CROWN EQUIPMENT CORPORATION

crown.com

Crown's vertical integration strategy (in which it manufactures up to 85% of the parts used in its lift trucks) improves quality control and supply chain coordination. The company 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
- Use alternative fuels or energy sources
- Reuse/recycling program
- Use wastewater
- Reduce energy usage
- Sustainable packaging
- Sustainably source materials
- Solar panels
- Energy-efficient lighting

NOTABLE ACHIEVEMENTS:

Crown is the first company to have three facilities receive the Ohio EPA's Encouraging Environmental Excellence Gold award.



CSX

csx.com

CSX continues to reduce its environmental footprint throughout its operations. CSX supports sustainable development and engages openly on sustainability issues with customers, employees, and stakeholders.

CURRENT GREEN INITIATIVES:

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

NOTABLE ACHIEVEMENTS:

Since 1980, CSX has improved fuel efficiency by more than 100%. Additionally, it has reduced greenhouse gas emissions by 8.1% and energy intensity by 5.3% since 2011.



CT LOGISTICS

ctlogistics.com

CT Logistics keeps 40% of its 6-acre corporate campus undeveloped and wooded. It recycles, repurposes, or properly disposes of all cardboard, paper, copier and printer toners, ink cartridges, and old, broken, or outdated electronic equipment. The company opts to explore telecommunication options for client and vendor interactions before relying on travel, and it aims to use intelligent thermostats and off-hour energy conservation in all its buildings.

CURRENT GREEN INITIATIVES:

- Reduce greenhouse gas emissions
- Reuse/recycling program
- Use wastewater
- Reduce energy usage
- Energy-efficient lighting
- Woodland preservation

NOTABLE ACHIEVEMENTS:

CT's FreightLion software consolidates small shipments into truckloads with stop-offs, enabling shippers to choose environmental routings, modes, and shorter transits, which reduces fuel consumption and lowers CO2 emissions.



DHL SUPPLY CHAIN

logistics.dhl

DHL's environmental protection program, GoGreen, focuses on improving carbon efficiency and reducing air and noise pollution. DHL implements measures to improve fuel efficiency across its fleet, optimizes networks and routes, improves energy efficiency in buildings, and reduces waste from operations. The company also encourages personal commitments of associates through its novel getGREEN employee incentive program.

CURRENT GREEN INITIATIVES:

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

NOTABLE ACHIEVEMENTS:

DHL set a climate protection target to eliminate all logistics-related emissions by 2050.



DSC LOGISTICS

dsclogistics.com

DSC is a certified logistics provider and carrier partner in the EPA's SmartWay Transport Partnership. DSC's sustainability program includes an emissions reduction initiative in warehouses and transportation, a network redesign to better place DCs and transportation routes, and collaborative shipping/transportation consolidation.

CURRENT GREEN INITIATIVES:

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

NOTABLE ACHIEVEMENTS:

In 2018, DSC reduced carbon emissions by 11.6% through its single and multi-customer consolidation services.

ECHO GLOBAL LOGISTICS

echo.com

Echo is a SmartWay partner and strives to improve client and carrier operational efficiencies through its technology and services. The company helps spot opportunities for process revisions and offers actionable solutions to minimize impacts on the environment.

CURRENT GREEN INITIATIVES:

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

NOTABLE ACHIEVEMENTS:

Echo received rankings of 2 (on a scale of 1-5, with 1 being the best) in various categories for SmartWay's report on shippers' environmental efficiency ratings.

ENGLAND LOGISTICS

englandlogistics.com

England Logistics is a SmartWay partner. The company's team safeguards food and beverage shipments by utilizing its network of temperature-controlled facilities and equipment, resulting in fewer transportation risks. It uses optimization software, allowing it to build an economic strategy for each shipment, which results in reduced miles.

CURRENT GREEN INITIATIVES:

- Reduce energy usage
- Sustainable packaging

NOTABLE ACHIEVEMENTS:

A two-time SmartWay Excellence Award winner, England Logistics optimizes route selection and helps shippers and trucking companies save on fuel costs.



ESTES EXPRESS LINES

estes-express.com

Estes installed solar-powered systems in four of its terminals and has plans to address additional facilities in the future. The company strives to keep waste out of landfills and conserve natural resources by reusing and recycling materials. Estes also utilizes cleaner fuels and is taking steps to improve its equipment's fuel efficiency.



CURRENT GREEN INITIATIVES:

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

NOTABLE ACHIEVEMENTS:

Since 2012, Estes has reduced electrical consumption by more than 20,195,828 kWh.

EXPEDITORS INTERNATIONAL

expeditors.com

Expeditors is a founding member of the Sustainable Air Freight Alliance and is an active member of the Clean Cargo Working Group. In 2018, the company released a new Environmental Stewardship training course. Since then, employee-led Green Teams have worked to reduce waste, energy, and water consumption at more than 300 facilities globally.

CURRENT GREEN INITIATIVES:

- Reduce greenhouse gas emissions
- Use alternative fuels or energy sources
- Reuse/recycling program
- Sustainably source materials
- Solar panels
- Energy-efficient lighting

NOTABLE ACHIEVEMENTS:

Expeditors launched the Global Plastic-Free Challenge for its employees and achieved a 16% reduction in Scope 1 and 2 emissions.

FEDEX

fedex.com

FedEx increased fuel efficiency by 22%, deploying 482 electric and hybrid-electric company vehicles. Since their introduction in 2005, the vehicles have saved 480,000 gallons of fuel. The company increased its previously stated vehicle fuel efficiency goal to a 30% improvement by 2020.

CURRENT GREEN INITIATIVES:

- Reduce greenhouse gas emissions
- Reduce waste
- Use alternative fuels or energy sources
- Reuse/recycling program
- Reduce energy usage
- Solar panels

NOTABLE ACHIEVEMENTS:

In 2012, the Solar Energy Industries Association recognized FedEx as one of the Top 20 commercial solar power users in the United States. In 2011, the company was also ranked #122 in *Newsweek's* Top 500 Greenest Companies.

FLORIDA EAST COAST RAILWAY

fecrwy.com

Florida East Coast Railway is making strides toward sustainability by reducing highway congestion, air pollution, and greenhouse gas emissions through intermodal and carload supply chain solutions.

CURRENT GREEN INITIATIVES:

- Use alternative fuels or energy sources
- Reduce greenhouse gas emissions

NOTABLE ACHIEVEMENTS:

Florida East Coast Railway became the first North American railroad to convert its mainline locomotive fleet to liquified natural gas, which is a cleaner and more efficient source of fuel.



GEORGIA PORTS AUTHORITY

gaports.com

Georgia Ports Authority prioritizes sustainability by preserving nature and reducing emissions. With its efforts to protect surrounding wetlands and reduce fuel consumption, Georgia Ports serves as an eco-friendly partner.

CURRENT GREEN INITIATIVES:

- Reduce greenhouse gas emissions
- Use alternative fuels or energy sources
- Reuse/recycling program
- Reduce energy usage
- Energy-efficient lighting

NOTABLE ACHIEVEMENTS:

GPA's electrification efforts avoid the use of more than 5.8 million gallons of diesel each year.

**HUB GROUP**

hubgroup.com

Hub Group looks beyond intermodal conversion to include freight consolidation and route optimization, which greatly reduce the amount of carbon dioxide emitted. Hub Group is a voluntary respondent to the CDP, EcoVadis, and the EPA SmartWay Program. Its headquarters is LEED Gold certified.

CURRENT GREEN INITIATIVES:

- Reduce greenhouse gas emissions
- Reuse/recycling program
- Use wastewater
- Reduce energy usage
- Energy-efficient lighting
- Freight consolidation
- Route optimization
- Idling programs
- Electric vehicle evaluation

NOTABLE ACHIEVEMENTS:

In 2018, Hub Group's multimodal strategy programs resulted in the avoidance of more than 1.7 million tons of CO₂.

J.B. HUNT TRANSPORT SERVICES

jbhunt.com

J.B. Hunt has received nine SmartWay Excellence awards. In 2018, it added the first all-electric, medium-duty box trucks with zero tailpipe emissions to its private fleet. Other company sustainability initiatives include LTL consolidation, MPG tracking, driver training, and alternative fuel options.

CURRENT GREEN INITIATIVES:

- Reduce greenhouse gas emissions
- Use alternative fuels or energy sources
- Reuse/recycling program
- Reduce energy usage
- Solar panels
- Energy-efficient lighting

NOTABLE ACHIEVEMENTS:

J.B. Hunt prevented nearly 1.6 million tons of carbon dioxide from entering the atmosphere through intermodal conversion.

**KANE IS ABLE**

kaneisable.com

Kane is committed to reducing carbon emissions, pollution, and congestion with smarter trucks and delivery methods. It has been a SmartWay member since 2006 and utilizes modern, diesel-powered trucks and compressed natural gas equipment.

CURRENT GREEN INITIATIVES:

- Reduce greenhouse gas emissions
- Use alternative fuels or energy sources
- Reuse/recycling program
- Reduce energy usage
- Sustainable packaging
- Energy-efficient lighting

NOTABLE ACHIEVEMENTS:

Since 2012, Kane has recycled 61.64 tons of paper, 196.78 tons of plastic/stretch wrap, 12,822.39 tons of cardboard, 101.24 tons of cans/bottles, 14.3 tons of steel, and 148.9 tons of wood.

KENCO

kencogroup.com

Kenco's green initiatives include creating a carbon footprint calculator; reducing paper and paper waste with technology; utilizing hybrid automobiles in its fleet; using green power in materials handling solutions; installing solar panels to offset power consumption; optimizing networks to reduce transportation and labor redundancy waste; and using electric auxiliary power units to reduce idle time and fuel consumption.

CURRENT GREEN INITIATIVES:

- Reduce greenhouse gas emissions
- Use alternative fuels or energy sources
- Reduce energy usage
- Solar panels
- Energy-efficient lighting

NOTABLE ACHIEVEMENTS:

For a food site, Kenco reduced the unnecessary disposal of products by 1,200 cans per month, keeping thousands of cans out of landfills.

KNIGHT-SWIFT

knight-swift.com

Knight-Swift promotes a greener lifestyle among employees and clients. The company has a long-term record of substantially reducing CO₂ emissions while simultaneously reducing pollutant criteria emissions.

CURRENT GREEN INITIATIVES:

- Reduce greenhouse gas emissions
- Use alternative fuels or energy sources
- Reuse/recycling program
- Reduce energy usage

NOTABLE ACHIEVEMENTS:

Knight-Swift received a SmartWay Excellence Award for improving freight efficiency and contributing to cleaner air within the supply chain.



LUFTHANSA CARGO

lufthansa-cargo.com

Lufthansa Cargo created an environmental strategy that focuses on reducing its specific CO2 emissions by 25% by 2020 and searching for improvements in flight-related handling processes to reduce weight and save fuel. With its subsidiary, Jettainer, the company replaced 75% of its standard containers with lighter variants.

CURRENT GREEN INITIATIVES:

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

NOTABLE ACHIEVEMENTS:

Lufthansa Cargo invested in two new B777Fs, the most efficient freighter in its class.

LYNDEN

lynden.com

Lynden is the first trucking company to earn the Green Star award for Alaskan businesses. The company'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
- Use alternative fuels or energy sources
- Reuse/recycling program
- Reduce energy usage
- Sustainable packaging
- Sustainably source materials
- Energy-efficient lighting

NOTABLE ACHIEVEMENTS:

Lynden's Hercules cargo aircrafts now have fuel-efficient microvanes on the aft fuselage, reducing drag. They are expected to save up to 34,000 gallons of fuel per aircraft per year.

MAERSK

maersk.com

Maersk's sustainability strategy focuses on four different areas: climate change, inclusive trade, food loss, and ship recycling. Maersk strives toward a sustainable approach in these specific areas and urges others to also take action.

CURRENT GREEN INITIATIVES:

- Reduce greenhouse gas emissions
- Reuse/recycling program

NOTABLE ACHIEVEMENTS:

Maersk has achieved a total 41% relative reduction in CO2 emissions from the company's activities compared to its 2008 baseline. Maersk strives to reach zero net emissions from its own productions by 2050.

MATSON

matson.com

Matson is ahead of IMO2020 vessel fuel compliance deadlines with scrubbers being installed on its existing vessels. The company is also building four new vessels that are dual-fuel. Matson has been EPA SmartWay-certified since 2008 and a Top Transport Partner since 2013.

CURRENT GREEN INITIATIVES:

- Reduce greenhouse gas emissions
- Use alternative fuels or energy sources
- Reuse/recycling program
- Reduce energy usage
- Sustainably source materials

NOTABLE ACHIEVEMENTS:

In 1993, Matson was the first carrier to have a zero-waste discharge policy for vessels.



MURPHY WAREHOUSE

murphywarehouse.com

Murphy Warehouse Company has embraced green practices throughout its nearly 3 million square feet of warehouse space, dotting its campuses with native prairies, populating its roofs with solar panels, and installing energy-efficient LED lighting.

CURRENT GREEN INITIATIVES:

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

NOTABLE ACHIEVEMENTS:

Murphy has three LEED Gold campuses and four Energy Star campuses.

NFI*nfindustries.com*

NFI partners with customers to implement natural gas fleets across the country and advocate for natural gas fueling stations. NFI integrates new technology to improve aerodynamics across its dedicated fleet of more than 2,700 trucks, improving fuel usage using AirTabs, trailer skirts, battery-powered APUs, and speed limiters. The company is a four-time EPA SmartWay Excellence award winner and a member of the ACT Expo High Volume Fleet Planning Committee.

CURRENT GREEN INITIATIVES:

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

NOTABLE ACHIEVEMENTS:

NFI's fleet is comprised of low-emission late model tractors. The company's fleet is the first to operate class-8, zero-emission electric tractors in a transportation operation.

NORFOLK SOUTHERN*nscorp.com*

Norfolk Southern is reducing its environmental impact through initiatives to improve locomotive fuel efficiency and reduce emissions. The company's goal is to offer supply chain partners consistent and reliable services that are cost-efficient and minimize impacts to the environment.

CURRENT GREEN INITIATIVE:

- Reduce greenhouse gas emissions
- Reuse/recycling program
- Reduce energy usage
- Sustainably source materials
- Energy-efficient lighting
- Capturing, treating, and reusing stormwater in work processes

NOTABLE ACHIEVEMENTS:

Since 2017, Norfolk Southern's locomotive fuel-efficiency program has conserved more than 46 million gallons of diesel fuel, avoiding more than 467,000 metric tons of carbon emissions.

NORTHWEST SEAPORT ALLIANCE*nwseaportalliance.com*

As the fourth-largest containerized gateway in North America, Northwest Seaport Alliance is comprised of a partnership between the ports of Tacoma and Seattle. It reduces port-related emissions through clean truck programs, shore power at terminals, retrofitted cargo-handling equipment, and cleaner-burning ship fuels. It is working to achieve the Northwest Ports Clean Air Strategy greenhouse gas and diesel particulate matter reduction goals.

CURRENT GREEN INITIATIVES:

- Reduce greenhouse gas emissions
- Use alternative fuels or energy sources
- Reuse/recycling program
- Reduce energy usage
- Sustainably source materials
- Energy-efficient lighting
- Habitat development
- Clean truck program

NOTABLE ACHIEVEMENTS:

In 2016, Northwest Seaport Alliance reduced GHG emissions by 19.3%.

nVISION GLOBAL*nvisionglobal.com*

nVision Global helps customers understand and implement green practices to reduce their carbon footprints. Its products provide this information in terms of both kilometers and miles, as well as easy-to-use interactive graphs and the ability to export all the data for further analysis outside the application.

CURRENT GREEN INITIATIVES:

- Reduce greenhouse gas emissions

NOTABLE ACHIEVEMENTS:

nVision's Eco Green Portal for Carbon Footprint is available for all customer shipments through the use of IMPACT TMS.

ODYSSEY LOGISTICS & TECHNOLOGY*odysseylogistics.com*

Odyssey Logistics & Technology helps its customers reach corporate sustainability goals by reducing waste and carbon emissions. Its newly opened Engineering Technology Center in Katy, Texas, allows its engineers to focus on providing safe, cost-effective, and sustainable transportation solutions.

CURRENT GREEN INITIATIVES:

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

NOTABLE ACHIEVEMENTS:

As a Responsible Care and SmartWay partner, Odyssey provides logistics solutions that account for economic factors as well as social and environmental risks and opportunities.



OLD DOMINION FREIGHT LINE

odfl.com

An EPA SmartWay-certified company, Old Dominion Freight Line continues to invest in its newest 2018 fuel-efficient fleet. It is retrofitting all of its service centers with LED lights and motion detectors to minimize electricity use. The company also recycles everyday materials such as oil, filters, and scrap steel.

CURRENT GREEN INITIATIVES:

- Reduce greenhouse gas emissions
- Reuse/recycling program
- Use wastewater
- Reduce energy usage
- Solar panels
- Energy-efficient lighting

NOTABLE ACHIEVEMENTS:

Old Dominion's fleet is comprised of trailers equipped with aerodynamic skirts to lower wind resistance and conserve fuel.



ORBIS CORPORATION

orbiscorporation.com

ORBIS' packaging is designed to replace one-time-use materials. It can be recovered, recycled, and reprocessed into new packaging products at the end of its service life. ORBIS also offers a reusable packaging management service to help customers extend packaging life spans and prevent loss.

CURRENT GREEN INITIATIVES:

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

NOTABLE ACHIEVEMENTS:

In 2018, more than 40% of the resin ORBIS used to manufacture products was made from recycled content.

PECO PALLET

pecopallet.com



PECO builds its wood block pallets from responsibly forested timber and continually repairs, reuses, and recycles them. PECO never uses harmful chemicals on its pallets.

CURRENT GREEN INITIATIVES:

- Reuse/recycling program
- Sustainable packaging

NOTABLE ACHIEVEMENTS:

PECO cycles its pallets approximately four times per year. Additionally, once pallets are retired, their parts are recycled, rather than thrown away.

PENSKE LOGISTICS

penskelogistics.com

Penske participates in the EPA's SmartWay, Green Power Partnership, and Waste Wise programs. It performs an annual GHG emission inventory, discloses its GHG emissions information to the Carbon Disclosure Project, and conducts energy audits/analyses to identify opportunities to save money and reduce its carbon footprint.



CURRENT GREEN INITIATIVES:

- Reduce greenhouse gas emissions
- Use alternative fuels or energy sources
- Reuse/recycling program
- Reduce energy usage
- Solar panels
- Energy-efficient lighting

NOTABLE ACHIEVEMENTS:

From 2017 to 2018, Penske increased its use of renewable energy from 10% to 17%. Since 2013, it has avoided a total of 25 million pounds of CO2 emissions.

PERFORMANCE TEAM

performanceteam.net

Performance Team has been a SmartWay Partner since 2008 and is a member of the Coalition for Responsible Transportation. All trucks in its fleet run SmartWay-approved tires and use trailer skirts and under trays to improve fuel efficiency. With a \$3.7-million grant, the company is investing in near-zero-emissions trucks. PT utilizes on-demand packaging and recycles corrugate and e-waste.

CURRENT GREEN INITIATIVES:

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

NOTABLE ACHIEVEMENTS:

Since 2013, Performance Team has transloaded more than 320,000 containers using a 3:2 compression standard, translating to about 215,000 outbound trailers and a 30% carbon-reduction footprint.

PITT OHIO

pittohio.com

PITT OHIO is taking its pilot renewable energy microgrid to a new level by increasing solar panels from 180 to 700 and wind turbines from one to eight. The company is also testing electric trucks that can be powered off renewable energy and provide drivers with a cleaner, more comfortable driving experience.

CURRENT GREEN INITIATIVES:

- Use alternative fuels or energy sources
- Reuse/recycling program
- Solar panels



NOTABLE ACHIEVEMENTS:

In 2017, PITT OHIO reduced its overall electricity usage by 6%.

PORT JERSEY LOGISTICS

portjersey.com

Port Jersey Logistics operates 1 million square feet of warehousing space, with each facility designed to reduce the organization's total carbon footprint. Whether it's cardboard recycling programs or solar panels, Port Jersey has enacted multiple initiatives to ensure energy efficiency across the board.

CURRENT GREEN INITIATIVES:

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

NOTABLE ACHIEVEMENTS:

Port Jersey Logistics employs electric forklifts and energy-efficient lighting in all of its warehouses.

PORT OF LONG BEACH

polb.com



Port of Long Beach pledges to lessen its impact on society and the environment by implementing sustainable practices. The port aims to preserve natural resources by considering eco-friendly alternatives in design and construction, operations, and administrative practices.

CURRENT GREEN INITIATIVES:

- Reduce energy usage
- Reduce greenhouse gas emissions
- Reuse/recycling program
- Evaluate land for solar and wind power opportunities

NOTABLE ACHIEVEMENTS:

Port of Long Beach implemented the Green Port Policy, which aims to reduce the negative impacts of port operations in addition to its 20-year history of environmental protection programs. The policy includes six basic program elements: wildlife, air, water, soils/sediments, community engagement, and sustainability.

PORT OF LOS ANGELES

portoflosangeles.org

California Air Resources Board awarded \$41 million to the Port of Los Angeles for the Zero-Emission and Near Zero-Emission Freight Facilities project. The project is part of California Climate Investments, a statewide initiative that puts billions of Cap-and-Trade dollars to work reducing greenhouse gas emissions, strengthening the economy, and improving public health and the environment—particularly in disadvantaged communities. For the past 10 years, the Port of Los Angeles has invested more than \$350 million in environmental programs and initiatives to continue greening Los Angeles Harbor.

CURRENT GREEN INITIATIVES:

- Reduce greenhouse gas emissions
- Use alternative fuels or energy sources
- Reduce energy usage
- Solar panels

NOTABLE ACHIEVEMENTS:

The Port's Zero and Near Zero-Emission Freight Facilities project aims to reduce emissions by 465 metric tons of greenhouse gas and 0.72 weighted tons of NOx, ROG, and PM10.



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. The port is involved in dozens of innovative programs, including creative, problem-centered partnerships and collaborations that work to identify, quantify, and meet environmental challenges.



CURRENT GREEN INITIATIVES:

- Reduce greenhouse gas emissions
- Use alternative fuels or energy sources
- Reuse/recycling programs
- Use wastewater
- Reduce energy usage
- Sustainably source materials

NOTABLE ACHIEVEMENTS:

The Port of Oakland's energy efficiency rebate program provides tenants 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.

PUROLATOR

purolator.com

Purolator strives to reduce its carbon footprint by using greenhouse gas reporting, fleet efficiency, eco-driving practices, energy efficiency, and product packaging/labeling.



CURRENT GREEN INITIATIVES:

- Reduce greenhouse gas emissions
- Use alternative fuels or energy sources
- Reduce energy usage
- Reuse/recycling program

NOTABLE ACHIEVEMENTS:

Purolator has introduced the Quicksider prototype, which is the first fully electric delivery truck in the courier industry. In testing, the prototype is reported to have reduced up to 85% of GHG emissions.

RAYMOND CORPORATION

raymondcorp.com

The Raymond Corporation's efforts include upgrading to an automated logic and lighting controls program to zone and control lighting, heating, and air conditioning based on utilization; incorporating occupancy sensors to eliminate wasted lighting in the main and facility offices; using water reclamation from the powder-coat paint system; and installing supplemental active solar lighting.

CURRENT GREEN INITIATIVES:

- Use alternative fuels or energy sources
- Reuse/recycling program
- Use wastewater
- Reduce energy usage
- Sustainable packaging
- Sustainably source materials
- Solar panels
- Energy-efficient lighting

NOTABLE ACHIEVEMENTS:

100% of Raymond's wood pallets are recycled/reused, and it recycles 97.6% of byproducts.

RINCHEM

rinchem.com

Rinchem replaced lighting with energy-efficient resources at all company locations. Its transportation group adds energy-efficient solutions for new assets, and it requires its partners to have green initiatives in place. The company only purchases automatic trucks for energy efficiency, and all are SmartWay certified for CO2 emissions.

CURRENT GREEN INITIATIVES:

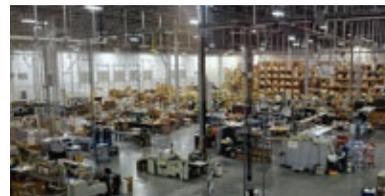
- Reduce greenhouse gas emissions
- Reuse/recycling program
- Use wastewater
- Reduce energy usage
- Sustainable packaging
- Sustainably source materials
- Energy-efficient lighting

NOTABLE ACHIEVEMENTS:

Rinchem's energy-efficient lighting saves the organization an average of 248,230 kWh per year, per site.

RR DONNELLEY

rrdonnelley.com



RR Donnelley has made efforts toward sustainability by implementing the Environment, Health and policy. The policy focuses on four objectives to minimize the company's environmental impact: resource efficiency, procurement, waste minimization, and stewardship.

CURRENT GREEN INITIATIVES:

- Reduce greenhouse gas emissions
- Reuse/recycling program
- Use wastewater
- Sustainable packaging
- Reduce energy usage
- Paperless initiatives

NOTABLE ACHIEVEMENTS:

RR Donnelley uses oxidizers to control the emissions produced from printing processes. The company continues to invest in emerging technologies that prioritize using less natural gas while achieving better overall performance.

RUAN

ruan.com

Since 2018, Ruan has purchased and utilized more than 1.05 million gallons of fully renewable hydrocarbon diesel and approximately 8 million gallons of biodiesel. The company shares clean fleet messages to the broader transportation industry, with representatives presenting at many conferences, including the ACT Expo in Long Beach, California.

CURRENT GREEN INITIATIVES:

- Reduce greenhouse gas emissions
- Use alternative fuels or energy sources
- Reuse/recycling program
- Reduce energy usage
- Energy-efficient lighting
- Fuel economy initiatives

NOTABLE ACHIEVEMENTS:

Ruan has run more than 90 million miles with natural gas-powered equipment, including 60 million miles run on renewable natural gas sourced from cattle manure.



RYDER SYSTEM

ryder.com

Ryder utilizes cleaner-burning fuels and invests in alternative fuel technology to improve fuel economy and reduce emissions. It also placed orders for more than 625 Chanje vehicles and 2,500 Workhorse W-15 electric pickup trucks for customers to incorporate into fleets. The EPA honored Ryder with a SmartWay Excellence award for reducing GHG emissions.

CURRENT GREEN INITIATIVES:

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

NOTABLE ACHIEVEMENTS:

Since 2000, Ryder has saved 100 million kWh of electricity. Since 2015, it has saved 180 million pounds of carbon dioxide equivalents.



SADDLE CREEK LOGISTICS SERVICES

sclogistics.com

Saddle Creek Logistics Services is known for its environmental leadership. The company has found new ways to minimize fuel use and emissions by adopting the use of compressed natural gas.

CURRENT GREEN INITIATIVES:

- Reduce greenhouse gas emissions
- Use alternative fuels or energy sources
- Reuse/recycling program
- Reduce energy usage
- Energy-efficient lighting

NOTABLE ACHIEVEMENTS:

Saddle Creek launched a fleet of eco-friendly CNG trucks, each of which saves about 120,000 pounds of carbon per year and has replaced more than 15 million gallons of diesel since their introduction.



SAP

sap.com

SAP is committed to being a role model in reducing its own greenhouse gas emissions. In 2016, SAP was ranked a #1 software company in Dow Jones' Sustainability Index. This ranking acknowledges SAP's programs to cut emissions, encompass energy-efficient initiatives, and shift to 100% renewable energy.

CURRENT GREEN INITIATIVES:

- Use alternative fuels or energy sources
- Reuse/recycling program
- Reduce energy usage
- Energy-efficient lighting

NOTABLE ACHIEVEMENTS:

SAP's focus on carbon emissions contributed to a cumulative cost avoidance of \$309.9 million since 2016.



SCHENKER

dschenker.com

Schenker consults its customers in their climate targets and creates tailor-made sustainable transport chains. It engages in industry platforms with its peers, carriers, and shippers to set up joint projects on fuel innovation. The company also engages with policy makers to implement regulations on sustainable transportation.

CURRENT GREEN INITIATIVES:

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

NOTABLE ACHIEVEMENTS:

Between 2006 and 2018, Schenker reduced close to 27% of its carbon intensity of air, ocean, and land transports Scope 1-3.

SCHNEIDER

schneider.com

Schneider's on-site engineers have been testing and evaluating new products and technologies continuously via SAE methodology since 1989. Most of the company's new tractors are equipped with auxiliary power units, which reduce main engine idling. Schneider is a charter member of the EPA's SmartWay program and a nine-time winner of its Excellence Award.

CURRENT GREEN INITIATIVES:

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

NOTABLE ACHIEVEMENTS:

Between 2017 and 2018, Schneider reduced fuel consumption by 5 million gallons.



SHIPPERS GROUP

theshippersgroup.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 2,358 tons of cardboard, plastic, and paper, and reused 4,000 units of dunnage and air bags. Shippers Group's Wilmer, Texas, DC is equipped with high-efficiency electric chillers and T5 lighting with motion sensors.

CURRENT GREEN INITIATIVES:

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

NOTABLE ACHIEVEMENTS:

As part of its Texas Emissions Reduction Plan, which started in 2007, Shippers Group recycled 4.7 million pounds of cardboard, chipboard, paper, and plastic.

SOUTH CAROLINA PORTS AUTHORITY

scspa.com

South Carolina Ports Authority's (SCPA) commitment to environmental stewardship includes low gate turn times for trucks; fully electrified cranes and terminal transloading equipment; a reduction of idling on or near port property; and a 100% compliance with air quality standards and voluntary air monitoring. The port is a member of the Southeastern Diesel Collaborative and the Coalition for Responsible Transportation, and it supports local environmental groups. SCPA designed its new headquarters building with an energy monitoring system to optimize usage; low-flow plumbing fixtures; high-performance glazing on windows and external sun shades; a high-efficiency HVAC system and components; and high-efficiency LED lighting.



CURRENT GREEN INITIATIVES:

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

NOTABLE ACHIEVEMENTS:

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



TOYOTA MATERIAL HANDLING

toyotaforklift.com

Toyota Material Handling offers eco-friendly forklifts, featuring recyclable parts and emission systems that meet California’s stringent standards. Its manufacturing facility implemented 1,700 energy-saving measures over the past five years, resulting in a CO2 emission reduction of 120,000 tons.

CURRENT GREEN INITIATIVES:

- Reduce greenhouse gas emissions
- Use alternative fuels or energy sources
- Reduce energy usage

NOTABLE ACHIEVEMENTS:

Toyota is the first manufacturer to have UL-listed, EPA, and CARB-certified compressed-natural-gas-powered forklifts.

TRANSGROUP GLOBAL LOGISTICS

transgroup.com

TransGroup has been a member of the EPA’s SmartWay Transport Partnership since 2007. Internal company sustainability initiatives include energy conservation, recycling, waste reduction, and paperless initiatives.



CURRENT GREEN INITIATIVES:

- Reduce greenhouse gas emissions
- Use alternative fuels or energy sources
- Reuse/recycling program
- Reduce energy usage
- Energy-efficient lighting

NOTABLE ACHIEVEMENTS:

TransGroup was the first freight forwarder to have a SmartWay partnership, dating back to 2007.

TRANSPPLACE

transplace.com

Transplace is committed to helping customers achieve their sustainability goals. Several of the company’s supply chain improvement initiatives help customers reduce their emissions through the use of more fuel-efficient modes of transportation and the overall reduction in number of shipments needed through consolidation and co-loading arrangements.

CURRENT GREEN INITIATIVES:

- Mode conservation
- Consolidation
- Use alternative fuels or energy sources

NOTABLE ACHIEVEMENTS:

Transplace executed 12.8 billion ton miles on carriers registered with the EPA Smartway Program in 2016; 96% of ton miles for Managed Transportation business were procured through SmartWay-registered carriers.

TRANSPORTATION INSIGHT

transportationinsight.com

Transportation Insight’s integrated Enterprise Logistics solutions leverage multi-modal insight, expertise, and technology-driver data analysis to help clients improve supply chain performance. 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 ACHIEVEMENTS:

In 2016, Transportation Insight received the SmartWay Excellence Award.

U.S. XPRESS

usxpress.com

In 2019, U.S. Xpress celebrated its 15th year as a SmartWay Transport partner. Its energy-efficient alterations include fuel-efficient tires, aerodynamic mud flaps, an engine controller-based fuel incentive program, road speed limit policies, and a true GPS dual-mode satellite communications system.

CURRENT GREEN INITIATIVES:

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

NOTABLE ACHIEVEMENTS:

In 2018, U.S. Xpress ranked in the top 20% of SmartWay carriers, producing 16% less smog compared to 2017.





UNION PACIFIC RAILROAD

up.com

Union Pacific moves freight in an environmentally responsible way, optimizing supply chain sustainability and economic growth. The railroad is an integral partner to many industries striving to enhance supply chains, lower costs, achieve significant environmental impact, and accomplish sustainability goals.

CURRENT GREEN INITIATIVES:

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

NOTABLE ACHIEVEMENTS:

On average, Union Pacific moves one ton of freight 444 miles on a gallon of diesel fuel, making rail one of the most fuel-efficient means of transportation.

UPS

ups.com

UPS continues making progress on its sustainability goals and is aiming for 25% of total electricity to come from renewable sources by 2025. By that time, the company also hopes to source 40% of all ground fuel from sources other than conventional gasoline/diesel.

CURRENT GREEN INITIATIVES:

- Reduce greenhouse gas emissions
- Use alternative fuels or energy sources
- Reduce energy usage
- Sustainable packaging
- Solar panels
- Energy-efficient lighting

NOTABLE ACHIEVEMENTS:

In May 2019, UPS made the largest purchase ever of renewable natural gas in the United States from the Clean Energy Fuels Corp.

VERITIV LOGISTICS SOLUTIONS

veritivcorp.com

Veritiv supports efforts to preserve, replenish, and enhance the environment for future generations. Since 2014, the company has been a SmartWay partner committed to reducing carbon emissions into the environment.

CURRENT GREEN INITIATIVES:

- Reduce greenhouse gas emissions
- Reuse/recycling program
- Reduce energy usage
- Sustainable packaging

NOTABLE ACHIEVEMENTS:

Veritiv implemented paperless billing, reducing the consumption of paper by almost 1 million sheets per year.



WERNER LOGISTICS

werner.com

Werner has earned the SmartWay Excellence Award five times. The company uses electronic logging, which reduces out-of-route miles and eliminates the need for paper log books, saving trees and reducing the amount of waste in the environment.

CURRENT GREEN INITIATIVES:

- Reduce greenhouse gas emissions
- Use alternative fuels or energy sources
- Reuse/recycling program
- Reduce energy usage
- Energy-efficient lighting

NOTABLE ACHIEVEMENTS:

Since 2007, Werner has saved over 249 million gallons of diesel fuel and reduced CO2 emissions by more than 2.8 million tons.

WSI (WAREHOUSE SPECIALISTS LLC)

wsinc.com

WSI employs natural landscaping and green space to minimize stormwater runoff and surface pollutants. It uses electric-powered equipment when possible. The company runs active recycling programs at all facilities, amounting to thousands of tons of materials recycled each year.

CURRENT GREEN INITIATIVES:

- Reduce greenhouse gas emissions
- Use alternative fuels or energy sources
- Reuse/recycling program
- Reduce energy usage
- Energy-efficient lighting

NOTABLE ACHIEVEMENTS:

In 2019, WSI won the American Chemistry Council's Responsible Care Employee of the Year award.



XPO LOGISTICS

xpo.com

XPO Logistics promotes environmental, social, and organizational sustainability through the decisions it makes and its interactions with colleagues, customers, suppliers, and other stakeholders. XPO believes sustainability fosters equitable workplaces for employees and is important to many of its stakeholders, which is why the company is committed to transitioning to a low-carbon economy.



CURRENT GREEN INITIATIVES:

- Reduce greenhouse gas emissions
- Use alternative fuels or energy sources
- Reuse/recycling program
- Reduce energy usage
- Sustainable packaging
- Sustainably source materials
- Solar panels
- Energy-efficient lighting
- Network optimization
- Sustainability reports

NOTABLE ACHIEVEMENTS:

XPO installed LED lighting in approximately 35 of its new facilities and retrofitted 11.

YALE MATERIALS HANDLING CORPORATION

yale.com

Yale's lift truck power solutions reduce emissions and waste. A lithium-ion battery pack lasts up to five times longer than a lead acid option, reducing recycling waste. Hydrogen fuel cells offer a 33% savings in greenhouse gas emissions compared to lead acid batteries charged from the electrical grid.

CURRENT GREEN INITIATIVES:

- Reduce greenhouse gas emissions
- Use alternative fuels or energy sources
- Reuse/recycling program
- Reduce energy usage
- Energy-efficient lighting

NOTABLE ACHIEVEMENTS:

Yale offers the broadest range of power options available in North America across a comprehensive range of lift trucks.



YRC WORLDWIDE

ycw.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.

CURRENT GREEN INITIATIVES:

- Reduce greenhouse gas emissions
- Use alternative fuels or energy sources
- Reuse/recycling programs
- Reduce energy usage
- Energy-efficient lighting

NOTABLE ACHIEVEMENTS:

Since the beginning of 2015, YRC has replaced 20% of its tractors and 15% of its trailers. YRC also caps speed below 65 mph on all units, which reduces fuel consumption and emissions.

YUSEN LOGISTICS

yusen-logistics.com

Yusen Logistics upgraded its Carson, California, facility with energy-efficient lighting, as well as a white roof, which keeps the warehouse cool by deflecting up to 80% 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.

CURRENT GREEN INITIATIVES:

- Reduce greenhouse gas emissions
- Use alternative fuels or energy sources
- Reduce energy usage
- Solar panels
- Energy-efficient lighting

NOTABLE ACHIEVEMENTS:

The company's investment in more than 30 lithium-ion battery powered forklifts will result in an average energy savings of 16% per truck.





FEEDING THE BABY PRODUCTS SUPPLY CHAIN

MANAGING THE BABY PRODUCTS SUPPLY CHAIN IS NOT CHILD'S PLAY. HERE'S HOW MANUFACTURERS IN THIS HIGHLY REGULATED PRODUCT CATEGORY STAY HYPER-VIGILANT TO PROTECT INFANTS AND TODDLERS WHILE CONSTANTLY ADJUSTING TO PARENTS' EVER-CHANGING COLOR, STYLE, AND FLAVOR PREFERENCES.

BY SANDRA BECKWITH

W

hat do actresses Jennifer Garner, Kristen Bell, and Jessica Alba have in common?

They all started baby product businesses after they became mothers. Like every other parent, they became obsessed with the quality and safety of anything that went on, in, or near their children.

Garner's company, Once Upon a Farm, sells fresh, organic baby food. Bell's Hello Bello premium but affordable diapers, wipes, and skin care products are sold exclusively at Walmart. Alba's The Honest Company sells a range of products from organic formula to diapers and baby shampoo.

"Quality should be scrutinized for any product, but when it comes to children's safety, it is of the utmost importance," says Charlie Wilgus, general manager of the manufacturing and supply chain practice at Lucas Group, an Atlanta-based executive search firm.

"You never want a lawsuit because

Dominique de Bourgnecht, CEO of baby deede, chooses to manufacture its baby sleeping bags and pajamas at a large, integrated, family-owned company in India that is familiar with all relevant category regulations and laws.



Zulily goes to great lengths to make sure its diapers and wipes are safe for newborn skin. Diapers are made with plant-based materials and the company recently changed wipes manufacturers so it could use more natural ingredients.

of something happening to a baby," adds Joe Politoske, vice president and senior account executive at USC Consulting Group.

The baby products supply chain is highly regulated because little humans are so vulnerable. Rigorous testing and certification are designed to protect them from injury and illness caused

by everything from loose parts they could choke on to flammable fabrics or toxic materials that include lead. Manufacturers and retailers must be vigilant to ensure that suppliers—including those overseas—adhere to design, materials, testing, and certification requirements.

At Zulily.com, a Seattle-based online retailer that started as a flash sale site for parents, vendors are required to maintain all relevant testing documents that regulations mandate. Teams work closely with partners across the supply chain to manage compliance for all product categories, but especially baby products that include strollers, toys, and apparel.

"We train our buying teams on product safety issues and evolving regulations while working with vendors whenever safety concerns are raised to ensure that their products meet all applicable safety standards," says Doug Hyland, Zulily's director of compliance.

Dominique de Bourgnecht, founder and CEO of baby deede, a New York manufacturer and retailer of baby sleeping bags and pajamas, has been able to find product and certification quality at a large, integrated, family-owned manufacturer in India.

PLAYING WITH BLOCKCHAIN

Gerber parent company Nestlé has joined the IBM Food Trust collaboration of leading food companies and retailers that includes Dole, Walmart, Carrefour, Golden State Foods, and others to use blockchain technology to make the food supply chain safer.

Nestlé is using the system to track ingredients in a popular variety of its Gerber baby food.

“People want to know, quite rightly, where ingredients they give their baby have come from,” Chris Tyas, Nestlé’s global head of supply chain, told *The Wall Street Journal*.

Using technology developed by IBM’s blockchain unit, participating partners are working with suppliers ranging from small farms to large growers to input details about ingredients into the Food Trust solution. All participants—growers, suppliers, processors, distributors, retailers, and regulators—can have access to trusted information about the origin and state of the food based on their permission level. When necessary, they can use that data to quickly trace contaminated products to the source so those products can be removed from store shelves. This can help minimize illnesses caused by tainted ingredients or foods.

For a processed product such as baby food, Food Trust starts with a simple question: Who are this product’s suppliers? They need to be brought on board to share data in a way that creates end-to-end visibility.

One challenge of getting everything needed—from the date and time produce was picked and packed to when it was cleaned, chopped, and processed—is that participants don’t always use the same system to record and enter data.

“How do we enable data to come in from across the supply chain when there’s diverse technology sophistication?” asks Suzanne Livingston, Food Trust’s director of offering management. “Some of the smaller

players might have IT systems they developed themselves or a spreadsheet. We’ve gone to farms where the system is a notebook.”

Food Trust has been able to make the integration process as easy as possible for all participants.

While many organizations are working with blockchain to trace ingredients, what makes this particular collaboration different is that there is no single owner.

“Food Trust lets companies own and retain their own data and insights and have control over what data is being shared and with whom,” Livingston says, adding that the system was built with input and guidance from all partners.



“This kind of integration, where one part of the family knits the fabric and another cuts and sews, offers a cost advantage plus more control over product quality and consistency,” de Bourgknecht says. Baby deedee uses a third-party laboratory to ensure there are no issues.

Symbia Logistics, a Colorado-based third-party logistics provider, handles fulfillment for ABBY&FINN, a subscription premium diaper and wipes company. “We take particularly exceptional care with how we handle any product someone will wear,” says Dave Boger, Symbia’s operations and business development manager.

Co-founded by the owner of another company that makes BPA-, PVC-, and phthalate-free bibs, cups, and other products, ABBY&FINN goes to great lengths to make sure its products are safe for newborn skin.

For example, its diapers, available in a range of sizes and parent-pleasing patterns and colors, are made with plant-based materials. They include no harmful chemicals or dyes and the “sap”—the mostly plant-based material that provides absorbency—is completely baby-safe.

They take this care because it’s what co-founders Lance and Amanda Little and Matt Anderson want for

their children, but also because parents demand it. “The materials we use are always top of mind with making sure we listen to our customers and stay aware of industry trends,” says Little. “For example, we just changed manufacturers to include even more natural ingredients in our wipes.”

But ABBY&FINN’s parent customers want more than sustainably harvested wood pulp in their disposable diapers. They want their wee ones’ diapers to be fashion-forward, too.

“You’d be surprised at how on-trend some designs need to be,” says Anderson. “We have to stay on top of domestic and European fashion trends and colors.”



When filling orders for ABBY&FINN, a subscription premium diaper and wipes company, Symbia Logistics takes extra care with the products that newborns will wear.

Consumer tastes literally play a role in baby food supply chain challenges as well. Whether it's diapers, onesies, or pureed fruit, it's about what the parent, not the infant, prefers.

"The flavor palate for baby foods seems to change every year or two, while for other food processors it's every five to seven years," says Politoske. Changing preferences require manufacturers to constantly adapt, which can be an issue when it comes to processing certain fruits or vegetables.

"Equipment that suddenly has to process pomegranates, for example, might not be able to keep the hard seed from becoming part of the finished product, so the equipment needs to be modified," he explains.

Because consumer tastes can shift as quickly as infants become toddlers, baby food manufacturers want to minimize the amount of product in inventory.

"You don't want a year's worth of supply based on a forecast when trends could change," Politoske explains. "That's a significant amount of

inventory that could be at risk."

His company addressed that issue when working with a top North American baby food manufacturer that wanted to use a new, more modern facility to help globalize its supply chain. By expanding sourcing to South America,

where the growing season is opposite of that to the north, the company could, for example, produce applesauce twice per year instead of just once. Splitting production in two according to opposite seasons means the manufacturer has less in inventory, which not only reduces the flavor-of-the-month risk, but also ties up less capital in goods.

Ingredient quality and traceability is extremely important with baby foods, too (see sidebar, page 69).

"The depth these companies go to to certify the supply chain is enormous," Politoske says. "We work with other food products where quality is a given, but there's an extra level of care and attention with baby products."

Consumers and celebrities alike understand why that's so important. ■

•
Comply with all applicable children's product safety rules
•

•
Have a written children's product certificate that provides evidence of the product's compliance
•

BABY STEPS: PLAY BY THE RULES

•
Be tested for compliance by a CPSC-accepted accredited laboratory unless subject to an exception
•

The juvenile products category is one of the most highly regulated in the world. In the United States, the Consumer Product Safety Improvement Act (CPSIA) sets federal requirements. Signed into law in 2008, CPSIA gave the Consumer Product Safety Commission (CPSC) a significant role in creating and enforcing federal requirements as they pertain

to children's products. In addition, Section 104 rules allow CPSC to mandate federal requirements for specific product types covering everything from cribs to walkers and booster seats. According to the Juvenile Products Manufacturers Association, key elements of CPSIA require that baby products:

•
Have permanent tracking information affixed to the product and its packaging where possible
•



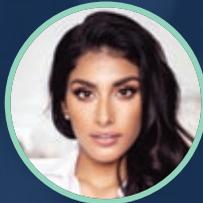


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CHEMICAL SUPPLY CHAIN: INNOVATIVE SOLUTIONS IN THE MIX



FROM SPECIALIZED REQUIREMENTS TO CAPACITY CONSIDERATIONS, FORMIDABLE CHALLENGES FACE CHEMICAL SHIPPERS. IN REACTION, LOGISTICS PROVIDERS ARE ROLLING OUT SOLUTIONS OF SUBSTANCE.

The chemical logistics sector is being impacted by the trends affecting most logistics functions, including tight capacity, a growing focus on safety and sustainability, and greater use of technology to help mitigate capacity concerns and ensure safety.

Some 70,000 people are employed in chemical distribution, reports the National Association of Chemical Distributors (NACD). More than 881 million tons of chemical products were transported in 2015, making the chemical industry one of the country's largest shippers, according to *Transporting Growth*, a PwC study for the American Chemistry Council.

What's more, the number of shipments is expected to grow. One reason is lower energy costs caused by the increase in production along the "chemical corridor" that spans several Gulf states, says Bob Daymon, senior vice president of operations with Transplace, a third-party logistics (3PL) provider. That's adding more supply at a time when transporters already are struggling to keep up.

In addition, a growing number of shippers are moving toward smaller, more frequent orders, minimizing their need to store large quantities of chemicals. "Rather than store 5,000 gallons for a week, they'll order 1,000 gallons each day," Daymon says.

The widening of the Panama Canal in 2016 continues to have a ripple effect on shippers and carriers in the United States, says Glenn Riggs, senior vice president, corporate strategy and business development, with Odyssey Logistics. Some U.S. ports are deepening their waterways to accommodate the larger ships the canal can handle. Once these larger volumes of freight make it to land, they need to be transported.

AMAZON EFFECT

While few chemical shipments go directly to consumers, the "Amazon effect" is hitting the chemical logistics sector.

"Business people are used to a one-click purchasing environment that provides real-time information at

their fingertips," says Chris Wright, vice president of sales and marketing with Rinchem.

Growth is a good problem to have, but it can present challenges, especially when combined with existing capacity constraints, such as the truck driver shortage. While this impacts all logistics functions, it can be especially pronounced with chemical shipments, given the priority placed on safety.

"That translates to a number of requirements," says Balika Sonthalia, vice president, supply chain, with consulting firm A.T. Kearney. Drivers need to meet more stringent qualifications and have the right capabilities, such as the ability to track shipments. Not all carriers can meet these requirements.

In addition, the cost of attracting and retaining employees to work with hazardous materials continues to climb. The products are often heavy and employees may need to wear protective gear, which can get cumbersome. Attention to compliance also requires costly recurring training and rigorous internal audits of processes.

"You either do chemical logistics right or you shouldn't do it," says Bob Lilja, chief operating officer with Weber Logistics. "It's foremost a public safety commitment."

CHOICE SHIPPERS

These trends in the chemical logistics sector have given rise to the concept of "shipper of choice." Carriers have been in such a strong position that they've been able to let go of clients who make their job harder by, for instance, keeping drivers waiting.

To ensure they remain shippers of choice, many chemical companies have made a conscious effort to improve in this area. This includes, for instance, implementing technology that allows them to communicate continuously

with drivers, so they can alert them to potential delays in loading or unloading.

At the same time, ensuring all capacity is used as completely as possible also is critical. "How can I make that capacity go faster with less downtime and better utilization?" asks Steve Tracey, executive director of the Center for Supply Chain Research at Pennsylvania State University.

TURNING TO TECHNOLOGY

Technology has a role to play here. For instance, a driver who's able to adjust the temperature of the trailer without having to stop and get out of the vehicle saves time and boosts utilization. Using route optimization software to schedule loading and unloading times can minimize unproductive downtime. Software also can link loads across a network to cut the frequency of empty backhauls.

Another solution to capacity constraints is boosting the pool of potential drivers. "What about the people who could participate in the driver workforce but don't?" Tracey asks. Women, for instance, make up about 8% of drivers, according to the Women in Trucking Association. Companies that can attract and retain more women drivers can alleviate capacity concerns.

Similarly, greater application of technology, such as the Internet of Things (IoT) and RFID systems to trace materials to their location "will bring efficiency to a fundamentally inefficient system," says Mihir Shah, industry and solutions strategy director with technology provider Infor.

The application of business intelligence constitutes the fourth industrial revolution, and it's impacting the chemical supply chain, Wright says. In the future, chemical manufacturers will leverage digitalization to capture critical data and draw insights, achieving improved output and lower costs.

Safety has always been critical within chemical logistics, and that focus isn't letting up. And while the chemical logistics sector has a history of safe operation, advances in technology, in



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addition to boosting efficiency, can also enhance safety. For instance, by using IoT, remote telemetry on tanks can provide real-time data, ultimately preventing hazardous situations, Odyssey's Riggs says.

To be sure, the increasing focus on risk exposure also is boosting costs. For instance, most insurers are raising rates for high-risk storage. The reason? The huge cost of a hazmat spill, including environmental hazard remediation, damage to the building and product, and risk to employees and the public.

On the other hand, some changes made to enhance safety can also improve operations. One example comes from the mandate for electronic logging devices. The information provided by the devices affords carriers and shippers greater visibility to shipments in transit. Some are "taking advantage of the data" to lower inventory levels and improve operations, says Mike Clark, executive vice president with KAG Logistics.

Even as technology improves chemical transportation safety, personal relationships still matter. "That one-to-one connection with the customer is very important," says Eric Byer, president and chief executive officer with the NACD. Shippers want to be confident their goods are being handled safely and appropriately. By personally connecting with their logistics partners, they're often better able to evaluate their safety procedures and how closely they're followed.

SUSTAINABILITY AND NIMBLENESS

Another macro shift impacting the chemical and other supply chains is the growing focus on sustainability and ethical sourcing. Safety, service, and cost remain priorities in supply chain and logistics operations. "However, sustainability is starting to creep up in importance," Tracey says.

One example is the International Maritime Organization regulation that will cut the allowable sulfur content in shipping fuel from 3.5% to 0.5%. "It will impact everyone when it goes into effect early in 2020," Riggs says.

More chemical logistics organizations also are interested in "flexibility and nimbleness," Clark says. This has been driven, in part, by recent flooding and fires at chemical factories that disrupted some supply chains. While they have further to go, many chemical supply chains are starting to catch up to the nimbleness some finished goods supply chains exhibit.

Growing economies across the globe also are driving the chemical logistics sector. "Innovation and accelerated globalization also will characterize the chemical logistics industry," says Matt Jensen, director of business applications with Rinchem. "The demand for advanced specialty chemistry continues to grow in emerging markets. Shrinking product lifecycles and the rush to commoditize products have increased the pace of globalization."

To thrive in this changing industry, many companies within the chemical logistics sector, including those profiled here, will continue to provide quality services and state-of-the-art technology to help their clients safely and effectively tackle these challenges.

C.H. ROBINSON: OPTIMIZING CHEMICAL SUPPLY CHAINS

With more than a century of industry experience, C.H. Robinson, based in Eden Prairie, Minnesota, is one of the

largest third-party logistics providers in the world. "We provide a variety of services in the chemical space, including consolidation, LTL, truckload, refrigerated, dry and liquid bulk, and flatbed," says Adam Kroupa, director of ChemSolutions at C.H. Robinson.

C.H. Robinson also has the largest network of quality, reliable capacity in North America. "Because of our experience in the industry and our network, we're able to offer a solution that works well for both our customers and carriers," Kroupa says.

C.H. Robinson can leverage its network to align shippers with carriers that best fit their lines of business, products, and location. This helps the shipper optimize service to its clients and often provides carriers with opportunities to grow their businesses.

Along with its transportation know-how, C.H. Robinson can help companies align their chemical supply chains, Kroupa says. Say a company needs to shift the locations at which it manufactures or stores its product to better meet changing demand patterns. By using its expertise to identify locations that are centrally located and near robust transportation networks and warehousing space, C.H. Robinson can help the company identify the optimal location.

C.H. Robinson analysts stay abreast of changing and new regulations to identify



3PL C.H. Robinson provides chemical shippers with a range of services, including consolidation, LTL, truckload, refrigerated, dry and liquid bulk, and flatbed.

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the impact on different sectors of the economy, as well as on its customers and carriers. One example is the Frank R. Lautenberg Chemical Safety for the 21st Century Act, which is an update to the Toxic Substance Control Act. While the Lautenberg Act was put in place in June 2016, many in the industry are still determining how it will impact production of new chemicals.

Kroupa outlines several potential scenarios. For instance, depending on how the EPA prioritizes a product, approval times could be longer than anticipated. “You could see a customer ready to ramp up production and build out its transportation network, only to hold everything until approvals are granted,” he says. “Conversely, a quick approval could mean ramping up production and aligning transportation faster than planned.”

Changing weather patterns are another area of focus for C.H. Robinson experts. “In 2019, we’ve seen a significant amount of flooding, which has altered some supply chains due to the inability to get products through certain areas,” Kroupa says.

He points to Houston as an example, noting that it’s the location for a significant portion of chemical production and shipping. “Weather changes the way that you’re shipping and where your freight is,” he says.

C.H. Robinson helps its customers adjust to these changes.

C.H. Robinson also remains connected to relevant industry organizations. “We can put our finger on the pulse of what’s going on and what other people are saying, and then synthesize that information so we can help our customers and carriers align their networks and supply chains,” Kroupa says.

With numerous forces, including ongoing changes in regulations, technology and capacity, as well as mergers and acquisitions, continuing to alter the chemical logistics space, “producers and buyers alike should be prepared for changes in their supply chain,” Kroupa says. They need to make sure that their transportation provider is prepared to adapt and offer solutions.

C.H. Robinson can help in these efforts. “We continually monitor regulations, shipping trends, and industry information,” Kroupa says. “We adapt with the ever-changing needs of our customers and carriers so we can help them succeed.”

KAG LOGISTICS: FROM THE LAST MILE AND BEYOND

KAG Logistics is one of the largest liquid bulk trucking companies in the United States, transporting more than 26 billion gallons of chemicals, specialty

products, and fuels each year. One area of focus is fuel deliveries to gas stations—the essential last mile in the energy distribution network. “Nobody wants to get to a gas station and find a yellow bag over the fuel pump,” says Mike Clark, executive vice president, chemicals and specialty products.

KAG, based in North Canton, Ohio, is the largest tank truck transporter and logistics provider with a nationwide scale, operating about 300 terminal and satellite locations throughout North America.

The company continues to grow, particularly in the specialty chemical sector, Clark says. That’s a result both of acquisitions by the company and the growing trend to manufacture more chemicals within the United States.

As it has grown, KAG also has expanded its offerings. In addition to liquid bulk trucking services, it now offers full-service logistics capabilities.

For instance, given KAG’s focus on liquid bulk delivery, it has developed substantial expertise that it can share with its customers. “Because of our years of experience, we know how to safely handle these products,” Clark says.

KAG also works with its customers to find the optimal mix of rail and truckload shipments. “We try to find the sweet spot of reliability, cost, and inventory optimization,” Clark says. Rail is less expensive, but disruptions can impact deliveries for weeks.

KAG Logistics offers its customers several technological tools. One is the Optimate Transportation Management Suite, which integrates technology, process, and expert logisticians to boost service levels and manage costs. Companies can leverage Optimate to dynamically size their fleets, optimize their routes, and access business intelligence, among other capabilities. “It’s an end-to-end solution for transportation management,” Clark says.

In addition, KAG’s Enhanced Tracking & Alert (ETA) Solutions provide visibility to all shipments, tracking to critical milestones. It also issues alerts when something could go



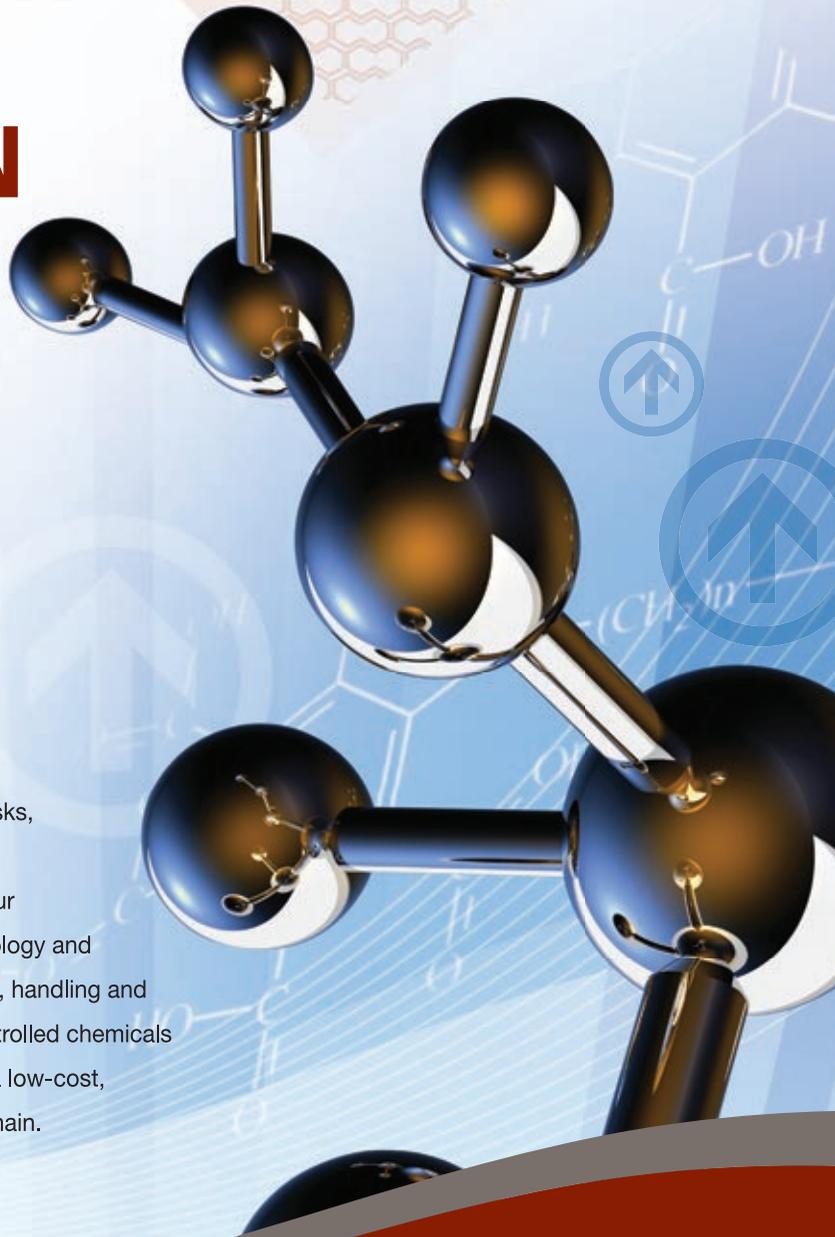
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"If you haven't thought about it in advance, and you haven't built some nimbleness into your supply chain, the disruptions can impact not just your own operations, but also your customers'," Clark says.

KAG, by leveraging its expertise, technology, and view of the fuel delivery market across North America, can help its customers build nimble, efficient supply chains.

LINDEN WAREHOUSE AND DISTRIBUTION: RESOURCEFUL AND READY TO SERVE

Linden Warehouse and Distribution Co., Inc. is a third-generation family business dating back to the 1940s. From its initial focus on trucking, Linden has been providing warehousing services since the 1970s. Linden specializes in the storage and handling of chemicals and industrial raw materials. "We're experienced in servicing the chemical and regulated material industries," says Jared Stadlin, chief operating officer.

From its base in Linden, New Jersey, Linden operates 1.2 million square feet of space, serving large global manufacturers of chemicals as well as smaller regional distributors. "Our customers can store as little as one truckload of material with us, or have millions of pounds in inventory," Stadlin says. "Our service level doesn't vary based on the size of the customer, whether large or small, we remain focused on meeting and exceeding their needs."

To that end, Linden is committed to being "a value-added service provider," Stadlin says. One example comes from the company's packaging expertise. Linden operates in-house automated package-filling lines that can transfer liquid products from tank truck or ISO tank to smaller containers ranging from 2.5-gallon pails to 250-gallon totes. "We can transfer product from bulk to smaller container, and provide all the correct, compliant labeling," Stadlin says. Customers gain flexibility in their supply chains by pre-positioning liquid bulk in



Linden Warehouse and Distribution Co., Inc. specializes in the storage and handling of chemicals and industrial raw materials.

the region and packaging to tote, drum, or pail as demand dictates.

In addition, a growing number of customers are also looking to Linden to generate and apply customized barcode or other customer-specific labels to products. "We take pride in being a resource for whatever challenges our customers face," he says.

One catalyst for Linden's growth is the company's proximity to the Port of New York and New Jersey. With facilities less than 9 miles from the port, Linden is well-positioned to service its customers' regional and international import/export activities. On the export side, Linden is adept at "proper blocking and bracing and load securement for materials shipping internationally," Stadlin says.

Over the decades, Linden also has developed substantial expertise working with supply chains that must comply with the Customs-Trade Partnership Against Terrorism or C-TPAT.

As the number of larger containerships

calling on the port has grown, the demand for intermediate warehousing has also increased, as carriers have a limited time window to move containers on and off the ships.

"Because Linden is so close to the port, truckers servicing Linden can move several loads daily between port and warehouse," Stadlin says. This helps customers rapidly and cost-effectively facilitate intermodal activities to and from the port.

Faced with increasing customer demand, Linden is rising to the occasion and constructing a 125,000-square-foot building in the coming year. "This will bring additional capacity to a market that's continuing to expand," Stadlin says.

One of Linden's favorite challenges is coming up with solutions when a customer asks, "Can you do this?" Linden examines and researches the request in order to develop a creative and effective solution.

"We pride ourselves on being a resource, ready to help our customers address their challenges," Stadlin says.

ODYSSEY LOGISTICS: CHEMICAL SPECIALTY AND INNOVATION

Chemical logistics is embedded "in the DNA of Odyssey," says Glenn Riggs. Based in Danbury, Connecticut, Odyssey's founding partners came from the chemical industry and started the company with a focus on chemical



Working with all transportation modes, Odyssey ensures chemical supply chain safety, efficiency, and cost-effectiveness.

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- Mechanical section fits on side of container
- Easily accessible electrical control box



TANK CONTAINER HEATING UNIT

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logistics. They understand the unique challenges of the industry and possess the skills and experience to tackle them.

For instance, with its purchase of a chemical tank truck company, Odyssey gained a fleet of trucks and tanks, as well as terminals and cleaning racks that enable it to provide bulk chemical logistics capacity. And its bulk brokerage arm, Odyssey Overland LLC, offers a single source for safe and reliable end-to-end transportation management.

Optimodal, Inc., Odyssey's Chemical ISO Tank Transport Service, consists of a fleet of 6,500-gallon ISO tanks. They can move chemical shipments from truck to railcar to truck, safely, cost-effectively, and sustainably across North America. "We believe intermodal transportation is a solution to the capacity challenges," Riggs says.

To further alleviate capacity challenges, Odyssey spent several years researching and developing a next-generation "flexi-tank" for non-hazardous chemicals, Riggs says. This tank can carry a range of chemicals.

Odyssey's sample fulfillment services help chemical companies that need to safely and cost effectively meet their customers' requests for samples

of both hazardous and non-hazardous materials. Odyssey can store, package, and ship sample and small-revenue orders. To date, the company has processed more than 10 million sample shipments.

The Odyssey team also dedicates employees to staying ahead of regulations that govern the transport of hazardous and non-hazardous products. Odyssey is a Responsible Care Partner, a program of the American Chemistry Council, and an EPA SmartWay partner, which helps companies advance supply chain sustainability by measuring, benchmarking, and improving freight transportation efficiency.

Given its focus on the chemical industry, Odyssey works with all transportation modes across the globe, including rail, tank car, truck, marine, and freight forwarding services. As a result, it's "agnostic to individual answers," Riggs says. "We do what is safest, most efficient, and most cost-effective for customers, across their supply chains."

RINCHEM: DEDICATION AND PRECISION

Rinchem Company, Inc. is a leading logistics provider and serves both manufacturers and end users of

prepackaged specialty chemicals and gases. "Rinchem is the only asset-based logistics firm of its size that is completely dedicated to the safe and precise management of chemical supply chains," says Chris Wright, vice president, sales and marketing. "Chemicals is not an industry vertical that we serve. It's what we do."

CHEMICAL REACTION

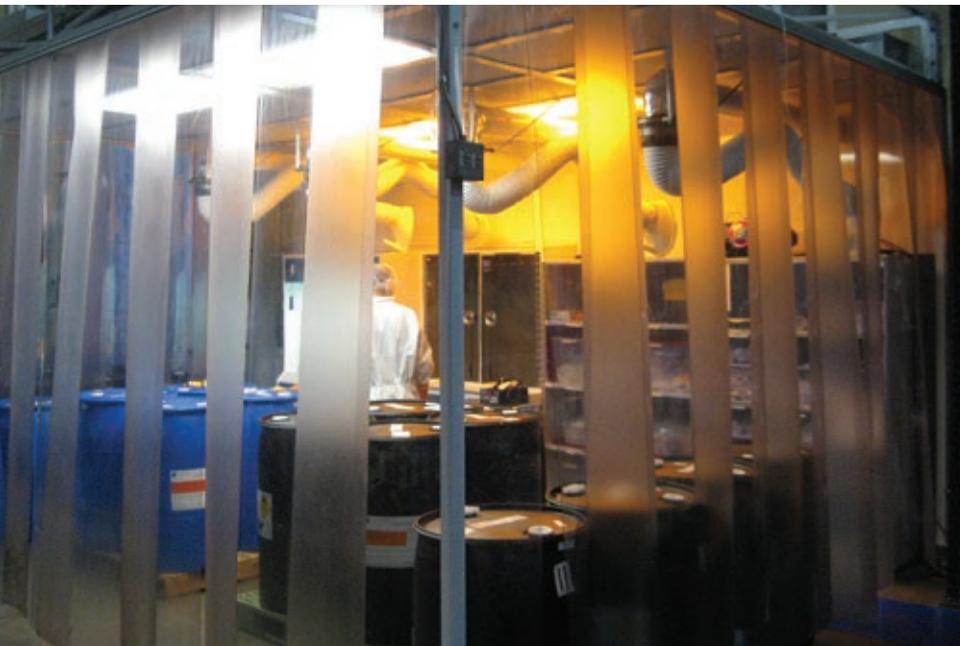
To that end, all of Rinchem's systems, processes, and procedures are designed for chemical supply chains. Rinchem, based in Albuquerque, New Mexico, operates a network of temperature-controlled distribution centers that comply with hazardous materials regulations at locations across North America and in parts of Europe, the Middle East, and Asia.

Its transportation and warehousing network is linked through its proprietary software, Chem-Star®, which provides customers with real-time visibility into their inventory's location and status. Rinchem also employs more than 100 hazmat-trained drivers; they helm trucks and trailers that are hazmat-customized.

"Rinchem has built a strong asset-based trucking organization that enables the safe, reliable transportation of complex chemical supply chains," Wright says.

Several years ago, to address the shifts occurring within the chemical logistics industry, Rinchem's executive team developed a business plan focused on advancing its Chem-Star customer interface and technology platform to enable customers to easily place orders, track shipments, make unique requests, manage inventory, and leverage the latest business intelligence. Moreover, users can tap into Chem-Star's capabilities without any training.

In one example, Rinchem assumed the operation of a regional warehouse for a supplier of chemicals and raw materials to the commercial printing industry. The company chose Rinchem because of its ability to provide a range of services, as well as the tracking capabilities available through Chem-Star. In addition,



Logistics provider Rinchem Company designs its processes and procedures for chemical supply chains. It serves both manufacturers and end users of specialty chemicals and gases.

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Rinchem's simplified, weight-based pricing structure was another draw, as it enabled the company to easily estimate its costs.

Shippers can integrate Rinchem's technology systems with their own, thus leveraging the information available and driving unneeded manual work from their supply chains, says Matt

Jensen, director of business applications. Advancements in systems integration architecture have made the ability to link systems a more easily attainable best practice, he adds.

"We are dedicated and committed to perfection," Jensen says. "We pride ourselves on handling the most complex supply chains and doing it very well."

TRANSPPLACE: EXPERTISE AND EXPERIENCE

Transplace, a full-service 3PL, is one of the largest transportation management providers to the chemical industry in North America. From its base in Dallas, it offers safety and security compliance, real-time shipment visibility, business intelligence that allows for proactive

Klinge: Refrigerated Transport Specialist

Klinge Corporation, and its predecessor companies in Denmark, have been providing refrigerated transport containers for the chemical and other industries since the 1970s, says Allan Klinge, president and grandson of the company's founder. Paul Klinge, Allan's grandfather, started what would later become the Klinge group of companies shortly after World War II.

"We provide refrigerated systems that can handle even chemicals, such as organic peroxides, that need to be transported at below-zero temperatures," Allan Klinge says. Klinge also works with petrochemical, pharmaceutical, and food processing companies, as well as with military equipment.

In the United States, Klinge Corporation started in 1984 as a spin-off of York International's transport refrigeration equipment department, based in York, Pennsylvania.

Along with the approximately 400 refrigerated tank container systems it produces each year, Klinge manufactures the dual refrigeration systems required when transporting some chemicals, as well as the integrated generators that also make the trip. "In case of a power failure anywhere along the transport chain, you still can power the refrigeration system to keep it cold," Klinge says.

These are key safety features. "Nobody wants a chemical spill or combustion," Klinge says. Preventing these while transporting some chemicals requires careful planning, the right equipment, and strict adherence to safety protocols.

Some chemicals have a self-activated decomposition temperature, so they need to be maintained at temperatures below that level. "Otherwise, they'll combust, and the reaction is difficult to stop or even slow," he explains.

Klinge also manufactures tank

container equipment for bulk liquid transport that complies with the ATEX Directive, or the European Union regulations covering equipment intended for use in potentially explosive atmospheres. An "explosive atmosphere" refers to a mixture of gases, vapors, mists, dusts, and other substances combined in a way that could ignite under some conditions. These regulations often govern oil and gas drilling activity, and situations when a chemical introduces a hazardous gas environment.

CAUTION IN ABUNDANCE

In addition to the ATEX tank refrigerated unit, over the past five years, Klinge has developed an Explosion-Proof Refrigerated Box Container for offshore and chemical facility use that complies with the ATEX Directive for equipment used in potentially explosive atmospheres.

Every component in the evaporator section, as well as all external parts, is explosion-proof. The refrigeration unit is just 14 inches deep, allowing for maximum cargo space.

When some customers, in an abundance of caution, put dual redundant equipment on their tanks, even when not required by regulations, Klinge also provides assistance. "They want to be as safe as possible, and we work with them," Klinge says.

Along with its equipment, Klinge prides itself on stellar customer service. To start, it works diligently to prevent problems from arising. "We're continually training our service partners around the world," Klinge says. "We want to ensure a solid handoff of information to minimize gaps that could lead to challenges."

Klinge also makes a point of maintaining strong relationships with steamship lines' dangerous goods groups, as they're the ones receiving information about potential concerns. "We focus on building those relationships, as they help to undergird our service to our customers, as well as safety," Klinge says.

In the rare case when an issue arises, anywhere around the globe, Klinge works to resolve it quickly and safely. "Klinge's strong global network allows us to effectively support our equipment and safely move our customers' products," says Klinge.



Equipped with safety mechanisms, Klinge refrigerated systems can handle chemicals that need to be transported at subzero temperatures.

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3PL Transplace, one of North America's largest transportation management providers to the chemical industry, offers safety and security compliance and real-time shipment visibility.

measures, and tanker endorsement compliance, among other services. It's also a Responsible Care Partner.

"Our expertise and experience set us apart," says Bob Daymon, senior vice president of operations. Many Transplace employees involved in the chemical vertical average about 14 years of industry experience. They understand the many regulations with which chemical shipments must comply and know how to manage shipments that must maintain strict temperature or other controls.

This emphasis on expertise and qualifications extends to Transplace's partnerships with transportation providers. The company seeks out firms that have proven experience in the chemical logistics sector.

Technology is another differentiator, Daymon says. Transplace's Transportation Management System (TMS) offers shippers a comprehensive view of their shipments and leverages predictive analytics so shippers can move from a reactive to proactive mode. For instance, shippers can use the system to alert carriers to any requirements for personal protective equipment they'll need when they pick up a load, streamlining the pickup and delivery processes.

In one instance, Transplace worked with a supplier of carbon black, a

powder used in coatings, inks, and other materials. While non-hazardous, the powder can leave a residue on trucks. As a result, the carriers who would transport it charge a premium. The company turned to Transplace to automate, optimize, and track the company's daily shipments from multiple production sites across North America. The company now enjoys greater control over its supply chain costs and enhanced visibility to its shipments.

Transplace is taking multiple steps to address the capacity constraints impacting the industry. By using software, historical data, and proprietary analytics, Transplace can view data across all its chemical shippers to streamline operations and make greater use of available capacity. For instance, Transplace can accurately estimate shipments likely to be delayed, and may recommend adjusting the timing of a shipment to minimize this risk. "Even before the shipment leaves, we can predict what will happen while it's in transit based on a proprietary algorithm, and make recommendations to improve it," Daymon says.

In addition, Transplace is working to promote collaboration between its bulk shippers and receivers to consolidate shipments when possible. Transplace's system identifies infeasible product matches, so a truck doesn't shift from, for

instance, transporting a caustic substance to moving flour. Done correctly, as Transplace is doing, this capability can essentially "create capacity," Daymon says.

"We look at our chemical shippers as a network," Daymon says. "We work to optimize each individual shipper, as well as the power of the network."

WEBER LOGISTICS: CONQUERING COMPLEXITY

From its start in 1924, Weber Logistics has become a premier West Coast provider of integrated logistics services, with particular expertise in chemical logistics. One example is its hazardous material storage warehouse in Los Angeles county, which spans 220,000 square feet and encompasses 13 different storage rooms. "We've invested in sophisticated storage environments," says Bob Lilja, chief operating officer. For instance, each room can meet different requirements for temperature range, fire prevention, and hazard class, among other conditions.

The Los Angeles County Fire Department actually uses Weber's facility to train its employees. For instance, the department has intentionally flooded some of the rooms, allowing firefighters to practice emergency response in a contaminated environment.

Because most hazard classes can be stored in one specialized building, shippers often consolidate different hazard classes into a single shipment and lower their costs, Lilja says. "It's a one-stop shop." Weber Logistics also is a member of the National Association of Chemical Distributors.



Weber Logistics, an integrated logistics services provider, offers sophisticated, specialized storage spaces for chemicals.



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Employees working in the facility average more than 15 years of experience. And unlike some companies, Weber employs a separate safety compliance department; it doesn't expect operations employees to also handle safety. These employees scrupulously review the relevant safety data sheets (SDS) to ensure Weber is handling the products appropriately. "In today's regulatory world, process is key," Lilja says. "We have both the facility and a highly developed safety infrastructure in place to ensure this."

For instance, Weber has established a special cage for U.S. Department of Justice-controlled chemicals. It conducts background checks on everyone who comes into contact with it, Lilja says.

Once materials are ready to leave the warehouse, Weber can ship them using its refrigerated truck fleet so customers don't have to find a different trucker.

Weber also can provide transloading

services at the Port of Los Angeles. This includes breaking up containers that come through the port at more than the allowed gross weight, to bring them down to legal weight for over-the-road transportation. This is key for many chemical shippers, given the density and weight of their shipments. "We can quickly reduce the weight, so within 24 hours, they're on their way," Lilja says.

Weber's robust RF-driven warehouse management system can manage complex compliance requirements and provide real-time data on customers' inventory. Customers can log into their portal to easily access this information.

Weber employees monitor legislation and regulations, both nationally and within California, which often has its own requirements. "Given the number of states and municipalities developing their own laws governing the storage, transportation, and distribution of chemicals, companies either need very

strong compliance competency, or they have to partner with a 3PL that makes it their business to monitor these," Lilja says. Weber is one such firm.

THE FUTURE OF CHEMICAL LOGISTICS

The size and significance of the chemical logistics industry likely will continue to grow, following increasing chemical production. By 2020, new capacity will lead to 1.8 million more annual shipments, according to the PwC and the American Chemistry Council report. That translates to an additional 270,000 railcars, 723,000 truckloads, and 808,000 marine TEUs annually.

"If the economy remains healthy, the chemical industry will need to ensure its supply chain is robust and agile, and goods move through the system without interruption," notes Stadlin of Linden Warehouse and Distribution Co.

These service providers can help chemical companies achieve that. ■

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Transplace's logistics technology and experience in the chemical industry streamline operations and help chemical shippers realize greater visibility to the entire shipment lifecycle. Transplace provides electronic tendering capabilities for a clear view of shipments, and an automated process for securing the lowest-cost approved carrier to save time and reduce freight costs.

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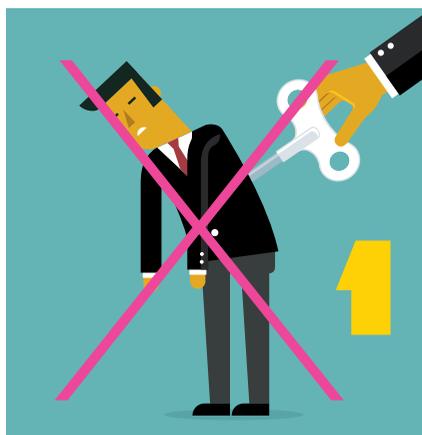
Weber specializes in storing and distributing chemicals, including flammables, corrosives, gases, and powder coatings. Its chemical warehouse in Los Angeles provides a safe, compliant, and economical distribution point for West Region customers. Chemical shippers gain 24/7 visibility to products using its systems and customer portal.

5 SUPPLY CHAIN MYTHS—BUSTED

Whether you have established your career or are just starting out in supply chain management, you'll come up against persistent misconceptions. *Inbound Logistics* puts five of the most common myths to the test.

BY TAMARA CHAPMAN

Like any industry segment, the supply chain offers fertile ground for myths to propagate. Here are five of the most persistent supply chain myths, along with the thorough debunking they deserve.



MYTH 1: SUPPLY CHAIN MANAGEMENT IS BORING.

No way, say the folks educating the next generation of supply chain professionals. A logistics whiz may not become the hit of happy hour by spouting supply chain trivia, but the field—contrary to its bum rap—does not induce spontaneous comas.

Still, the “supply chain is boring” myth looms large among the general public, among college students looking for a major, and even among business

professionals with spreadsheet expertise.

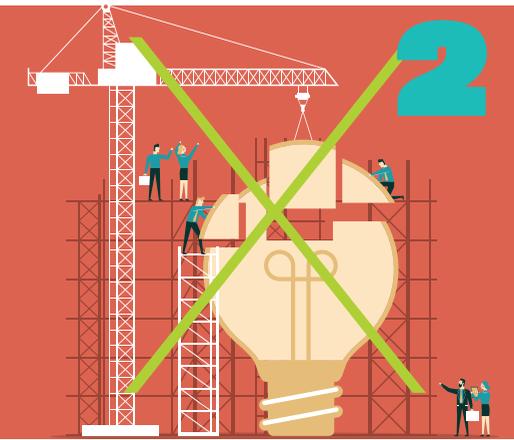
“The main reason is that they don’t understand what supply chain is,” says Nick Little, director of railway education at Michigan State University’s Center for Railway Research and Education.

For example, when high school and college students begin thinking of career options, they are likely to link the supply chain with its less strategic jobs. “If Johnny went home and said to his family, ‘I want a supply chain career,’ they might answer, ‘You don’t really want to be a truck driver, do you?’”

“The other thing that people sometimes don’t understand is that working in supply chain involves a lot of trade-offs,” Little adds—noggin-taxing trade-offs that require informed decision-making. That’s true in every link of the chain, from product design, materials management, and procurement—“Do we go with cheap materials or something that is more reliable?”—to transportation and distribution. No part of the job can be executed on autopilot.

Supply chain’s relationship to the entire business enterprise attracts Little. “Supply chain is strategic because it is so closely linked to the business model,” he says. “Supply chain is touched by every part of the business and every part of the business is touched by the supply chain.”

“The good thing about supply chain management,” he says, “is that no two days are ever the same, and you don’t know what tomorrow will bring.”



MYTH 2: YOU NEED AN ENGINEERING DEGREE TO NEGOTIATE THE SUPPLY CHAIN.

Tell that to Lamar Johnson, who as a college student never dreamed that he would spend 15 rewarding years in supply chain management at a major brand.

“I retired in 2004 from Procter & Gamble but I had a finance undergraduate degree and 18 years in sales,” he says. “When I retired I was managing all of the outbound portion of Procter & Gamble North America’s supply chain,” he says, adding that he was unusual at that time, a bird with different plumage in an aviary of engineers.

“What I brought to the party was a knowledge of our customer,” Johnson says. “I had analytical skills—at one point I had been a math major. I also had very good soft skills: leadership skills, collaboration skills—all of the things you need to knit together not only the parts of your own discipline but also other entities within the company.”

Johnson is now senior associate director of the University of Texas’ Supply Chain Management Center at the McCombs School of Business. And he’s all about reminding business leaders that supply chain professionals benefit from a strong foundation of business and communication skills.

“Most supply chain leadership historically has come from engineering; therefore they tend to value people who come along behind them that have an engineering degree,” Johnson explains. “It’s kind of a fraternity or sorority. I don’t mean that to be unfair. I am saying that they value the skills that engineers bring to the party and sometimes discount the skills of people with backgrounds other than engineering.”

That’s changing, he says, and it’s a good thing. Professionals with engineering expertise will always be an essential part of the supply chain equation but, “We need different kinds of leaders in the future,” Johnson notes. “We need leaders who have strong business skills, analytical skills, and soft skills. If you take that on face value, lots of different backgrounds belong at the table.”

MYTH 3: SUPPLY CHAINS THAT RELY ON AUTOMATION INSTEAD OF PEOPLE ARE ALWAYS BETTER.

“False,” says Jack Buffington, who is responsible for warehousing and fulfillment for Colorado-based brewing company MillerCoors.

At least for now.

Buffington, who is also a professor of supply chain management at the Daniels College of Business, University of Denver, says it’s not uncommon for business ventures to overvalue the automated supply chain.

Take the case of a celebrated technology company and its much-ballyhooed all-electric luxury vehicle. “The company obviously makes a good product that people want,” Buffington says. “And as production has ramped up, it has had challenges meeting its targets. The reason why is the manufacturing facilities were overautomated. The company looked at what the big automakers were doing and thought, ‘Well, that’s good, but more automation would be better.’”

But that’s not how manufacturing facilities should work, particularly on questions related to cadence—and to

keeping things flowing consistently and in accordance with business strategy. When it comes to the big picture, “It’s not about maximizing; it’s about optimizing,” Buffington explains.

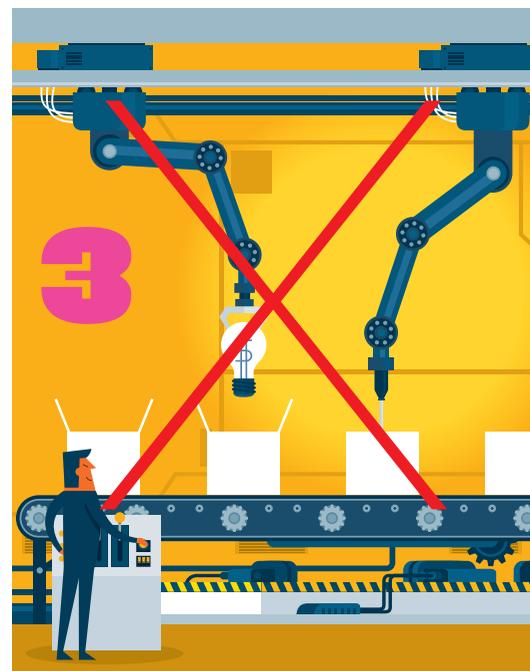
“Automation is good for doing things quickly, but it may not necessarily be good for flexibility,” he adds. “The company found that it needed to take some automation out of the process, because, as an overall system, it didn’t work as effectively.”

Such case-by-case thinking also should prevail in warehousing and distribution, Buffington argues. If the operation does not require troubleshooting or flexibility, a fully automated warehouse may be the ticket.

“Automated facilities are super efficient: Robots move pallets of product, they never take breaks, they take the same path,” Buffington says. “But when orders get too complex, they run into some difficulties.”

In fact, any time there is a change in plans, he notes, “you have to redesign the control system.”

Complexity can certainly confound human beings, but unlike robots, they can puzzle their way through a problem. And at the very least, they can ask for help and advice, Buffington says.





MYTH 4: IN SUPPLY CHAIN MANAGEMENT, DATA-NOT PEOPLE-RULES.

Like most of his peers, John Magee, president and CEO of Houston-based 3PL Crane Worldwide Logistics, believes that data should inform decisions. But he also says that supply chain management is as much about craft as it is about terabytes. Without the former, the latter only gets you so far.

“Data paints a picture, but it doesn’t tell a story,” he says. “There are times when the picture is enough. But there are times when you need the story.”

And that’s where the craft comes in. “Data can be misleading if you don’t know what you are looking for,” Magee says. “If you look at a slice of information the wrong way, it can be bad.”

A good supply chain professional always wants to know more. But it’s also important to know what to do with all that data and to understand what is happening behind the scenes. That may seem like common sense, but it takes experience to put data in context.

Say a client complains that your firm’s service is slipping. And the data supports

that contention: It now takes 23 days to deliver a product, up from 22.

The data doesn’t tell you what’s behind that slippage—whether it’s attributable to inefficient operations at home base, whether a carrier went out of business, or whether a natural disaster necessitated route changes. A response to the data, Magee explains, can only be crafted by someone savvy enough to ask the right questions.

With blockchain on the rise, businesses along the chain are ever-more committed to using data in decision-making. But, Magee says, “I am not so sure blockchain is going to become everything that people say it is.” After all, the “garbage in/garbage out” rule still applies, and blockchain as envisioned depends on what Magee calls “flawless execution of integrated systems.”

“People are saying they need more data, but they’re still trying to figure out how to use it better,” Magee says. And no matter how much data is on hand, one fundamental truth remains: When it comes to managing the supply chain, Magee says, “you can’t take the craft out of it.”

MYTH 5: COST CUTTING IS THE FIRST GOAL OF EVERY SUPPLY CHAIN.

As a working professional with warehousing and distribution operations to monitor, Jack Buffington of MillerCoors knows that cost pressures are real and require constant attention. But in his role as a professor, the preoccupation with reducing costs sends

his blood pressure well north of healthy.

“The goal isn’t to reduce costs; it’s to reduce waste and improve efficiency,” he says.

In fact, the supply chain might be one place where increasing costs makes sense. Spending a little to improve efficiency could pay off in increased sales.

“It’s a bad way to think about things,” Buffington says of the cost-cutting



obsession. It can even backfire. “Too many supply chain people try to reduce costs and they end up actually increasing costs or impacting sales.

“Cost can help solve a problem,” he adds. “If you increase costs, you can actually reduce problems and increase opportunities and grow markets. But the problem is we focus too much on the short term and lose sight of the bigger picture.”

Well, that’s not universally true. “The best supply chain people in the world focus on reducing waste, improving efficiency, and increasing sales,” Buffington says. “Cost is a factor in those goals, but it’s not discrete.” ■



TWO MORE MYTHS BUSTED

MYTH #1: Technology and automation will eliminate humans in supply chain management.

The rapid pace of change of technology and automation in the supply chain is mind-blowing. Without question, some tasks may be eliminated in the future. However, the current state

of supply chain management requires excellent communication and relationship-building skills. The art of conversation and relationship building is waning, yet critical to the field.

MYTH #2: Firms hire knowledge.

Students often express a great of anxiety toward internships or full-time roles. They often think they do not have the knowledge to succeed in the role.

Firms do not hire knowledge; they hire promise. The ability to learn, communicate, and exhibit a positive attitude means more than knowledge, particularly early in a career.



CAREER MYTH BUSTERS

Who better to bust supply chain talent myths than those in the trenches? Inbound Logistics asked our audience:

What's the one thing you would tell people considering a supply chain career?



The industry suffers from a misconception that working in the supply chain is a job, not a career—which simply isn't true. The beauty of the supply chain is that there are very few aspects of a business that it doesn't touch. The industry also is more gender-balanced than you may think; women account for 37% of the workforce.

—**Debbie Lentz**

*President of Global Supply Chain
RS Components Electrocomponents Group*

Supply chain management is an ever-changing, fast-paced environment that is great to get into for a career. It's a high-demand and high-paying industry in which you are always learning.

—**Angela Hansen**

*Supply Chain Management, Lead Faculty
College of Business
Northeast Wisconsin Technical College*

You can impact the lives of people every day. The beauty of supply chain as a career is that you can do a wide variety of jobs in a field that is growing rapidly. Career growth and helping others is the perfect combination.

—**Joe Walden**

*Lecturer, Supply Chain Management
The University of Kansas*

With a variety of jobs in high demand and a low barrier to entry, supply chain career possibilities are endless. Supply chain roles go way beyond freight brokers and package handlers.

—**Ben Green**

*Director of Human Resources
and Corporate Services, LeanCor*

Did you know Tim Cook, CEO of Apple, was formerly the company's head of supply chain? Supply chain today is arguably the most important functional discipline. Customers now

expect their products anywhere, at any time, and with complete transparency, and those expectations are best met via a first-class supply chain.

—**Rob Garrison**

CEO and Co-founder, Mercado Labs

A supply chain career enables you to lead and impact initiatives that dramatically improve a company's sustainability objectives, as well as those of its suppliers and customers.

—**Lamar Johnson**

*Senior Associate Director, Supply Chain
Management Center of Excellence
The University of Texas at Austin
McCombs School of Business*

Many people unfamiliar with supply chain think that careers are limited to operating forklifts, picking boxes, or driving trucks. They do not realize what a dynamic, exciting, broad field it is, full of diverse challenges and exceptional career opportunities.

—**Carol A. Lindee, Ph.D.**

*Assistant Professor of Logistics, Supply Chain
& Analytics
University of St. Francis
College of Business & Health Administration*

Supply chain management is the complete package—it's fulfilling, socially impactful, and quickly advancing. The industry is expansive and offers opportunities that yield extremely productive relationships. And the field continues to rapidly evolve through technology offerings and solutions generation required by the growing complexity of the world's expanding boundaries of possibilities.

—**Steve Moore**

Vice President, Operations, Transplace

Suit up for rapid transformation. As an industry, we're slated to spend more

than \$280 billion on digitalization annually by 2020. It's time to adapt and leverage the right technologies for more effective, economical management to become part of the driving force to develop and support a smarter supply chain.

—**Pete Butler**

CEO, MS Companies

Supply chain is not just about warehousing and trucks. It involves extensive planning and coordination from suppliers to manufacturers to distributors to the final customer. It involves a wide range of skills including data analysis, supplier and customer relationship management, negotiation, and for people who are hands-on, front line supervision. Whatever your skill set, there is a role for it in supply chain management.

For college students considering supply chain, you're not going to be the person working the line. You're going to be the person trying to make the line work better. How do you make it work more efficiently? How can you better utilize your resources?

One thing I hear occasionally from students, is 'Isn't this all being automated?' Well—more repetitive work is being automated, but people need to make the decisions.

Computerized systems can grind a lot of data and help us better understand what's happening, but ultimately the decision is still made by people. And putting together a supply chain involves negotiation. Someone still has to establish relationships and suppliers and maintain those relationships. Ultimately, business relationships are people relationships.

—**Mark Ippolito**

*Senior Lecturer in Operations Management
Indiana University Kelley School of Business*

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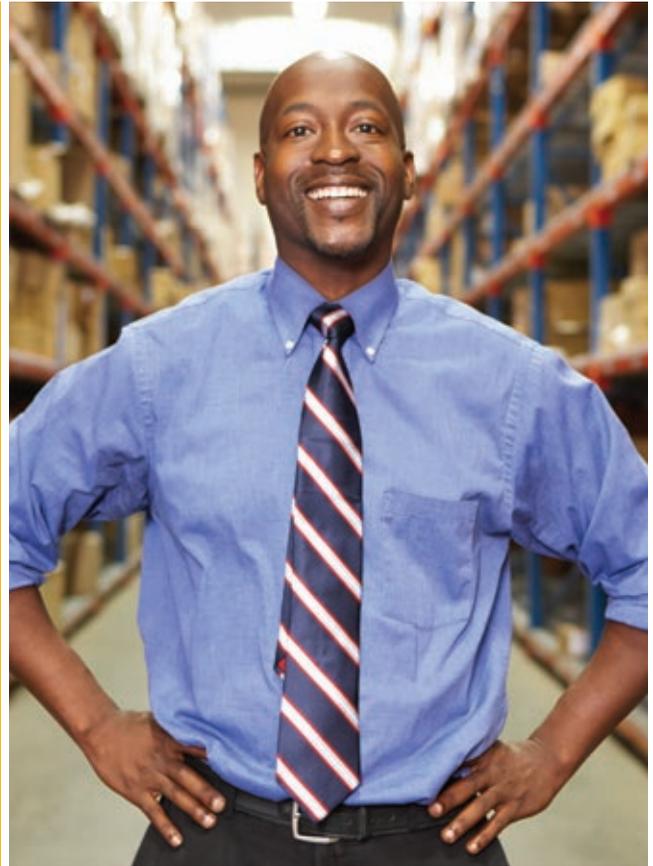
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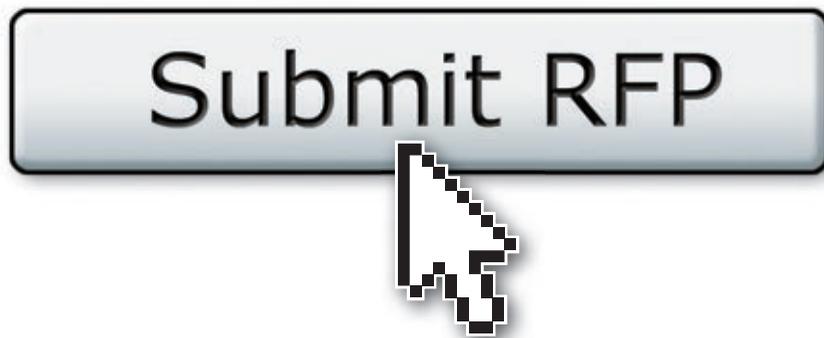
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CASEBOOK

Getting the Yard in Ship Shape

THE CUSTOMER

Newell Brands is an Atlanta-based global manufacturer, marketer, and distributor of consumer goods. Its brands include Rubbermaid, Coleman, Sharpie, First Alert, and Yankee Candle.

THE PROVIDER

Chicago-based Echo Global Logistics provides technology-enabled transportation and supply chain management services.

by Jennifer Baljko

When Newell Brands Inc. experienced truckload loading issues, costly shipping and driver detention rates, transportation inefficiencies, and a lack of electronic logging device (ELD) data analysis, it turned to a third-party logistics provider.

Truck loading turnaround problems. Shipyard inefficiencies. Increased transportation costs.

These issues intensified for Newell Brands Inc. after its 2016 acquisition of Jarden Corp. When the global consumer products company began experiencing shipping delays and driver overlaps, executives knew they had to do something.

Newell then turned to one of its long-time partners, Echo Global Logistics Inc., for help in analyzing its shipyard activity, supply chain practices, and ELD data.

THE SHIPPING SCENE

Hoboken, New Jersey-based Newell is known for its household brand names—Coleman, Paper Mate, Mr. Coffee, Rubbermaid, Sharpie, Sunbeam, and Yankee Candle, to name a few. The company has approximately 120,000 finished goods SKUs across its portfolio, products in 200 countries, and about 150 brands across eight global locations. In North America, it counts about 7,300 in, out, and transfer shipments weekly, which move by less-than-truckload, truckload, and flatbed.

The Jarden acquisition and its

rollup as a wholly owned subsidiary added complexity to Newell's already-complicated transportation and logistics strategies. With the acquisition came six new transportation management systems (TMS) and six more enterprise resource planning (ERP) platforms, which caused truckload loading issues, transportation inefficiencies, shipping delays, and increased costs.

When Newell executives started to suspect that the yards were turning around drivers too slowly, they began to take a closer look for the root cause.

The widespread truck driver shortage has raised transportation rates and increased volatility for many shippers, including Newell Brands, and executives surmised that could have played a role in shipping yard delays.

Steven Judge, manager of corporate transportation, also considered how Newell's driver detention charges may have had a ripple effect. Detention charges kick in if a driver spends two hours or more in the yard, but a driver held for one hour and 50 minutes would not be compensated for the time. Frustrated by this outcome, perhaps the drivers were taking more time to load their trucks.

CASEBOOK STUDY

Feeling Brand Newell

CHALLENGE

Newell Brands experienced truckload loading issues, costly shipping and driver detention rates, transportation inefficiencies, and a lack of electronic logging device (ELD) data analysis.

SOLUTION

Long time partner Echo Global Logistics analyzed Newell's ELD and other shipping data, and discovered processes that created higher shipping prices and supply chain inefficiencies.

RESULTS

- Truck loading turnaround time dropped by 30% to an average of 72 minutes.
- Average loading time dropped by 50 minutes and detention charges were eliminated during Q3 2018 in a shipping yard that introduced preloading after the study was completed.
- Truckload and intermodal shipments increased by 16% during peak season.
- 70% of facilities lowered detention spending within three months of the ELD study.
- Contracted lower shipping prices, improved relationships with carriers, and became a shipper of choice to drivers.

NEXT STEPS

Echo continues to offer consultative services to Newell, and conducts regular business reviews to help the company expand and maintain the targets it achieved with insights from the ELD study.

But as Judge dug deeper, he kept hitting roadblocks. The number of Newell and Jarden TMS and ERP solutions and the lack of synchronized data flow between them made it difficult to get a clear picture of what was going on in Newell's shipyards and what supply chain inefficiencies were possibly connected to the delays and increased costs.

Judge was left wondering: What could the company do to get more predictable pricing, improve its truck-loading time, and make its shipyards more efficient? So he sought out Echo Global Logistics, and hoped the Chicago-based provider of technology-enabled transportation management services could help him answer these questions.

PEELING BACK THE DATA

Newell and Echo's relationship goes back about eight years, to 2011. Newell initially called in Echo as a full truckload provider to help find capacity in a tight market. Since then, Echo has evolved into a core broker and consultative partner, offering strategic insights during quarterly business reviews and taking on other projects such as the study of Newell's shipping yards.

To get to the crux of Newell's shipyard issues, Echo executives hatched the idea of mining data from the electronic logging devices.

Under the Federal Motor Carrier Safety Administration's ELD rule, motor carriers must outfit their vehicles and drivers with devices that replace paper logs with electronic ones. Since December 2017, the cut-off date for fleets and carriers to transition to ELDs, piles of big data have been waiting to be reviewed, studied, and used to spot challenges and possible solutions.

Doug Waggoner, Echo's CEO and chairman, saw the value this powerful and untapped data could offer his company's customers, and specifically Newell.

"When ELDs became a hot topic last year, Echo focused on a proactive response," Waggoner says. "We wanted to find a way to help our clients solve this

new dilemma. So rather than focusing on the potential for increased rates and reduced capacity, my sales team met internally with our Data Scientists and Analytics group to identify areas for optimization to help clients navigate the mandate."

Echo kicked off its Newell ELD big-data study in May 2018 with an analysis of roughly 50 different Newell locations in the United States. The study principally involved using geofencing parameters based on the latitude and longitude of Newell's warehouses.

The geofencing parameters pinpointed shipments that originated from or were delivered to Newell warehouses, and gave the team a better understanding of what was happening at their shipping yards.

For instance, the data showed that, on average, drivers spent 102 minutes in 37 of the surveyed shipping yards. Echo's team could ascertain which yards were performing well above average as well as identify processes that appeared to

Newell became a shipper of choice by providing staging areas, organizing loading practices, and printing bills of lading before drivers arrived.

be causing longer turnaround times at problematic facilities.

Echo also discovered a facility that was not performing as well as the others didn't begin to pick up loads until the drivers arrived. The yard supervisors, Echo found, were afraid that drivers would miss their appointments and jam up the warehouse.

With this kind of data and insight, Newell's Judge was able to establish best practices that could be scaled across the organization. As an example, Judge introduced supervisors to their peers at a warehouse that preloads shipments. From that interchange, supervisors from the under-performing facility learned how to stage shipments and print



bills of lading before drivers arrived, skills that helped that facility drop its average loading time by 50 minutes and eliminate driver detention charges during the third quarter of 2018.

“Echo had the unique opportunity to present the ELD study directly to Newell and watch the company make progress based on the data we analyzed,” adds Waggoner.

The May study was completed within one month of Judge’s request for help, and Echo followed up in October 2018 to compare the results.

DATA-BASED IMPROVEMENTS

Echo’s ELD and shipping data analysis and recommendations for improvement led Newell to contract lower shipping prices, improve relationships with carriers, and become a shipper of choice to drivers; in a tight capacity market, being a shipper of choice is a big win.

Newell achieved this by putting emphasis on being a good and reliable partner and by providing certain accommodations such as staging areas, organized loading practices, and printing bills of lading before drivers arrived.

This shift also allowed Newell to achieve lower detention times (which meant fewer accessorial and penalty charges for drivers), a more efficient warehouse operation, and the ability to secure reliable transportation. This helped to ensure that shipments were delivered on time despite tight capacity.

A look at the improvement gains paints a similar story of success.

After the ELD study and implementation of the recommendations, Newell’s truck loading turnaround times dropped about 30% to an average of 72 minutes.

Newell increased truckload and intermodal shipments by 16% during

the peak season, but managed to keep detention spending flat.

And, significantly, 70 percent of its facilities lowered detention spending within three months of the study. Newell tracks detention spending relative to overall truckload spending each quarter. The metrics hit 10% and 15%, respectively, during the first and second quarters of 2018, and dropped to less than 5% in the third quarter. During the fourth quarter of 2018, Newell was on track to lower that ratio once again.

As part of what has become a consultative partnership, Echo continues to conduct both quarterly and annual business reviews for Newell and helps the company maintain its progress made with the insights from the ELD study.

“It was a mentality shift,” says Judge. “We didn’t know this data was out there and usable. We no longer feel vulnerable for not knowing, and there’s so much data we still haven’t tapped.” ■

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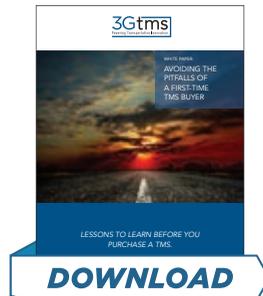


bit.ly/TMSBusinessCase

Making the Business Case for Transportation Management

Transplace

To meet continually changing consumer demands in a competitive market, shippers need a fast, efficient supply chain. Fortunately, transportation management systems (TMS) now provide organizations with greater visibility and control over their supply chains than ever before. Download this free whitepaper to examine how TMS solutions can help your company reduce risk, improve operational efficiency, and drive meaningful change.

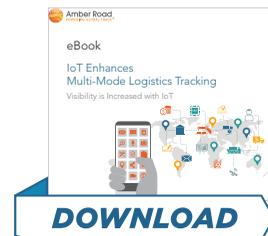


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Avoiding the Pitfalls of a First-Time TMS Buyer: Lessons to Learn Before Purchasing a TMS

3Gtms

This whitepaper looks at some key lessons to learn before you embark on a TMS project. From understanding the fundamental differences in design, to knowing the TMS products on the market, to understanding the how (not the what) and asking for proof of a vendor's claims, you can arm yourself with a deeper knowledge of the technology and vendor landscape that will help you ask the tough questions.



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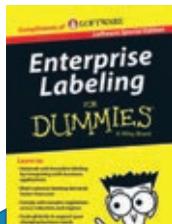
IoT Enhances Multi-Mode Logistics Tracking

Amber Road

Internet of Things (IoT) applications can bring together disparate parts of your supply chain to create an information ecosystem that benefits all. This e-book explores how you can instantly access transit times from every carrier along the route to create efficiencies and increase communication, provide the highest level of customer satisfaction, and upgrade your track-and-trace capabilities to become a multi-mode control tower visibility platform.

Supply Chain Insights

whitepapers



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Enterprise Labeling for Dummies

Loftware

This free e-book spells out the essentials for enterprise labeling success and highlights labeling trends that are keeping companies on their toes. You'll learn about the evolution of barcode labeling, the value of connecting labeling with existing business processes, and the efficiencies that enterprise labeling will create in a company's supply chain.



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Case Study: Global Ultra-Cold Clinical Trial Logistics

Patheon

Researchers predict a significant increase in the number of personalized medicines in development over the next five years. These therapies demand a cold supply chain. The globalization of clinical trials, the prevailing infrastructure, and the regulatory environment can impact the design of that supply chain. Learn how Thermo Fisher Scientific helped a client overcome significant transport challenges during the expansion of its first cell therapy-based trial.



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Opportunities in Direct to Consumer Frozen Foods

Gray Growth Strategies

The direct-to-consumer (DTC) frozen foods business is in the early stages of rapid growth. As many food types are becoming increasingly available on a direct-to-consumer basis, the share of total purchases allocated to frozen foods is higher in e-commerce than in brick-and-mortar sales. In this whitepaper, Gray Growth Strategies examines the state of the DTC temperature-controlled foods market and its prospects for future growth.

podcast



Jeff Barrie

Leveraging Global Trade Growth

GUEST: Jeff Barrie, CEO, DB Schenker, U.S.

Despite some uncertainty in the global logistics sector, the overall trend line seems to be on the upswing. But for U.S. businesses to capitalize on that growth, supply chain decision makers need to map out their strategies and focus on some key areas to effectively leverage the trend. Jeff Barrie, CEO of DB Schenker, U.S., offers some global perspective on how U.S. companies can address some of those important areas.



IN THIS SECTION:
3PL

3PL



ECHO GLOBAL LOGISTICS www.echo.com

Echo Global Logistics, Inc. (Nasdaq: ECHO) is a provider of technology-enabled transportation and supply chain management services. Echo maintains a proprietary, Web-based technology platform that compiles and analyzes data from its network of more than 50,000 transportation providers to serve its clients' needs. Offering freight brokerage and managed transportation services across all major modes, Echo works to simplify the critical tasks involved in transportation management.

KENCO www.kencologistics.com

Adding value to your bottom line? That's the mission of Kenco. For more than 50 years, Kenco has guided some of the most demanding supply chains in the world. Kenco's convergence approach can help you streamline your supply chain and bring a greater return on assets and investments. Kenco invites you to visit this website so that you might get to know its services. Then, contact Kenco so that you might truly understand its unique strategic advantages.



MALLERY ALEXANDER INTERNATIONAL LOGISTICS www.mallorygroup.com

Mallery Alexander International Logistics is a leading third-party logistics (3PL) provider. As a specialist in global logistics and supply chain services, Mallery Alexander acts as a single source for all logistics and supply chain needs. Specifically, Mallery Alexander provides public and contract warehousing, freight forwarding (international, domestic, air, and ocean), customs brokerage, import/export services, intermodal trucking and transportation, logistics services, and consulting.

RR DONNELLEY/DLS WORLDWIDE dlsworldwide.rrd.com

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IN THIS SECTION:
3PL - Chemical Logistics

3PL



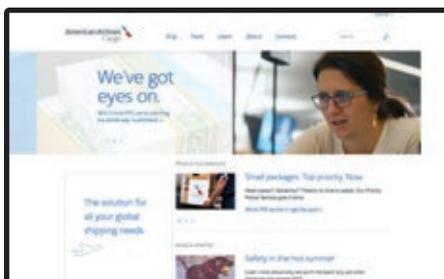
UTXL www.utxl.com

Whether you need a core transportation service provider or a resourceful backup relief valve, turn to UTXL. UTXL handles truckload and multiple stop shipments (consolidated LTL) between any points in North America, and can arrange service to or from any state with satellite and/or cellular equipped teams and single drivers for your van, reefer, flatbed, or oversized shipments. Shippers nationwide rely on UTXL for reliable service and economical prices; you can, too. Check out the website for all the details.

AIR CARGO

ALASKA AIR CARGO www.alaskacargo.com

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



AMERICAN AIRLINES CARGO www.aacargo.com

American Airlines Cargo is your shipping solution, providing more than 100 million pounds of weekly cargo lift to major cities in the United States, Europe, Canada, Mexico, the Caribbean, Latin America and Asia. For almost 80 years, American Airlines Cargo has consistently pushed the edge of cargo technology and expanded its network around the world. American Airlines Cargo locations are worldwide; visit the website to search for one near you.

CHEMICAL LOGISTICS

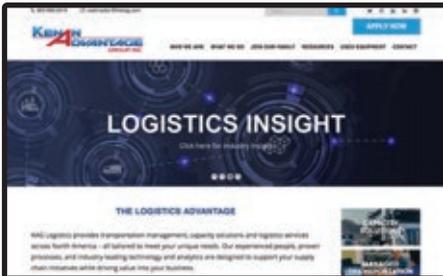
C.H. ROBINSON www.chrobinson.com

Founded in 1905, C.H. Robinson Worldwide, Inc. is one of the largest third-party logistics companies in the world, providing multimodal transportation, fresh produce sourcing, and information services to more than 32,000 customers globally, ranging from Fortune 500 companies to small businesses in a variety of industries. For more information about our company, visit our website at www.chrobinson.com.



IN THIS SECTION:
Chemical Logistics

CHEMICAL LOGISTICS



KAG LOGISTICS www.kaglogistics.com

As North America's largest provider of liquid bulk transportation and logistics services to the petroleum, chemical, merchant gas, and food industries, KAG Logistics works closely with organizations of all sizes to develop effective logistics solutions. KAG has experienced people, proven processes, technology, and assets to take your business where you want to go.

KLINGE CORPORATION www.klingecorp.com

Klinge Corporation provides superior transport container solutions for a variety of industries, including chemical, oil and gas, pharmaceutical, food processing, and military. The company's refrigeration units are built to the highest standards and designed to stand up against harsh conditions. Klinge provides customers with customized options to suit all their business needs.



LINDEN WAREHOUSE & DISTRIBUTION CO. www.lindenwarehouse.com

A premier provider of distribution services, Linden specializes in the handling, distribution, and cross-docking of general commodities, retail merchandise, chemicals, and related products. The company provides expertise in the handling and storage of hazardous commodities, as well as specialized storage for flammables and products requiring temperature-controlled facilities. Linden operates approximately 1.2 million square feet of public warehouse space in northern New Jersey.

LYNDEN www.lynden.com

Over land, on the water, in the air—or in any combination—Lynden has been helping customers solve transportation problems for almost a century. Operating in such challenging areas as Alaska, Western Canada and Russia, as well as other areas around the globe, Lynden has built a reputation of superior service to diverse industries.



IN THIS SECTION:

Chemical Logistics

CHEMICAL LOGISTICS



ODYSSEY LOGISTICS & TECHNOLOGY CORP. www.odyesseylogistics.com

Odyssey Logistics & Technology Corporation (Odyssey) combines deep industry expertise with leading technology to provide multimodal logistics management services to the chemical industry and other process manufacturers. Odyssey enables clients to outsource any part of their logistics processes to achieve savings through reduced transportation and infrastructure costs, measurable customer service and process improvements, and improved data quality and management. Odyssey is a leader in intermodal with expertise in liquid food, chemicals, and metals transport.

RINCHEM COMPANY, INC. www.rinchem.com

Rinchem is a leading provider of chemical management services to the semiconductor, chemical manufacturing, and pharmaceutical industries.

We are an asset-based logistics company that streamlines customers' supply chains, resulting in increased efficiencies and reduced costs.

Since 1976, Rinchem has provided comprehensive services including chemical warehousing, chemical and waste transportation, waste stream management, and safety and regulatory training and consulting.

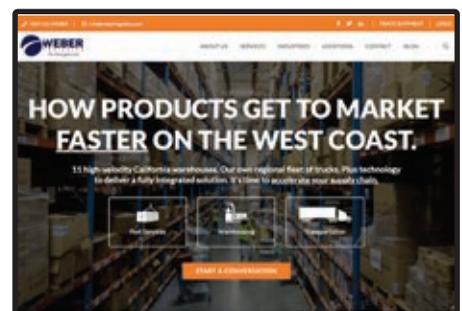


TRANSPLACE www.transplace.com

Transplace is the leading provider of transportation management services and logistics technology, helping manufacturers, retailers and distributors optimize supply chain operations and increase financial performance. Offering a complete suite of transportation management, strategic capacity, and cross-border and global trade services, Transplace's customizable logistics solutions and best-in-class technology give businesses greater control of their transportation operations and enhanced visibility of shipments and overall supply chain performance.

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Weber provides warehouse services throughout the Western United States, with 6.5 million square feet of space across 19 modern distribution centers in California, Arizona, Nevada, and Utah. Warehouse services include dedicated contract warehousing, shared warehousing, temperature-controlled storage, e-commerce fulfillment, crossdock services, and a wide range of value-added services, such as product postponement, kitting services, and hazardous material storage.



IN THIS SECTION: Chemical Logistics - Education

CHEMICAL LOGISTICS



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EDUCATION

ILLINOIS INSTITUTE OF TECHNOLOGY (IIT) www.appliedtech.iit.edu/intm

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IOWA STATE UNIVERSITY www.ivybusiness.iastate.edu

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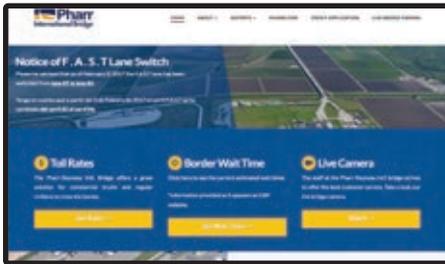
UT Dallas' Bachelor and Master of Science in Supply Chain Management (SCM) programs deal with issues related to developing, producing, and delivering goods and services from suppliers to customers. Students enrolled in the supply chain management programs gain the knowledge, skills, and expertise necessary to manage and improve the efficiency and productivity of business operations, and to improve the quality of services and goods produced. The faculty has significant teaching, research, and business expertise in logistics, purchasing, sourcing, supply chain, and operations management, offering students a unique, accurate perspective.



IN THIS SECTION:

Global Trade - Retail Logistics

GLOBAL TRADE



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LOGISTICS IT

TRIMBLE TRANSPORTATION enterprise.trimble.com

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PORTS



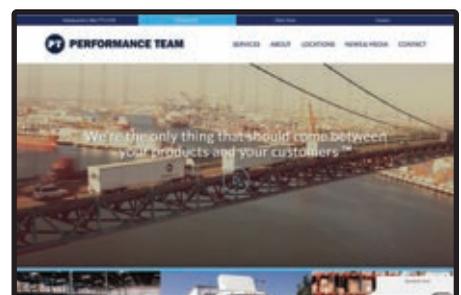
PORT OF STOCKTON www.portofstockton.com

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RETAIL LOGISTICS

PERFORMANCE TEAM www.performanceteam.net

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IN THIS SECTION: Sustainability

SUSTAINABILITY



ALLIANCE SHIPPERS, INC. www.alliance.com

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

DSC LOGISTICS www.dsclogistics.com

With experience, knowledge, and IT—as well as supply chain capabilities that are adaptable, versatile, and focused on changing customer needs—DSC Logistics helps companies reach their business goals. DSC provides supply chain analysis and design, strategic solutions-based consulting, systems integration, process improvement, and management of logistics operations such as warehousing, transportation, packaging, and fulfillment. In today's business environment, filled with rapid and unpredictable change, DSC manages change and information in the supply chain by using a strategy called sense-and-respond and by being ready for anything!



EPA SMARTWAY www.epa.gov/smartway

In 2004, EPA launched SmartWaySM — an innovative brand that identifies products and services that reduce transportation-related emissions. The impact of the brand, however, is much greater, as it signifies a partnership among government, business, and consumers to protect the environment, reduce fuel consumption, and improve air quality. All EPA SmartWay transportation programs result in significant, measurable air quality and/or greenhouse gas improvements while maintaining or improving current levels of other emissions and/or pollutants. Find out what you can do to save fuel, money, and the environment with SmartWay.

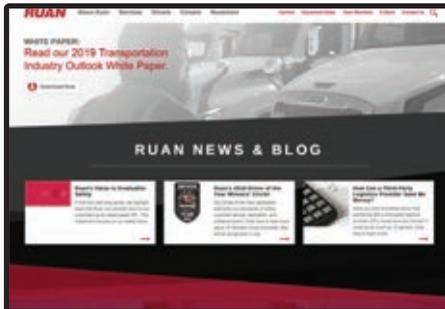
LYNDEN www.lynden.com

Over land, on the water, in the air—or in any combination—Lynden has been helping customers solve transportation problems for almost a century. Operating in such challenging areas as Alaska, Western Canada and Russia, as well as other areas around the globe, Lynden has built a reputation of superior service to diverse industries.



IN THIS SECTION:
Sustainability - Warehousing

SUSTAINABILITY



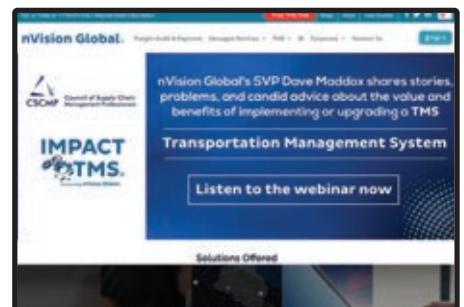
RUAN www.ruan.com

With Ruan, you can take advantage of door-to-door shipping solutions without the hassles and overhead associated with owning and operating your own fleet of trucks. We have more than 5,200 employees operating, servicing and coordinating some 3,400 power units and 5,600 trailers out of more than 100 locations throughout the continental United States. But you get more than just drivers and equipment—we become an extension of your team, advocating for your bottom line. Find out why the right partner can drive costs out of your supply chain—call 866-RUAN-NOW or visit our website — ruan.com.

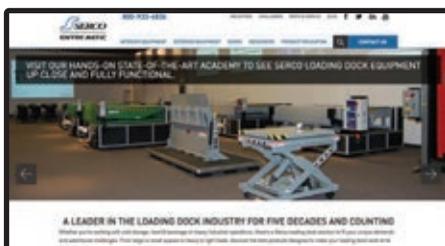
TMS

nVISION GLOBAL www.nvisionglobal.com

nVision Global is an industry leader in providing configurable logistics services and solutions, enabling customers around the world to optimize their supply chain and gain access to critical data. We offer a full suite of logistics services and solutions that allow for end-to-end shipment and supply chain management and visibility. Our solutions include a global, multi-modal TMS application, international freight audit and payment, loss & damage/overcharge/service failure claims management, as well as industry leading logistics analysis solutions.



WAREHOUSING

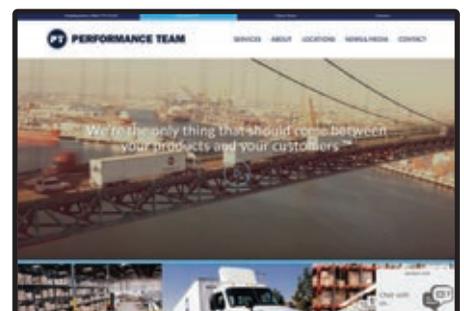


SERCO ENTREMATI sercoentrematic.com

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PERFORMANCE TEAM www.performanceteam.net

Performance Team (PT) is an industry-leading third-party logistics company with nearly 30 years of experience in warehousing, distribution, consolidation and transportation. PT has 12 domestic hubs (and nearly 7 million square feet of space) strategically located near major ports, interstate highways, and intermodal rail lines, allowing us to provide the retail and manufacturing industries with flexible B2B and B2C solutions for the movement, handling, and distribution of goods. PT also offers a full suite of retail, wholesale, e-commerce, and omni-channel distribution and transportation services.



INBRIEF

New Services and Solutions

> PRODUCTS

- The new TD 4 Desktop Thermal Printer Series from mobile and desktop printer maker **Brother Mobile Solutions** prints barcode labels, tags, or receipts for supply chain applications in warehouses, manufacturing plants, and retail environments. To increase speed for small-to-midsize businesses and warehouses, the printer integrates with warehouse management systems and uses thermal imaging technology.

- Reusable packaging maker **ORBIS Corporation** added the FP183 tote to its FliPak product line. Intended to replace corrugated shipping boxes, the FP183 is a reusable handheld tote that can be used in picking, work-in-process, storage, and distribution. Its lid features molded teeth that snap securely into place, keeping lids closed on conveyors.

- Companies looking to reduce energy costs at the loading dock can benefit from **Rite-Hite's**

PitMaster V Dock Face Sealing System. The product seals open gaps on the dock face and pit floor in vertical leveler applications, saving energy, improving pit cleanliness, and helping reduce infiltration of weather and contaminants.

- **Nordic Cold Chain Solutions**, a provider of temperature-controlled cold chain packaging solutions, introduced the Nordic Ice Drain Safe, a drain-friendly gel pack refrigerant. Developed for temperature-controlled packaging customers who receive routine shipments but do not have an efficient way to reuse or dispose of gel packs, the new products are completely reusable or disposable.

> TRANSPORTATION

- **OOCL** is set to launch two services to provide shippers with competitive services from Asia to South America and the Caribbean. Beginning in June 2019, the new offerings—Transpacific Latin Atlantic 2 and

> Automated solutions provider **Piab's** ergonomic lifters handle e-commerce parcels of varying sizes. Vaculex lifters can be fitted to lightweight telescopic conveyors. The ergonomic lifters also offer flexible solutions in low-ceiling-height and narrow areas with limited working space.



Transpacific Latin Caribbean 1—offer direct calls to ports such as Santos and Navegantes in Brazil; Manzanillo, Mexico; Cartagena, Colombia; Kingston, Jamaica; and Caucedo, Dominican Republic.

- **Atran Airlines**, the Russian air express carrier within Volga-Dnepr Group, introduced a new route between Hangzhou,

China, an emerging technology hub, and Riga, Latvia. The flight, which is operated every Thursday by a Boeing 737-800BCF, provides approximately 25 tons of cargo capacity.

- **Samskip Russia** launched airfreight services connecting Moscow and St. Petersburg to global destinations, providing one point of contact

for time-sensitive shipments door to door. As well as managing pre/on-carriage, tracking and tracing, and insurance, Samskip coordinates customs clearance through licensed partners.

- **Virgin Atlantic Cargo** is relaunching flights between London Heathrow and Mumbai, India. The service is set to start in October 2019 and will complement the airline's route between London and Delhi. The new flights will depart and arrive Heathrow in the morning to align with connecting passenger and cargo flows to and from the United States.

- Supply chain solutions provider **Panalpina** launched a high-speed rail LCL service direct from Shanghai, China, to Düsseldorf, Germany. With weekly guaranteed departure, this route is the third line in Panalpina's rail cargo portfolio, joining Shanghai-Warsaw, which started in 2016, and Shenzhen-Warsaw, which launched in 2017.

> SERVICES

- LTL transportation services provider **Dayton Freight Lines** relocated its Milwaukee service center to a new facility with an additional 61 doors, for a total of 131 doors. This allows the

> Designed for work positioning, assembly, repair, and inspection applications in warehouses and manufacturing facilities, CLT Series Compact Scissor Lifts from **Presto ECOA Lifts** employ a double scissor mechanism that allows for a collapsed height of 8.5 inches while providing raised heights of up to 56.5 inches. Lifting control is via a hand pendant or foot switch.



company to offer faster and more consistent LTL transportation service.

- Supply chain solutions provider **J.B. Hunt Transport Services** started a trailer pool and drop-and-hook service, J.B. Hunt 360box, to improve the efficiency of freight operations for shippers

and carriers. Launching in summer 2019, 360box will introduce a pool of 500 additional 53-foot trailers that businesses can reserve for drop trailer purposes, with plans to increase the available units as demand grows.

- Automotive shippers can now get help with the

nuances of transporting automobiles and auto parts. Logistics provider **Dachser USA** launched an automotive competence center in Atlanta, which provides dedicated customer service teams that are trained to address the complex logistics associated with the automotive market.

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IN BRIEF

- **DHL Express** relocated its Tulsa, Oklahoma, service center operation to a new 23,730-square-foot location within the city's industrial area. Intended to accommodate further anticipated international trade growth and enhance local service, the new facility is nearly double the size of the previous location.

- **Lufthansa Cargo** unveiled heyworld, a new transport offering for e-commerce shippers. heyworld offers a modular service portfolio, which includes fast transport times, simple customs clearance, end-to-end shipment tracking, and pricing at package level.

- Pharmaceutical shippers can now leverage shipping line **CMA CGM Group's** new Reefer Pharma division. Ensuring compliance with both the international quality standard and the European Commission recommendations, the service includes a dedicated team that provides 24/7 monitoring from CMA CGM's head office in Marseilles, as well as aboard its ships and from its operational centers in Singapore and Miami.

- 3PL **Kenco Logistics** plans to open a dedicated physical warehouse space, an expansion of its Supply Chain Innovation Lab. The

10,000-square-foot space will serve as a test facility for potential supply chain management solutions and technological advances.

> TECHNOLOGY

- Shippers now have dynamic, end-to-end visibility into their shipments with a new solution from **Hub Group**. Leveraging its GPS-equipped container fleet, railroad data, and a combination of artificial intelligence and machine learning technology to provide accuracy, Hub Group can constantly analyze the transit of freight, considering more than 10 million data points to provide continuous, real-time arrival updates.

- Mid-market retailers can now better compete against mega-retailers with iTradeOrder, a new platform from **iTradeNetwork**, a provider of on-demand supply chain management and intelligence solutions for the food and beverage industry. The platform lets them access iTrade's network of more than 5,000 trading partners to quickly discover new vendors and products. iTradeOrder's planning, order management, accounting, and logistics modules streamline back-office processes as well as reduce store-level shrink

> Supply chain solutions provider **Averitt Express** opened an international distribution center to help support the growing amount of cargo moving through the Port of Savannah. Located less than 15 miles from the port, the new location features 44 dock doors and more than 80,000 square feet of enclosed warehousing and distribution space.



and keep shelves stocked with the freshest products available.

- Shippers that use **Kuebix** TMS can now get additional truckload capacity through **Emerge's** carrier marketplace with a new partnership between the TMS provider and the marketplace developer. When a shipper is in need of additional truckload capacity or looking for more rate options, they can post their shipment to Community Load Match and begin receiving spot quotes.

- Now processing 30% of all LTL bills in North America, the freight billing specialists at **DDC FPO** launched a new online tool at bit.ly/BOL_calculator that gives carriers and 3PLs a quantitative view

into their operations. Especially helpful amid today's market volatility, the free and easy-to-use calculator breaks down back-office expenses into price-per-BOL.

- Auto-ID and labeling solutions provider **SATO** launched SATO App Storage, a cloud-based data management service that helps retailers, restaurant chains, and supermarkets maintain accuracy in their labeling operations. The system automates updates of apps and printer settings when replacing printers and streamlines management of seasonal label data for holidays and price markdowns.

- Companies can minimize supply chain quality risk with new enhancements

to **Elemica's** supply chain quality management solution, *Elemica Quality*. Now able to support ship-to-control techniques, the solution from Elemica, a digital supply network for process manufacturing industries, uses data inputs to derive control limits for specific properties of a product, letting suppliers quickly identify out-of-range products before shipment.

- **Fr8Hub** launched the latest version of its cloud-based digital platform for cross-border shipping, which includes enhanced

> **4flow's** integrated software for supply chain and transportation planning, *4flow vista*, is now available for integration in all transportation management systems (TMS). In addition to its new configuration as an add-on, *4flow vista* is still available as a stand-alone solution or integrated TMS.



tracking and visibility for shipments coming in and out of Mexico. Fr8Hub's digital freight marketplace matches cross-border shippers throughout Mexico and the domestic United States with available carriers and drivers for their loads.

- Shippers now have visibility and control of global transportation rates for all modes with a new cloud-based global rate and contract management solution from **Trax**. The Rate Manager solution, a new product within Trax's transportation spend

management platform, lets both shippers and carriers actively load, update, and manage transportation contracts and associated rates to improve productivity, decrease risk, and increase contract compliance.

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CALENDAR



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18-20,
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SCOPE Supply Chain Summit

bit.ly/scopesummit

Hosted by Quartz Events, this summit focuses on increasing end-to-end visibility, optimizing warehouse management, and developing transportation strategies that reduce costs.

CONFERENCES

**JULY 15-16, 2019
LAKE GENEVA, WI**

MARS Summer Meeting

mwrailshippers.com

Presented by the Midwest Association of Rail Shippers (MARS), the summer meeting covers topics such as railroad operating practices, transportation and freight car supply issues, transportation innovations, and legislative issues.

**AUG 5-7, 2019
FT. LAUDERDALE, FL**

Retail Delivery Connect

bit.ly/retail19

Worldwide Business Research's conference answers attendees' biggest challenges through high-level experiential content. Facilitated networking and mentorship programs encourage collaboration among industry professionals.

**SEPT 12-13, 2019
COLUMBUS, OH**

IWLA Safety & Risk Conference

bit.ly/iwlasrc

The International Warehouse Logistics Association's conference teaches warehouse, safety, and operations managers how to keep employees and materials secure. This event helps professionals determine the strengths and weaknesses of their company protocols and enables them to discuss safety and risk issues with industry experts.

**SEPT 15-18, 2019
ANAHEIM, CA**

CSCMP EDGE 2019: Supply Chain Conference & Exhibition

cscmpconference.org

The Council of Supply Chain Management Professionals' 2019 conference focuses on topics such as women in the supply chain, what young professionals need to know about the business, cutting-edge industry solutions, strategies to maximize and transform supply chains, and integrated business planning.

**SEPT 15-18, 2019
LONG BEACH, CA**

Intermodal Expo 2019

intermodalexpo.com

Presented by the Intermodal Association of North America, this expo brings together intermodal buyers and providers to share insight on issues and trends shaping the industry.



**SEPT 16-18, 2019
LAS VEGAS, NV**

ASCM 2019

bit.ly/ASCM2019

The Association for Supply Chain Management's conference brings attendees up to speed on ongoing changes in the industry. Key topics include sales and operations planning, inventory management, robotics, and virtual reality in the supply chain.

**OCT 8-10, 2019
HOUSTON, TX**

Breakbulk Americas

bit.ly/breakbulk2019

ITE Group presents this event geared toward project cargo and breakbulk professionals. The conference agenda features networking, business transaction, and lead generation opportunities, as well as the chance to hear perspectives and lessons learned from major project participants.

**OCT 28-30, 2019
DALLAS, TX**

PARCEL Forum '19

parcelforum.com

The PARCEL Forum is dedicated to serving the needs of shipping, warehousing, packaging, distribution, and parcel delivery professionals. The peer-driven, peer-reviewed, and peer-produced conference is geared toward helping professionals learn how to ship more packages more frequently, more efficiently, and more cost-effectively.



**NOV 5-6, 2019
ONTARIO, CANADA**

Distribution Logistics Summit

dlssummit.com

Hosted by Informa Markets, the Distribution Logistics Summit (DLS) focuses on expanding and evolving the interconnected supply chain sector. DLS connects logistics and transportation to warehousing, distribution, and fulfillment, and covers topics such as warehouse site selection and management, order fulfillment, and multimodal transportation management.

SEMINARS & WORKSHOPS

**JULY 16-17, 2019
CAMBRIDGE, MA**

Supply Chain Strategy and Management

bit.ly/MITsupplychainstrategy

MIT Sloan Executive Education's summer course presents industry professionals with innovative strategies and best practices for supply chain performance. Participants gain a deeper understanding of supply chain integration, technology sourcing, strategic partnering, and IT and decision-support systems.



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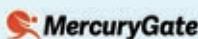
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Grocery Stores Turn Over a New Leaf

Supermarkets in Southeast Asia are using banana leaves, instead of plastic materials, to wrap vegetables and fruits on their shelves. The green idea started in a small store in Thailand and was quickly picked up by major supermarket chains in both Thailand and Vietnam. Not only are banana leaves native to the region, they are also pesticide free. Next up for the plastic alternative: fresh meat products.

Bring Back the Milkman

Forget single-use packaging. New Jersey-based company Loop takes cues from the milkman model and delivers products in durable containers that consumers can return to Loop to be cleaned, sanitized, and placed back in the loop. Partnering with household brands from Clorox to Crest toothpaste on the containers and UPS on pickup and delivery, Loop aims to bring packaging waste down to zero. Consumers can also find the containers at its two U.S. retail partners, Walgreens and Kroger.



Seeding a New Kind of Coffee Cup

Why dispose of a coffee cup when you can plant it? A Kickstarter project from Reduce. Reuse. Grow. is developing a paper cup with seeds embedded in the material. The consumer can see planting instructions at the bottom of the cup, unravel it, soak in water for 5 minutes, and then plant and grow the seeds that are native to the area. Or coffee drinkers can choose to discard the cup in designated trash cans where Reduce. Reuse. Grow. or third parties can collect the cups for local reforestation purposes.



Sources: loopstore.com; ThomasNet; NextShark; Kickstarter

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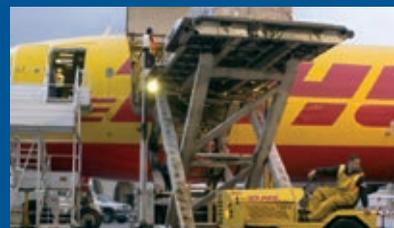
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