FEBRUARY 2022

inbound logistics

a THOMAS™ company

THE MAGAZINE FOR DEMAND-DRIVEN ENTERPRISES

SPECIAL REPORT

EDUCATION/CAREER SOLUTIONS: CRAMMING FOR SUCCESS

AUTOMATION + ROBOTICS: ARMED & READY

Info SNACKS

BITE SIZED SUPPLY CHAIN/LOGISTICS INFORMATION

BOEING BUILDS WORLD'S LARGEST TWIN-ENGINE AIR FREIGHTLINER

As part of a new 50-aircraft deal with Qatar Airways, Boeing has introduced its new 777-8 Freighter, the world's largest, longest-range twin-engine freightliner, with the same payload capacity as the 747-400 Freighter. Being built at Boeing's Everett, Washington facility, the first 777-8 Freighter is scheduled for delivery in 2027.

73 Days

Average time it takes a company to deliver goods to truck or rail carriers after booking with an ocean carrier and completing the cross-ocean journey. This is 15 days longer than this same quarter in 2021.

—E2open, Ocean Shipping Index, as of Jan. 1, 2022

$214.6 Billion

U.S. retail e-commerce sales for the third quarter of 2021, a decrease of 3.3% from the second quarter of 2021.

13% of total sales

Percentage of e-commerce sales in the third quarter of 2021

–U.S. Census Bureau

TRACTOR-TRAILERS THAT PARK THEMSELVES

Outrider, an autonomous technology provider, announced a first-of-its-kind backing feature for tractor-trailers. Imagine it this way, the company says—an untrained 5-year-old could now, in theory, back up a semi-trailer with the click of a button.

> **"When every carrier has more business than they can handle, a shipper becomes a glass of water in the ocean. Hopefully, shippers had been cultivating their relationships with carriers before the pandemic."**
>
> *– Lonny Holston, export operations coordinator, Mickey*

REAL ESTATE GETS REAL

- Industrial vacancy rates hit a new historic low in Q4 2021, while some coastal markets saw double-digit rent growth.
- Newly completed buildings are leasing up quickly, and a record 652 million square feet of space is still under construction.
- The supply chain crisis persists, with no end in sight.
- Prices are rising for goods, labor, and transportation, with increased inflation challenging industrial production.
- Consumer trends, including high e-commerce demand, will support strong warehouse market fundamentals in 2022.

—Savills, Q4 2021 U.S. Industrial Market Update

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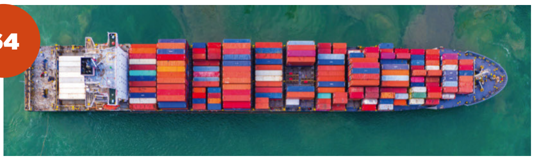

About 95% of global goods ship by sea

60

New lithium-ion stacker lifts loads as high as 140 inches

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What's the difference between traceability and transparency?

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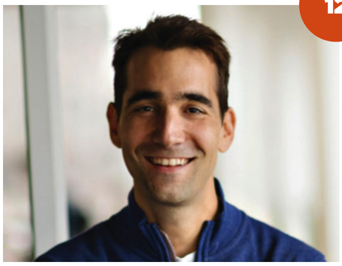

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CHECKINGIN

Bullwhip or Just Bull?


Keith Biondo, Publisher

Are shipping lines pricing themselves out of business? Blame the bullwhip effect, a distribution channel phenomenon in which demand forecasts yield increasing swings in inventory. Let's take that idea a bit further.

Financial pressures on publicly traded companies drive short-term policies that please The Street analysts to satisfy investor expectations. Yielding to those pressures sometimes runs counter to long-term company and customer benefits, especially when you raise prices tremendously.

And examples abound of capricious actions by U.S. and/or foreign governments that give the global business community fits and starts, and then fits and stops.

Both factors have motivated companies to take a strong hard look at considering locating supply and production close to where the bulk of the buying market is. *Inbound Logistics* has focused on the benefits of reshoring or nearshoring for more than the past two decades. During that time, many companies took action. Many others did not.

Recently, there has been more talk in boardrooms about reshoring and nearshoring and even more action—pandemic lessons learned. But those fundamentals were there long before the virus and the chip shortage, despite the strong and compelling siren song of "cheap labor."

But now, transport lift rates from low-cost labor regions to the consumption markets have risen dramatically. For some, those increases have eclipsed the low-cost labor benefit. In January 2021, the average price of a 40-foot Shanghai container was $4,535. In January 2022? $5,431. In Ningbo, $3,359 in January 2021 versus $5,633 in January 2022, and in Qingdao $4,509 in January 2021 compared to $5,349 in January 2022, according to Container xChange data.

Are shipping lines riding bull market pricing now, forgetting they are motivating a whipping as global reshoring and nearshoring dents future growth? Yes. And it's all because of the high costs of shipping, says Stefan Pierer, CEO of Pierer Mobility, in a recent Bloomberg report.

"The logistics costs to ship stuff from China to Europe currently are 10 times what they were before the pandemic, and they won't fully come down again," he says. "To ship products around the globe, given those costs, you need a continental supply chain. We will change the system."

When you add the explosion in transport lift costs to the other motivations, there is clearly a bull market in reshoring and nearshoring as global supply chains reconfigure. But financial pressures on companies are strong. As things normalize, and transport prices come down, will reshoring be long-term company policy or just another example of the bullwhip effect? ■

Keith Biondo

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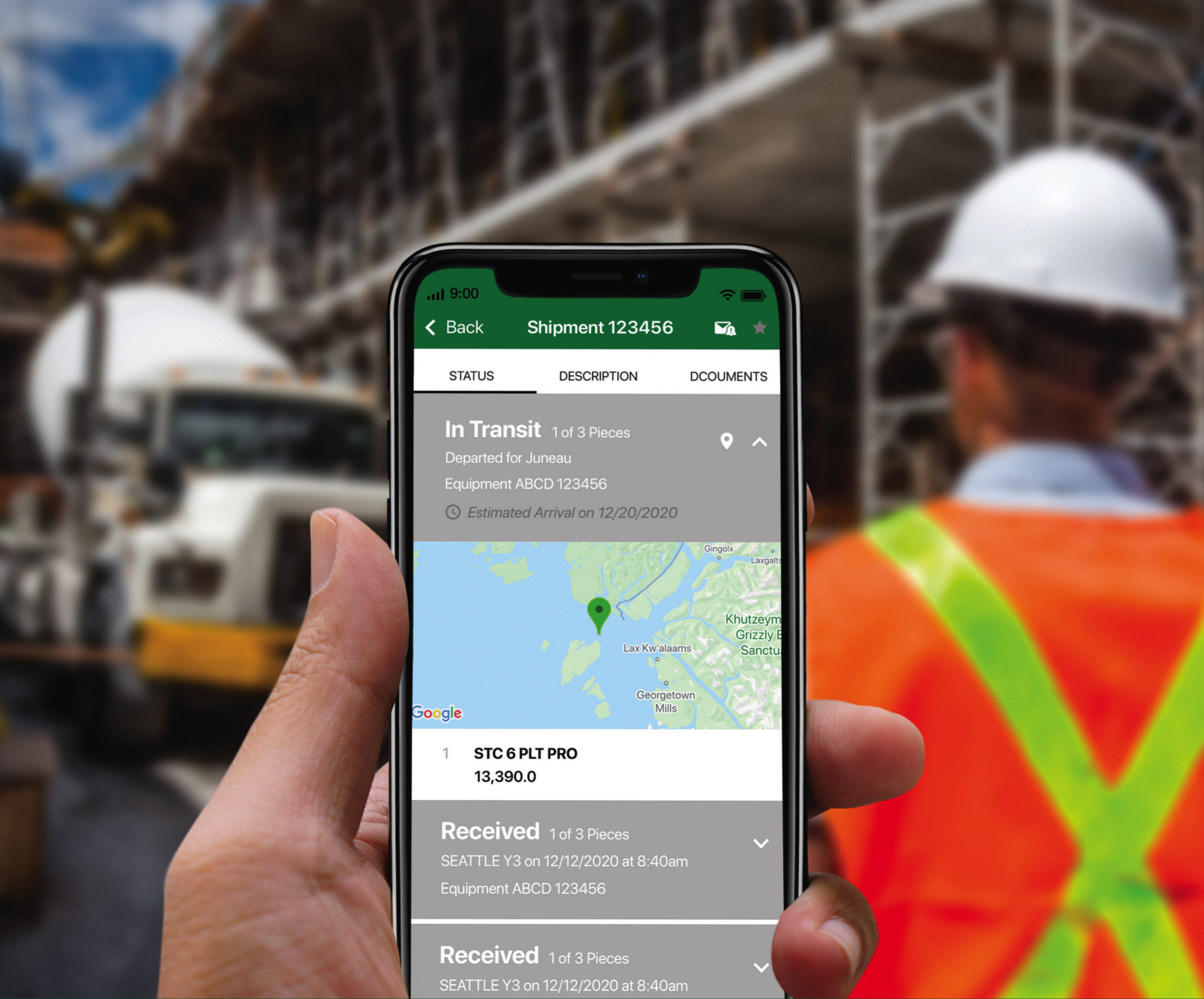
BPA WORLDWIDE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Equipment ABCD 123456
Received 1 of 3 Pieces
SEATTLE Y3 on 12/12/2020 at 8:40am

GOODQUESTION
Readers Weigh In

What's the difference between traceability and transparency in the supply chain?

TRACEABILITY IS SHOWING YOUR CUSTOMER WHERE THEIR FREIGHT IS. TRANSPARENCY IS SHOWING THEM HOW IT GOT THERE.

—Mitchell Houston
CI Engineer, TA Services

TRACEABILITY MEANS DECENT TRACKING. GPS-enabled tracking doesn't need a human scan to give an update.

Transparency in the supply chain is similar, but adds in reliable human contacts to give more information than a scan or GPS update can. Someone to talk to about what they are experiencing, and how it may affect our timetable.

—Brian C. Gaffney
Supply Chain Specialist
Natural Fiber Welding

TRANSPARENCY REFERS TO VISIBILITY AND ACCESSIBILITY to data at every stage of the supply chain, while traceability is often used to discuss the process of tracking the products and their inputs throughout the entire supply chain journey. Both are essential to supply chain management.

—Erik Severinghaus
Executive VP, Strategy & Business Development
Conexiom

THE TWO TERMS ARE OFTEN INTERCHANGED, but they are not the same thing. Transparency focuses on mapping the entire supply chain—end-to-end. Traceability enables you to trace a particular product and its components from origin to end user and is paramount in industries where safety and quality are top concerns.

—Michael Wohlwend
Managing Principal
Alpine Supply Chain Solutions

TRACEABILITY IS THE ABILITY TO TRACK AN ITEM and its associated activities as it progresses through the supply chain. Transparency is the ability to demonstrate this information to stakeholders, regulators, trading parties, and consumers.

—Kieren James-Lubin
President & CEO, BlockApps

TRANSPARENCY IS A RETAILER'S RESPONSIBILITY to communicate and provide visibility to shoppers who are focused on sourcing ethics, such as sustainably caught seafood, hormone-free chicken, or cage-free eggs.

Traceability relates to food safety and recalls so retailers know exactly where an impacted item is, and can take swift appropriate action.

—Troy Prothero
VP, Product Management–Supply Chain Solutions
Symphony RetailAI

TRACEABILITY IS THE ABILITY TO TRACK THE PROGRESS of products from the acquisition of basic raw material to assembly, storage, and distribution. Transparency is the management expectation that all movement through the supply chain remains visible.

—John Tillison
SVP, Sales & Marketing
A. Duie Pyle

THESE TWO MEASURES have different audiences and objectives. Transparency is about strategic supply chain structure and management, to provide visibility to stakeholders, confidence to investors, and trust for suppliers.

WHO WHAT WHERE WHEN

Who put what, where? And when did they do it? Use a warehouse management system (WMS) to protect your inventory chain of custody and drive single point of contact accountability. That's traceability. Give the enterprise easy access to the information to drill down to the "why." That's transparency.

—Eric Allais
President & CEO, PathGuide Technologies

Traceability is more transactional—looking at how products progress through the supply chain to manage inventory, KPIs, and costs.

—Tavleen Kaur
Senior Manager (Supply Chain)
The Smart Cube

TRACEABILITY IS YOUR ABILITY TO TRACK GOODS—from raw materials through final shipment—back to their origin. This includes both physical location and underlying supplier(s). Transparency is understanding your partners' strengths and dependencies.

—Michael Sinkovitz
SVP Modal Solutions
Coyote Logistics

TRANSPARENCY IS MUCH BROADER, encompassing visibility both within your organization and across your business network of suppliers, contract manufacturers, logistics service providers, and other trading partners.

—Richard Howells
VP, Solution Management for Digital Supply Chain, SAP

TRACEABILITY IS TRACKING WHAT HAPPENED. Transparency is seeing it while it's happening. Whereas transparency focuses on mapping the whole supply chain, traceability looks at individual batches of purchase orders as they progress through the supply chain. The data used in traceability allows more targeted recalls, reducing scale and cost.

—Brian Belcher
COO & Co-founder, Vector

TRANSPARENCY IS THE FULL VIEW of the supply chain network status. Traceability is the view of the supply chain details, including data from sourcing to delivery, which essentially maps the journey of raw materials to finished goods—an especially important tool for industries with safety and quality requirements, such as food products and pharmaceuticals.

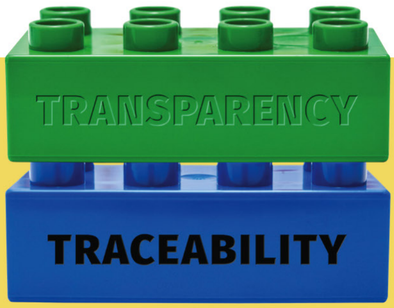
—Gregory Tuthill
Chief Commercial Officer
SeaCube Containers

TRACEABILITY RELIES ON TRANSPARENCY. Transparency focuses on mapping the whole supply chain and captures high-level data; traceability looks at individual batches of components or purchase orders as they progress through the supply chain.

Key benefits of traceability include increased visibility, improved quality control systems, and reduced risk. Advantages of transparency include brand loyalty; trust between suppliers, companies and customers; and, of course, stronger partnerships.

—Alexandra Bogusevici
Sr. Product Manager, Cin7, DEAR Products

From the Ground Up



You cannot have transparency without traceability, but you can have traceability without transparency.

Being able to see where a shipment is does not help the situation when it is not on time or has an outstanding issue that needs to be resolved.

Traceability gives a false notion that since it's being tracked it will arrive as expected, but as we all see from Amazon in our personal lives, this is indeed not true. Traceability gives us the opportunity to create transparency. It will allow us in advance to create the next action after identifying an issue of what needs to take place, meaning contacting a customer to notify them of their delay and creating a solution to fix the issue.

Transparency goes further to the internal trip wire (mechanisms) that will kick in to rectify the situation. Being transparent allows for development of relationships within the supply chain to create outstanding partnerships.

—Nicole Glenn
Founder and CEO, Candor Expedite

AN ITEM IS TRACEABLE if somebody—not everybody—can find out details about where it came from (e.g., plant, lot, material source). The supply chain for that item is transparent if data is shared about how the participants transact. The more data and the more sharing, the more transparent.

—Dustin Burke
Managing Director & Partner, Boston Consulting Group

SHIPPERS REQUIRE GRANULAR DETAILS regarding essential tracking updates and data information (traceability) but must also address a larger set of objectives. This is where transparency comes in, to include processes, tools, and technology that help accelerate and automate their manual efforts and improve operations.

—Lindsey Shellman
Chief Commercial Officer, Centerboard

TRACEABILITY REFERS TO PINPOINTING where each piece of material originates within your supply chain whereas transparency is offering relevant information to share with different parties. With import tariffs, you must know where components come from and share that with customs versus the public knowing the originating region of your product.

—Nancy Korayim
CEO, MetroSpeedy

Have a great answer to a good question?

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

What's your best reverse logistics tip?

We'll publish some answers.
Tell us at
editorial@inboundlogistics.com
or tweet us **@ILMAGAZINE**
#ILGOODQUESTION

[INSIGHT]

DIALOG

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Re. What's the Word:
What's the difference between logistics and supply chain?
bit.ly/whats_the_word_0122

Logistics is the connector in all phases, whereas supply chain is the sequence of events enabled by those connectors.

—Jonathan Parks
SVP, Supply Chain, iGPS Logistics

Logistics refers to the portion of the supply chain relating to transporting and storing goods. Supply chain refers to the companies and activities involved across operational stages, from procurement to delivery.

—Michael Levy
Chairman/Co-Owner, Undercover Snacks

Re. Good Question:
What is the biggest supply chain lesson you learned from the past two years?
bit.ly/good_question_0122

Be flexible and adapt to market conditions daily.

—Brad Collins
Vice President, Logistics
RMX Global Logistics

Disruption can be the mother of innovation. We've seen the best logistics and supply chain teams responding to pandemic-related challenges by doubling down on technology.

—Devon Copley
Co-founder and CEO, Avatour

Re. 2022 Supply Chain Predictions
bit.ly/SC_predictions_0122

Micro warehouses will continue to open up in urban neighborhoods to create close proximity to customers and rapid fulfillment. In addition, retailers are increasingly expected to leverage their existing stores for fulfillment.

To control more of the supply chain and keep up with demand, we expect to see increased M&A activity, with retailers buying logistics companies to handle their deliveries to customers and upstream in their supply chains. Manufacturing supply chains will also begin to move closer to the customer to limit further disruption.

We'll also see increased use of drones, delivery bots, and automation. Smarter tracking and big data will be a focus in 2022 as we're seeing smart tech needed from inventory management to re-routing. Most importantly, we'll see more focus on batching technology so the customer receives their complete order in one delivery.

—Nancy Korayim
CEO, MetroSpeedy

Losing trust in the supply chain is likely to drive adoption of the fast-emerging zero-trust market and other zero-trust methodologies. However, as zero-trust concepts take hold in 2022, buyers should steer clear of vendors who claim to singlehandedly solve the problem of zero trust. It's simply not possible. Instead, organizations will need to layer combinations of technologies in order to truly achieve their zero-trust goals.

—Tony Pepper
CEO, Egress

Canadian convoy protest against vaccine mandates in downtown Ottawa, Ontario, Canada on February 1, 2022.

PHOTO: JULIA DORIAN

Fast TAKES

The convoy has reduced U.S./Canada trade, hampered global distribution of U.S. and Canadian production, and also disrupted global import to nearby regions.

This is yet another sign supply chain disruptions are the new norm. project44 data shows early spikes in transit time and delays between the United States and Canada and localized regions such as in Windsor and Ottawa. But more important is the broader ripple-effect impact this will likely have on an already strained supply chain. Product may shift to U.S.-Canada rail routes instead, or movement of product may increase from other DCs and suppliers.

Because these things will keep happening, the only way around it is resilience and agility—which requires visibility. Companies need to procure visibility now for all modes in all regions of the world at the order level, and extended visibility with accurate data.

—Adam Compain
SVP, Supply Chain Insights, project44

10 TIPS

Selecting a TMS

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

1 ESTABLISH YOUR BUSINESS GOALS.

Gather key internal stakeholders to identify current business challenges, areas of opportunity, and goals to determine how a TMS solution can best support. There is no one-size-fits-all TMS. Prioritize finding a solution that checks the boxes on your non-negotiables.

2 LOOK TO THE FUTURE.

Because no business can predict what will happen next, look for a TMS that offers a modular approach that is flexible enough to grow alongside your operations. This will enable you to scale and add new capabilities as needed in the future.

3 DETERMINE YOUR BUDGET.

Understand the fixed costs and contract structure associated with a TMS. Based on your business needs, you may have to factor in additional budget to cover enhancements. If you are debating between insourcing or outsourcing, consider costs and resources. For example, could a third-party logistics provider manage your day-to-day TMS work for less cost than what you can do internally?

4 UNDERSTAND IMPLEMENTATION.

A critical factor that will make or break the success of a TMS is the implementation process. Ask about a TMS vendor's implementation, dedicated resource team and the skill set of those executing. Typically, the implementation process for a large-scale company takes 6 to 12 months based on the complexity of the operations and system integrations.

5 ASSESS ENTERPRISE INTEGRATIONS.

Are you planning to integrate the TMS with your enterprise resource planning and accounting systems that manage your daily operations? What about your warehouse management system that handles the daily flow of orders? Look for a TMS vendor with the expertise to integrate with your current systems smoothly and successfully.

6 STRATEGIZE CARRIER CONNECTIVITY.

Some TMS providers enable you to leverage their pre-existing connectivity with hundreds of carriers while others expect you to manage that on your own. If you choose to do it in-house, the cost of an internal IT team to oversee carrier connectivity could be more than what a TMS provider charges.

7 CREATE A FREIGHT AUDIT AND PAYMENT PLAN.

While some companies prefer to handle it internally or through a separate third-party vendor, many TMS solutions offer real-time freight auditing and payment. For instance, a TMS can provide an automated audit of freight invoices against contracted rates and the ability to authorize carrier payment to streamline the process.

8 EVALUATE DATA ANALYTICS AND REPORTING CAPABILITIES.

Because the main purpose of a TMS is to gain access to data to make informed business decisions, evaluating its analytics and reporting capabilities is key. While a TMS can provide a significant amount of data, you also need to consider how to integrate that information into other parts of your business along with your enterprise-wide reporting tools.

9 DETERMINE YOUR TRANSPORT MODES.

The business rules and routing for a large volume e-commerce and parcel shipper can significantly differ from shipping less-than-truckload and full truckload. The same can be said for domestic vs. international requirements. Ensure your TMS can support all your transport needs as some have more sophisticated capabilities than others.

10 CONSIDER ADDITIONAL FLEET AND TRUCKING NEEDS.

Do you have a dedicated fleet or trucking assets that you also need to manage within the TMS? As many companies have their own trucks and drivers, determine if the TMS needs to support your ability to manage equipment, drivers, and more.

SOURCE: JEFF McDERMOTT, SENIOR VICE PRESIDENT OF TRANSPORTATION MANAGEMENT, GEODIS IN AMERICAS

LEADERSHIP

Conversations with the Captains of Industry

It's a Small World

Tony Small, Chief Business Officer, Wiliot

With a goal to get Wiliot's products to customers around the world and make a big impact on them, Tony Small learned that you can usually move faster than you think possible.

by Merrill Douglas

Tony Small has big ambitions for the Internet of Things (IoT). Since July 2021, Small has served as chief business officer of Wiliot, an Israel-based startup, with U.S. headquarters in San Diego, that offers a cloud-based IoT platform with many supply chain applications. The system features tiny, low-cost tags called pixels, equipped with sensors and Bluetooth communications.

Wiliot's platform can uncover supply chain challenges that companies don't even realize they face, Small notes.

In a recent conversation, Small discussed his leadership role at Wiliot and explained what's on his agenda these days.

***IL:* Before Wiliot, you worked at Microsoft, Amazon, and Zillow, among other companies. Is there a theme to the companies you've picked in your career?**

I like fast-paced, innovation-oriented companies and environments. Although in the past 15 to 20 years I've focused on sales, marketing, and business development, I come from a technology and product background. I minored in computer science, and I'm a programmer. This allows me to better communicate, relate, and empathize with other parts of a company, beyond marketing.

***IL:* What's one experience from earlier in your career that helped to shape you as a leader?**

Partway through my time at Zillow, when they acquired Trulia, I was in charge of merging the two go-to-market teams for their B2B product. We had to combine 1,000 people across two organizations and four cities, along with the product and infrastructure. That kind of integration usually takes several years, but the CEO gave us six months.

I learned that you can usually move faster than you think possible. You can analyze, predict, and think of as many things as you want, but until you do something, you don't know the outcome. We had debates about whether A, B, or C would be the top issue, and how to plan for that. We finally made an informed judgment and decided to address A. But the biggest issue turned out to be something entirely different. That process taught me about bias toward action, a value I consider really important.

***IL:* What keeps your customers awake at night?**

They don't know what they don't know. For example, we put our tags on crates in which one of our customers was transporting food. Data from the sensors allowed them to see that crates for this product line were significantly delayed, and in an area where the temperature was higher than normal. In the past, there had been nothing to alert them to this problem. We combined data on time plus temperature to find the biggest opportunity to improve the freshness of their food.

_IL:_ What do you most look forward to accomplishing in 2022?

We want to get our product into hundreds of customers' hands around the world and make a big impact on them. In part, that means building out a successful network of partners who are also engaging customers and making them successful.

_IL:_ What's your leadership style?

When I give my team instructions or guidance, I try to be empathetic, understanding where they're coming from, what else is on their plate, and what their challenges and goals are. At the same time, I try to be direct. And I like to give them a lot of autonomy. My team is so talented, I know I can trust them.

_IL:_ What are your daily priorities?

First, to make sure customers are having a good experience and achieving their goals. We hold internal meetings where the person who works directly with each customer reports on what's going well and what could go better. As we scale up the business, we'll create a more streamlined, automated feedback process.

Second is checking on inventory levels. There's a lot of demand for our products, so we need to make sure we allocate the right products to the right customers at the right time.

_IL:_ Do customers ever come to you with unexpected applications for your technology?

They do. In one example, a customer had a pallet of items that was maybe six products deep and 10 products wide—a big rectangle of products. They wanted to be able to tell what's in the pallet without breaking it up and scanning each item individually. I wasn't sure this would work, because Bluetooth technology doesn't always give perfect results in a scenario like that. But as it turned out, the Bluetooth worked incredibly well. We got 100% accuracy with that pallet. We recently had another customer who wanted to do exactly the same thing. Once you hear about a new scenario, it opens up new opportunities.

Scratching the Surface

Plenty of companies track product from factory to warehouse to point of sale. They capture data when items are checked out and when they're returned. But how many retailers know what goes on with their products inside the walls of a brick-and-mortar store?

"Imagine a store with tens of thousands of items, some in the back room, some out front," says Tony Small. "If our pixels are attached to all those items, we can show a visual of how products are moving throughout the store."

Capturing data from tags on an individual shirt, for instance, Wiliot's system might reveal that many customers brought the item into the fitting room, but no one bought it. That suggests an opportunity for change.

Wiliot has not yet implemented this application, but at least one customer is eager to put this kind of tracking data to use. "It could point to different strategies about how they should pair products or structure the store," Small says. "We're just scratching the surface of the possible interesting insights."

_IL:_ Is there something you believed strongly when you started your career that you have since changed your mind about?

My first full-time job after college was working on the products and engineering side and designing features for one of Microsoft Outlook's early versions. Ease of use was not paramount. We thought we'd just get the functionality out and then we'd train people; we'd have documentation and people would figure it out.

Over the past few decades, people have grown less patient. If they don't get something instantly, they assume it doesn't work and they won't use it. I've had to adjust to the trend of prioritizing that first out-of-the-box experience.

_IL:_ Have you had a mentor or role model?

Although he wasn't officially my mentor, Spencer Rascoff, the CEO of Zillow when I worked there, was an important role model. He's direct, he's empathetic, and he's incredibly brilliant and strategic. I like to model my leadership style after him. I don't know if I'm there yet.

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

I have a family and two teenagers in high school. I travel when I can. I'm not good, but I enjoy playing piano for fun. I also have two dogs. Those things take most of my time. ■

VERTICAL FOCUS

Luxury Goods

SHEDDING ANIMAL MATERIALS FUR GOOD

Dolce & Gabbana joins several other luxury fashion brands in banning fur from all future collections starting in 2022. It will continue to work with fur artisans in its supply chain to incorporate into its designs sustainable faux fur made from recycled materials, the fashion house says.

The company has used fox, mink, and rabbit fur in previous designs, but recently opted for synthetic fabrics such as polyester and acrylic.

Dolce & Gabbana is the second luxury fashion brand to announce a ban on fur in 2022; outerwear brand Moncler has also decided to go fur-free. The company says it will no longer use fur by 2024.

Many brands were already fur-free, including Gucci, Balenciaga, and Alexander McQueen. Prada, Burberry, Oscar de la Renta, and Chanel have also recently committed to not using fur.

Fur bans are not limited to fashion. Italy's senate recently approved an amendment to a budget law that permanently bans the farming of fur-bearing animals. If approved, the law would close down the country's remaining fur farms by June 2022, adding Italy to a growing list of countries including France, Hungary, and the Netherlands, that are passing fur bans.

YOUNG COUPLES PUT A RING ON IT

As more millennials and Gen Zers tie the knot, they're ushering in a surge in jewelry sales and changing up the diamond supply chain, prioritizing lab-grown gems and sustainable practices, says a CNBC report. Highlights from the report reveal:

- **More marriages:** Young consumers will splurge not only on engagement rings, but also on wedding bands and other accessories. In a four-decade high, 2022 is expected to bring about 2.5 million nuptials.
- **Resilience:** Consumers are looking for ways to show appreciation toward a loved one during the pandemic, and jewelry is one way to do that. Although jewelry sales dropped 4.3% last holiday season, the category outperformed apparel retailers and department stores.
- **Pandemic savings:** Some consumers did not spend on travel and experiences during the pandemic, and were able to save up for aspirational purchases such as engagement rings.
- **Sustainability:** Young consumers prioritize sustainability, fueling the growth of lab-grown diamonds. More jewelry companies, such as De Beers and Brilliant Earth, have added eco-friendly options with this in mind, fueling growth in the industry.
- **Social media:** Jewelry chain Brilliant Earth says 87% of its active consumer base is either millennial or Gen Z, who find the brand primarily through social media platforms and make purchases via its website, which offers virtual appointments.

JEWELRY MARKET SHINES ON

Manufacturing innovations, increased demand for seasonal gifts, and online shopping surges are driving the growth of the jewelry e-commerce market in North America. Trends include:

- The global online jewelry market will grow by $19.9 billion between 2019 and 2024 as demand for fine and fashionable jewelry among millennial women increases.
- Increased availability of online jewelry collections fuels demand for newer designs, which are priced higher. Brands are widening their range of jewelry collections.
- Integration of technology, such as 3D printing, into manufacturing processes has increased, enabling jewelry companies to innovate in terms of design, check the purity of precious metals and stones, and differentiate their products.
- Increased demand for fine jewelry for special occasions, such as Valentine's Day and Mother's Day, drives growth in the segment.
- At $23.9 billion, 2022 is the second-highest spending year on record for Valentine's Day.
- Shoppers were able to place same-day or advanced flower deliveries through Doordash for Valentine's Day, with the chance to win free diamonds from Kay Jewelers. The promotion aimed to capture consumers looking for last-minute gifts.

SNEAKERS SIDE-STEP DISRUPTION

While retail sales slowed as factory shutdowns in Asia halted production, high-end sneaker platform GOAT.com sprinted through supply chain bottlenecks, a Yahoo Finance report says. Here are five ways the platform jumped those hurdles:

1. Sneakers have become more than just athletic gear—they're now coveted luxury items that can go for $10,000 or more on GOAT.com, such as a pair by Kanye West and Louis Vuitton (*pictured*).
2. Sneakers are one of the best-selling products in the luxury e-commerce market. The global sneaker market was valued at $79 billion in 2020 and is predicted to reach $120 billion by 2026.
3. Women buyers are boosting the popularity of high-fashion sneakers. This demographic represents 40% of GOAT's consumer base and continues to grow.
4. E-commerce platforms are getting into non-fungible tokens (NFTs), allowing traders to buy and sell collectible items without physically shipping them. On Black Friday, GOAT started a campaign that allowed consumers to drop into virtual worlds where they could access their products in different settings.
5. GOAT tapped into increased demand for cross-body bags, which have become staples for Gen Z and millennial urbanites wanting to stow masks and hand sanitizer. U.S. sales of men's and unisex handbags were up almost 700% in 2021 compared to 2018.

LAPPING UP LUXURY GOODS

Despite retail closures, fashion show cancellations, and low confidence in the economy, global sales of luxury goods made a full recovery (*see chart*) and will continue to surpass pre-pandemic levels, with sales increasing from $321 billion in 2021 to $352 billion in 2022, *Financial Times* reports. Here's what the report predicts for the sector:

Consumer shifts. A surge of buying among Americans in inland cities such as Austin and Pittsburgh is happening after many people moved out of larger coastal cities during the pandemic. The shift from spending on experiences to goods will likely persist for another year.

Pricey items. After remaining stable for years, luxury brands including Louis Vuitton, Hermès, and Chanel raised prices during the pandemic. With material and labor costs rising, price hikes will continue into 2022, with some brands considering double-digit price increases.

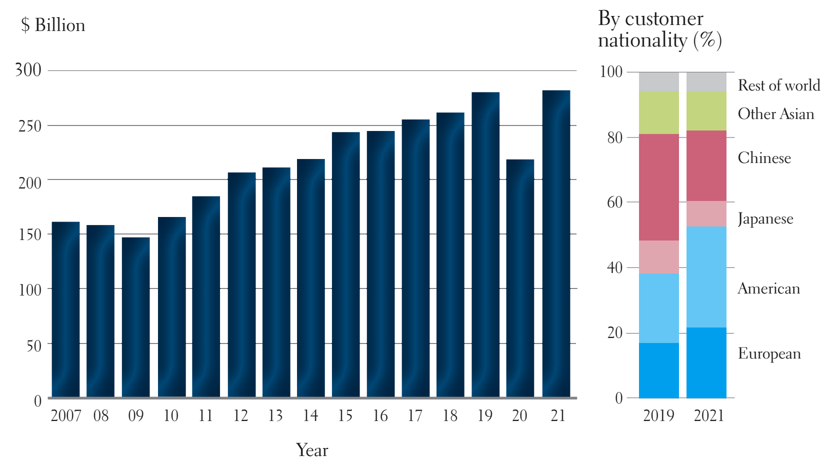
Supply chain ownership. Brands such as Chanel and Prada are acquiring more of their suppliers as access to materials and manufacturers becomes more difficult and costly, and customers demand greater transparency. The trend will continue in 2022.

Secondhand grows. The secondhand market continues to increase. More brands are partnering with secondhand platforms, such as The RealReal, to offer authentication services and incentivize customers to consign their items via store credit, or are using their websites to facilitate secondhand sales directly.

NFTs take off. By 2025, Gen Z will account for more than one in five luxury purchases. Brands will invest further in gaming partnerships and NFTs, which are becoming a formidable revenue stream. Metaverse gaming and NFTs could offer a 25% uplift to profits for the luxury industry by 2030.

E-commerce investments. E-commerce luxury sales nearly doubled from 12% to 22% during the pandemic, and are expected to rise to as much as 30% by 2025. Brands such as Gucci and Alexander McQueen are moving to consignment models and improving their websites to gain greater control over inventory, pricing, and customer relationships.

SALES OF LUXURY GOODS WORLDWIDE



Source: Bain-Altagamma Luxury Market Monitor

[IN FOCUS]

NOTED

The Supply Chain in Brief

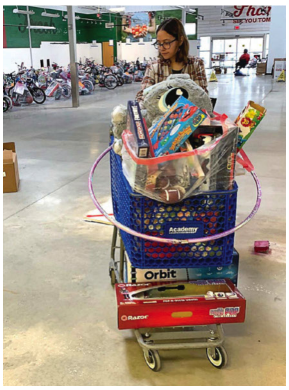
> GREEN SEEDS

• Container shipping company **A.P. Moller-Maersk** plans to achieve net zero emissions by 2040, one decade earlier than previously announced, as shipper demand for green transportation rises. The target now covers not only the company's vessels, but its entire business, including indirect emissions. A.P. Moller-Maersk has ordered 12 vessels that run on carbon-neutral methanol and aims to transport one-quarter of its seaborne freight using greener fuels by 2030.

• Materials handling system manufacturer **Rite-Hite** recently installed 900 roof-mounted solar panels on its global headquarters project. The solar panels are one of several green elements used in constructing the 9.5-acre campus, others include DuctSox fabric ductwork and underfloor air dispersion systems.

• Sustainability insights platform **Higg** introduced new performance benchmarks for consumer goods manufacturing. Users can compare their environmental and social impact internally and against industry peers, enabling them to build comprehensive environmental and social governance programs. The platform offers performance measurement across carbon, water, waste, and working conditions.

> GOOD WORKS



• **Atlantic Logistics** introduced a volunteer and philanthropy initiative called Atlantic Cares, a formal program that grants paid workdays to employees for helping those in need. The company contributes one dollar for every load of freight moved in 2022, and each month a different organization will be chosen for a donation, such as Toys for Tots (*pictured*).

• In its largest-ever contribution, truck drivers and other employees at **Averitt Express** raised more than $1 million in 2021 for St. Jude Children's Research Hospital. This is the third consecutive year Averitt has donated more than $1 million to the hospital. In addition to employee contributions, the company makes contributions in honor of associates' accomplishments, life events, and participation in community service projects.

> M & A

■ Logistics technology company **ecovium** and warehouse management system provider **Mantis Group** merged under the umbrella of ecovium Group.

■ North American tank truck transporter and logistics provider **The Kenan Advantage Group** acquired **K-Limited Carrier**, an Ohio-based liquid bulk transporter of chemical products.

■ **Blume Global**, a provider of end-to-end supply chain visibility technology solutions, acquired **LiveSource**, a multi-enterprise supply chain business network for complex manufacturers.

■ **RLS Logistics**, a third-party cold chain logistics provider, acquired Michigan-based **Hutt Trucking and Logistics** and Utah-based **Performance Cold Storage**.

■ Supply chain solutions provider **J.B. Hunt Transport** agreed to acquire the assets of LTL transportation services provider **Zenith Freight Lines**, a subsidiary of Bassett Furniture.

■ **Ascend**, a full-truckload dry van carrier, acquired **Dedicated Transport Solutions**, a South Carolina-based transportation company.

■ **Fortna**, an engineering services and software company for warehousing, acquired **Optricity**, a warehouse optimization software company.

> SHOVEL READY

■ ***Walmart* plans to build a new fulfillment center in Olive Branch, Mississippi, as part of its continued effort to grow its national supply chain network and e-commerce capabilities in the South. The 1-million-square-foot facility is set to open in spring 2022 and will store millions of items ready to be shipped directly to consumers.**

■ **Texas-based developer *Cold Creek Solutions* broke ground on a 300,500-square-foot cold storage facility in San Antonio. About 294,500 square feet of the site will be a fully convertible temperature-controlled space, providing storage for 45,000 pallets of frozen or refrigerated products. The site will allow for single or multi-tenant use.**

> SEALED DEALS

• **SMC³**, a less-than-truckload transportation technology solutions provider, extended its long-standing partnership with **LandAir**, a privately held less-than-truckload carrier in New England. LandAir utilizes SMC³'s managed EDI infrastructure with 24/7 monitoring to provide crucial shipment visibility information to its customers.

• Logistics company **Odyssey Logistics & Technology** selected **RPA Labs** to automate customer emails that request shipment tracking details. Receiving thousands of tracking inquiries every month required time-consuming, manual work from customer service teams. The email automation solution, RPA Engage, is built with a proprietary combination of robotic process automation and a library of logistics terminology that can answer any logistics inquiry in seconds.

• **Hewlett Packard** selected **One Network** to support its digital transformation. Its NEO Platform will help Hewlett Packard integrate supply chain data from partners into a single model, enabling real-time collaboration. One Network's Digital Supply Chain Network enables visibility, improves execution, and drives process improvements across all operational segments. This improves on-time deliveries and customer service levels, and reduces the cost of goods.

> UP THE CHAIN

• **Jeff Born** has been named North American director of procurement and supply chain solutions for **Tubelite**, **Alumicor**, and **Linetec**, which provide storefront and finishing solutions as part of Apogee Enterprises. Born has more than 20 years of experience leading supply chain planning, distribution, and warehousing, most recently as vice president of global supply chain at medical device manufacturer SunMed.

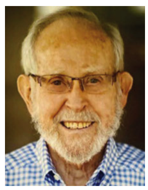
• Job search startup **Supply Chain Careers** hired **Chris Gaffney** as a partner to help expand its reach. Gaffney brings more than two decades of supply chain experience with Coca-Cola. He most recently served as vice president of global strategic supply chain at The Coca-Cola Company and is a principal at ECG.

> RECOGNITION

• Logistics services provider **Schneider** was honored with the **SanMar Mask Award**. The award recognizes the company's role in supporting SanMar's mask distribution when the apparel company pivoted to work with the White House to produce millions of face masks amid short supply during the pandemic.

• **Manhattan Associates'** Manhattan Active Supply Chain was named **Best Distribution Innovation** in the 2022 Vendors in Partnership Awards. The distinction recognizes innovation that provides the largest productivity improvement, cost reduction, speed to destination, and competitive advantage in the retail industry.

> IN MEMORIAM



Coty Dupré, chairman of the board at Dupré Logistics for 33 years, died on January 9, 2022. His business acumen and genuine style of building relationships was invaluable to the company. Dedicated to giving back to his family, community, and employees, Dupré was instrumental in numerous organizations in the Acadiana, Louisiana, community.

TAKEAWAYS

Shaping the Future of the Global Supply Chain

WHERE DO CONSUMER LOYALTIES LIE?

With 72% of consumers saying they will continue buying online via pickup or delivery, retailers need adequate local shipping processes as well as speedy delivery, says a recent report from SOTI. Highlights from the survey reveal:

Shipping experience influences consumers' purchase decisions:

- 56% of consumers find shipping time the most frustrating aspect of ordering goods online.
- 49% expect same-day pickup for any item they order online.
- 42% say if delivery or pickup takes more than two days, they look elsewhere.
- 41% are buying more online and having purchases delivered directly to them.
- 57% are less likely to order an item shipped from overseas than one year ago.

Loyalty hinges on transparency and flexibility:

- 69% of shoppers expect to know where their order is at all times.
- 64% say they continue shopping with brands that deliver goods the fastest.
- 50% are more likely to shop from a retailer's store if multiple return points are offered.
- 35% say knowing who a retailer's delivery partner is resulted in abandoning their order.

Acceptance of new delivery options:

- 83% of consumers say they are open to in-home delivery due to shopping frustrations they experienced in 2020 and 2021.
- 73% say they're open to delivery at a designated dropoff point.
- 59% would consider delivery via autonomous vehicles or drones.

Direct-to-Consumer Gets Trendy

Direct-to-consumer (DTC) e-commerce has changed the way people shop for everything from razors to sofas, to the point where retailers with more traditional supply chains are catching on. New e-commerce brands and traditional retailers alike can follow these five DTC trends in 2022 to stay competitive, says a Forbes report:

1. **Traditional retailers go DTC.** With less foot traffic in physical stores, more large, traditional retailers will emulate online DTC brands. Their focus will shift to capturing tech-savvy consumers who shop from their devices and use physical space for e-commerce order fulfillment.
2. **DTC brands expand their categories.** Although the pandemic inhibited growth for many brands, demand has soared for athleisure and self-care products as consumers work from home. Digital-native companies will continue to grow as they introduce those products into their supply chains.
3. **Consumers flock to DTC brands.** At the start of the pandemic, one of the most urgent needs for retailers was an efficient e-commerce platform and fulfillment strategy. That's something DTC brands already had, giving them an early advantage. Two years later, the trend continues with U.S. e-commerce sales in Q3 2021 up 45.6% compared to Q3 2019.
4. **DTC brands go headless.** The next generation of headless companies—in which a consumer-facing website is separate from the e-commerce fulfillment platform—is developing solutions to enhance existing websites. DTC brands can now serve up content powering the storefront with a simple click of a button.
5. **Returns are a differentiator.** Shoppers are strongly influenced by return policies, with most preferring online retailers that offer free shipping for returns and refund the original form of payment. Consumer-centric brands will make investments to upgrade their returns process and how they present products to avoid returns altogether.

The Year of Capacity

All signs indicate that 2022 will be the year of capacity—not just for air, ocean, ground, and final-mile parcel, but also in terms of labor and the customer experience, SEKO executives stressed in a media call discussing Chinese New Year's impact on the supply chain.

Delays are simply routine now, and have steadily increased on routes from China to the U.S. West Coast since October 2021, the logistics company says. Meanwhile, consumers continue to purchase at a healthy clip.

Many of the delays in China are the result of its zero-tolerance COVID policy imposed by port authorities at key ports. "A lot of the impact has been on the land side, with aggressive testing regimens and requirements for truckers," says Akhil Nair, vice president of global carrier management for SEKO. "In some cases, this reduces the available trucking capacity up to 50%."

In the United States, the most critical determinant of growth will be whether consumer demand tapers in the face of supply-side inflation, or if the supply side recovers before that happens. "It's unlikely the latter will happen at least for the first six to nine months of the year," says James Gagne, president and chief executive officer at SEKO. "The current combination of high demand, constrained supply, and accelerating prices is simply not a sustainable configuration."

The ongoing labor shortage across sectors will remain a key factor impacting recovery. The pandemic was a catalyst for truck drivers' early retirement, especially on the long haul, Gagne says. As for nearshoring, many companies will not completely part with China in the short term. Even as Mexico ramps up, for example, there's still a need for components to support that manufacturing, he adds.

Marketplaces such as Amazon continue to bring distribution activity in house by building their own fleets, and the rise in digital transformation to streamline operations and improve the customer experience has never been more apparent. The proliferation of global cross-border parcel creates a massive need for a more tech-enabled consumer experience and predictive data, which fills the gap between the airport gateway and the consumer's doorstep. "We're coming into the future of automation," Gagne says.

Meanwhile, some undercurrents are quietly creating churn. Winter storms are increasing trucking prices, e-commerce demand has created a shift from over-the-road to local transport, and there's less receiving capacity at distribution centers. "If you visualize an iceberg, there are many things below the waterline that aren't top of mind that affect price and capacity," says Rick Lee, chief operations officer.

TAKEAWAYS

Top Supply Chain Disruptions in 2021

Supply chain disruptions increased 88% year over year in 2021, says data released by risk management platform Resilinc, with disruptions related to supply shortages increasing 452%, the largest increase across all event types.

Although human health disruptions fell 68% year over year, 2021 saw the most factory fires ever recorded in a single year. The uptick is mainly due to gaps in regulatory and process execution as well as a shortage of skilled labor in warehouses, the report says.

The platform sent 491 alerts for supply shortages, including semiconductor chips, plastics, paper, and raw materials. Supply shortages are driving consolidations, mergers, and business sales as companies look for a quick cash boost or optimize the supply chain to best serve their customer base, the report says.

Labor disruption events increased 156%, extreme weather events increased 130%, and cyberattack events increased 143% year over year.

North America experienced the most supply chain disruptions (5,417), followed by Europe (2,838) and Asia (2,128). The most impacted industries were life sciences, healthcare, automotive, high tech, and general manufacturing, says Resilinc.

TOP 6 DISRUPTION EVENTS OF 2021

1. **Factory fires**
2. **Mergers and acquisitions**
3. **Business sales**
4. **Factory disruptions**
5. **Leadership transitions**
6. **Supply shortages**

Source: Resilinc

READY TO LIVE ON THE EDGE?

Driven by evolving communications networks, such as 5G, 25% of supply chain decisions will be made across intelligent edge ecosystems by 2025, a Gartner report predicts.

Edge ecosystems transform operations by bringing decision-making close to the original source of information. They help bring data processing, communications, and storage together to create even workflows and streamline real-time responses to stakeholders, Gartner says.

Advances in data communications services, such as Wi-Fi, Bluetooth, and 5G, will support edge ecosystems and complement traditional supply chain solutions with more virtualized and remote networks processing data.

Edge computing decision-making is already occurring in many supply chains, Gartner says, and the focus during the next three years will be figuring out how to further enable automated networks of edge decisions.

Interest in flexible automation for logistics operations is rising. Gartner predicts that 75% of large businesses will adopt some form of intralogistics smart robots in their warehouse operations by 2026. Smart intralogistics robots are cyber-physical robotic automation primarily used for warehouses and distribution centers. Labor constraints, rapidly rising labor rates, and the residual impacts of the pandemic will compel most companies to invest, the report says.

These solutions address the need to automate certain processes by adding intelligence, guidance, and sensory awareness, allowing them to operate independently. Many flexible robots use cases exist, Gartner says, such as transporting pallets of goods, delivering goods to a person, and picking individual items. They can be implemented quickly and inexpensively, and can be easily scaled to better manage the peaks and valleys of fluctuating demand.

Trucking Influencers Take Over

Trucking influencers on social media, especially women truckers and drivers, are gaining traction and changing up transportation, says a PartCatalog.com report. They teach beginners about their unique experiences of life on the road, review products such as truck bed covers and floor mats, and show off their truck driving skills. Take a look at the top trucking influencers, according to the report.

Highest-Earning Trucking Influencers

INFLUENCER	ESTIMATED EARNINGS PER POST	NUMBER OF FOLLOWERS	DESCRIPTION
TikTok: Adryana Oltean	$1,400	1.5 million	Originally from Romania, Oltean first sat behind the wheel professionally at age 18 before driving internationally at 24. She answers questions about trucking and posts entertaining videos.
TikTok: Alex Nino	$961	1.1 million	This commercial driver creates informational videos about aspects of the trucking industry and shares stories from the road and adventures with his son.
TikTok: Jasmin De Loa	$953	952,800	Before TikTok, De Loa was an aspiring singer and actress from California. Her posts often focus on the experience of being a woman in the trucking industry.
Twitter: @TruckerDesiree	$186	14,831	Desiree raises awareness of trucking conditions for women. She founded Real Women in Trucking, a volunteer organization network of support for women entering the trucking industry.
Twitter: @trucker_josh	$128	9,859	This Canadian trucker is known for documenting his travels across North America with his two dogs. His content focuses on entertaining his audience and connecting other drivers.
Instagram: Angelica Larsson	$4,003	332,300	Also a popular YouTuber, Larsson discovered her passion for driving trucks after first climbing into a big rig at age 4. Hailing from Stockholm, she has become an inspiration for women in her home country considering a career in trucking.
Instagram: Happiness By The Mile	$679.00	54,000	A professional truck driver for four years, Happiness By the Mile shares her experiences of life on the road, how to become a professional truck driver, and product reviews. She also has a popular YouTube channel.
YouTube: TroyStarz Trucking Vlogs	$198.00	59,410	Originally from Jamaica, TroyStarz documents his travels in Canada and provides entertaining insight into the trucking industry. He owns and operates his own trucking company.

Wave of the Future:
5 Maritime Shipping Trends

From the time sea captains relied solely on celestial navigation to the smart ports of today, technology has continuously changed the shipping industry. Here are some of the biggest trends in maritime shipping to scope out, says a Thomasnet.com report:

1. Autonomous Ships

In 2022, the U.S. Navy took over the Pentagon's ghost fleet system, which explored the use of unmanned ships. The Ghost Fleet Overload program functioned on autonomous mode for 98% of the journey on a 4,000-mile voyage through the Panama Canal. Maritime systems provider Kongsberg has developed self-driving control systems for Maritime Autonomous Surface Ships, and there are more than 1,000 in operation.

2. Industrial Internet of Things

While the Industrial Internet of Things (IIoT) is often associated with factories, it will also play a growing role in maritime. IIoT uses smart sensors and other technology to augment industrial processes. These sensors can provide data on wind speed, RPM, emissions, and positioning. IIoT is critical for real-time analytics and can help ships connect with ports, support centers, fleet partners, and maintenance service providers.

3. Blockchain

Forged documents plague the shipping industry, but blockchain offers a tamper-proof solution. In 2018, international container company Maersk teamed up with IBM to form TradeLens, an industry-wide, blockchain-based trading platform. By 2020, Mediterranean Shipping Company and CMA CGM fully integrated with the platform. The first marine insurance blockchain platform has also arrived via Guardtime and EY.

4. Port Automation

About 100 container ships were backlogged in Southern California mid-January 2022. Automating ports is critical to easing congestion and increasing efficiency. Many Chinese and European ports already automate tasks. Adoption has been slower in the United States, but will likely ramp up. In 2021, the Ports of Los Angeles and Long Beach announced a fourth automated terminal, and Virginia and New Jersey have at least three semi-automated terminals.

5. Digital Twins

By creating a virtual representation of a port complex, digital twins can test a structure's functionality and provide intelligent forecasts related to operations. This includes predicting arrival times and peaks, which is key to managing busy ports. The trillion-dollar infrastructure plan signed into law in November 2021 allocates $17 billion for improvements to coastal and inland ports, waterways, and ports of entry at the U.S. border, providing an opportunity to implement such technology.

Global Shipping Costs Break Records

Today's disruptions are even more significant than those during the financial crisis of 2008, says the Thomas Index Report. Prices for ocean freight shifted more than 72 percentage points over the course of the pandemic starting in 2020 to a peak in Q3 2021, when prices were more than 50% higher than average container shipping rates. That shift is notably higher than the 41 percentage point swing observed in the wake of the 2008 financial crisis, the report says.

Analyzing figures dating back to 1997, COVID-related supply chain pressures far exceed long-term supply trends, reaching a new high in October 2021. However, a shift back down the following month indicates that global supply chain pressures may have peaked and will start to moderate going forward, Thomas says.

Looking ahead, Industry 4.0 is poised to revolutionize the logistics sector by optimizing global supply chain sustainability. In 2019, the global next-gen supply chain market drove about $32 billion. Within the next eight years, that market size is expected to more than double, the report says.

TOP 10 CATEGORIES WITH THE MOST SOURCING ACTIVITY

JANUARY 2022 MONTH-ON-MONTH INCREASE

1. **Mining machinery: 5,400%**
2. **Aluminum contract manufacturing: 3,322%**
3. **Burners: 2,778%**
4. **Meters: 1,986%**
5. **Boxes: 1,762%**
6. **Turnstiles: 1,683%**
7. **Protective clothing: 1,613%**
8. **Industrial vacuum cleaners: 1,521%**
9. **Machining: 1,218%**
10. **Repair services: 1,194%**

Source: Thomas Index Report

Filling the Supply Chain Education Gap with LTL Education Courses

LTL is not an industry of broad brush strokes; supply chain professionals need a pointillistic understanding of the logistics of LTL in order to excel in the industry.

If there's one immutable truth in the world of logistics, it's this: LTL is an inherently complex form of transportation. Tariffs, rates, DIM weights, transit times—it's enough to confuse even seasoned logistics professionals.

The solution to this knowledge gap has historically been on-the-job training or university supply chain education, but for a variety of reasons there is now a pressing need for third-party, remote LTL training that prepares logistics workers for transportation success.

Global Scope Can Overlook Local Intricacies

In the past, professionals looking to move into a supply chain career learned about the basics of supply chain from universities. However, many of these college supply chain programs are now global in scope, focusing on worldwide supply chain management instead of the intricacies of specialized domestic transportation.

And even these programs, which used to be widespread, are becoming less common. LTL is not an industry of broad brush strokes; supply chain professionals really need a pointillistic understanding of the logistics of LTL in order to excel in the industry.

Accelerating Need for Dedicated LTL Education

This lack of specified training puts the onus on employers to prepare new hires with the LTL knowledge needed to do their jobs. Dedicated LTL study is a necessity, not a luxury.

At the same time, changes in LTL and the broader supply chain world are accelerating. The reliance on e-commerce has ballooned since the start of the pandemic, and last-mile LTL shipments and related e-commerce strains on the supply chain won't diminish once social distancing abates.

That genie isn't going back into the bottle. So supply chain employers need logistics workers that are fully versed in all aspects of the industry, ready to solve unique shipping and delivery problems based on their extensive supply chain knowledge.

But why care about LTL? It's been reported that some shippers in today's world are no longer concerned with what mode is used to ship their goods.

A Multimodal Approach Ensures On-Time Delivery

This mode agnosticism means supply chain stakeholders have to be well versed in all modes of transportation. As unforeseen weather events and other disruptions, such as protests, become more common, savvy logistics employees will need to be armed with familiarity of all modes, not just the most popular, to ensure that freight is delivered on time, without damage, and in the most financially expedient way possible.

Offerings like SMC³'s LTL online education courses cover a wide range of topics from LTL basics and operations to more advanced concepts like pricing analytics and transportation law. The company also has plans to continually refresh content, adding new expert presenters and taking the feedback of students to make the courses even better as time goes on.

Register:
logisticstrainingcenter.com/smc3-courses/

SMC³ offers the industry's only path to LTL certification. SMC³ partnered with Logistics Training Center to produce five LTL courses, as well as an optional certification exam (CLTL). These seasoned logistics and supply chain management professionals, as well as leading university-level instructors, deliver up to 40 hours of content.

–By Brian Thompson

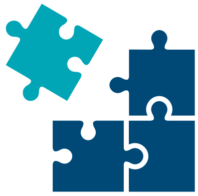
Chief Commercial Officer
SMC³
smc3.com/onlinelearning
800-845-8090

SMC³

SPONSORED CONTENT

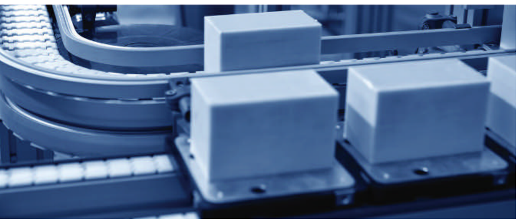
Supply Chain Challenge?

SOLVED



Manhattan Active WMS for a Leading USA Retailer

A major retailer sought to modernize their supply chain operations with a cloud warehouse management system and turned to ITOrizon as their system integrator. The result was a seamless integration.



THE GOAL

The customer had an all-encompassing goal to modernize their supply chain operations on a cloud platform while expanding their warehouse throughput to their retail stores and delivering an authentic omnichannel experience with initiatives such as BOPIS.

The warehouse management solution got identified as the first application for the supply chain transformation journey. The customer chose Manhattan WM Active as their new WMS solution with a strategy of phased deployment by warehouse and selling channel. Overall, 4 phases were planned, starting with their West Coast DC operations.

The DC is a 600,000-square-foot facility split between retail and e-commerce channels. It is a fully automated warehouse equipped with:

1. Put-to-light stations
2. Print and apply machines
3. Case sealers
4. Fluid loading lanes
5. Conveyors with routing capabilities

Their existing supply chain ecosystem is very rich and supported by a mix of on-prem and cloud products such as JDA, Oracle RMS, Manhattan Distributed Order Management (DOM), Manhattan Integration Framework (MIF), and Manhattan Extended Enterprise (EEM).

THE CHALLENGES

1. Retrofitting existing integrations with new cloud WMS software
   - Leverage existing integrations across their SCM ecosystems and bring the new WMS (MA Active) as a "plug and play" with minimal time and effort
   - Design the new WMS – MHE integrations by repurposing the old MHE integration code
   - Lack of technical subject matter experts for in-house legacy SCM applications and cloud WMS implementation specializations
2. Designing and implementing existing warehouse business use cases to a new system
   - Configuration and setup were drastically different than that of the old WMS. On top of that, the look and feel of the new WMS was also different

THE SOLUTIONS

As the customer's prime system integrator, ITOrizon got a blanket contract to establish the new warehouse operations, implement the new WMS and required integrations, and ensure fully functional systems as part of their commitment.

ITOrizon analyzed the existing warehouse processes and the end-to-end business processes across all SCM systems to get the complete picture before establishing the new processes or proposing any configurations in WMS.

Our team went the extra mile to carefully review and cross-verify configurations to detect the gaps and bugs ahead of schedule. One such situation occurred in PIX design where existing integrations could not scale up for the new WMS PIX features. The ITOrizon team proposed an alternative design without impacting the project schedule.

We spent extensive time developing SCI to present the receiving, shipping, allocation, packing, inventory analysis, and inventory reconciliation statistics to build customer confidence in the new WMS.

ITOrizon's cloud expertise, specifically with Google Virtual Private Cloud, was used to set up the replica copy of the production WMS DB. This allowed us to access the PROD (live) data, analyze the operations process, and troubleshoot data inconsistencies to take proactive measures.

Is the Dynamic Unified Logical Data Model the Silver Bullet for Disruptions?

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Q Enterprises that are transforming their supply chain are slow to change. What roadblocks are impeding their efforts?

A Our supply chains of today were designed decades ago to achieve data uniformity across the supply chain ecosystems and not to deal with unwarranted supply chain disruptions. All SCM apps are designed for specific business functions with modules to perform "predetermined" operations with known variables and implicit assumptions.

Even exceptions are predetermined with a static outcome. The speed of innovation is curbed by legacy black boxes reliant on reports and ETLs; siloed vendor and custom systems bound by rigid integration layers; and sophisticated systems aimed for functional modules wrapped with APIs and microservices.

Q What are the practical challenges businesses face while rolling out any new supply chain use cases?

A Salvaging the real-time data from operational systems is the first step of the hurdle, as we need specialized knowledge to understand each vendor's system flows and architecture. Consolidating the data, then assuring the quality, accuracy of data, and then finally interpretation of the data remains the major challenge.

Incorporating new business flows within the existing operational systems and bridging data back into upstream and downstream systems is another struggle as the original implementation may not have kept that in scope. It is often classified as change request leads to additional budget and time.

Q Does building a data lake solve some of the real-world SCM challenges?

A It does but it won't solve the core issue. Let's take a standard supply chain operation: If clearing a glitch with a container from the port, the ripple effect is felt through the entire supply chain.

Deploying alternative business actions that don't compromise cost or customer satisfaction is the intended outcome. Data lake cannot deliver that as it has limitations around data latency, rigid schema, restricted insights, and bi-directional orchestration.

We need an adaptive unified logical data model augmented with semantics that creates a real-time database with a deep business context. It allows businesses to gain real-time supply chain insights from customers, markets, partners, production, distribution, logistics, and environments.

A unified data model converges the data points across the ecosystems beyond IT standardizations, functional modules, systems, and data types and presents the current state of a customer order, manufacturing schedule, truck stop, inventory positions, etc.

Q What opportunities abound when there is free interchange of data?

A Without data insights, no business decision is accurate.

Solutions that address the need for a flexible unified logical data model enable businesses with a 360-degree view of their supply chain ecosystem, the ability to run what-if analysis, and be ready for these unknown factors.


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SMARTMOVES

by Christine Castaneda
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Effective Ways to Find and Retain Talent

Even before the pandemic shined a light on how fragile our supply chain is, the industry has grappled with attracting and retaining talent to meet demand.

With many roles in the field needing to be filled—for example, employment of logisticians alone has been projected to grow 30% through 2030, according to the U.S. Bureau of Labor Statistics—managers must be prepared to not only better attract talent, but also to invest in existing employees to retain them for the long term.

When it comes to attracting the right candidates, managers should connect with their human resources departments to align on their specific hiring needs and focus on nurturing a strong talent pipeline. In today's landscape, employers need to be specific about the opportunities that are available as well as more proactive than simply posting a job listing and waiting for resumes to rush in.

Here are some examples of ways supply chain managers can work to secure the market's top talent.

1. Make recruitment an ongoing task. Companies as a whole should always be on the lookout for new recruits.

Often, companies will amplify their focus on recruitment only when they need to fill a role. Having only that small window of recruitment limits prospects and lessens the chances of hiring quality candidates, especially in the supply chain world since jobs are so in demand. Being actively engaged in the industry, such as participating in virtual supply chain educational conferences, can help create opportunities to meet candidates.

2. Strive for diversity. Diversity is critical for companies as it brings people of different educational backgrounds, professional experiences, and walks of life together to broaden the company's collective knowledge. Increasingly, candidates are taking a closer look at companies' diversity initiatives and favoring those that prioritize having a more diverse workforce.

Those in leadership positions need to take a closer look at their company's recruitment programs and ask, "How can we reach a broader talent pool?"

For example, has the company traditionally only hired candidates with a certain educational background? Or does the company's interviewing panel all share a similar background or experience that may influence their hiring decisions? By taking the time to review and assess recruitment practices, leaders may be able to identify opportunities to improve on their existing (or non-existing) approaches to increasing diversity.

3. Be specific. Job descriptions and listings can be extremely vague and non-discrete. Specificity in job postings can be a key factor in which candidates end up applying.

For example, if looking to hire a supply chain planning associate, employers need to list the nitty-gritty skills and responsibilities of that exact position so there are no misconceptions about what the role entails.

They must also be clear about any expectations of the position: Is the position one that focuses on operations, supplier relationships, or analytics? Is the expectation that the candidate be fully on-site or is there opportunity for remote or hybrid work? If the job description isn't clear, candidates may lose interest or apply for the wrong position.

It is equally important to express the soft skills managers are looking for in a candidate. The supply chain sector has been greatly impacted by the ongoing talent gap. To mitigate the toll this has taken, many companies have implemented upskilling programs and have become increasingly open to hiring candidates that, though they might not possess all of the hard skills required for a job, do have the soft skills needed.

As such, some organizations are

When it comes to attracting the right candidates, managers should connect with their human resources departments to align on their specific hiring needs and focus on nurturing a strong talent pipeline.

focused on finding talent with the right cultural fit and potential.

Additionally, being flexible with work experience requirements can help employers attract high-performing talent from other industries, such as technology. Recruiters can help employers craft job descriptions that will resonate with top talent from across industries.

4. Offer flexibility. For years to come, many professionals will expect the option to work remotely or to have flexible work hours. To remain competitive, more employers are starting to offer fully remote or hybrid positions.

According to a recent McKinsey survey, "nine out of 10 executives envision a hybrid model going forward" post-pandemic. While it may not be possible to offer completely remote or hybrid options for some jobs, when evaluating their hiring plans, managers should consider how much flexibility they can offer for specific roles. Offering such perks can help position the company as an employer of choice and drive applications while also broadening the candidate pool from which employers can choose from.

Once the right candidate is found and hired, the task of retaining that talent begins. In fact, a recent Adecco Group survey found that nearly two in five employees are changing or considering new careers.

Here are some measures managers should consider to aid retention efforts.

- **Provide ongoing training and opportunities for continued learning.** In the supply chain especially, employees need many technical skills and certifications to perform their job or to grow in their career. But in today's competitive environment, employers need to be open minded to candidates with some, though not necessarily all, of the skills needed to do a job.

Providing on-the-job training and upskilling opportunities can help set up employees for success.

Additionally, employers can reimburse employees for professional development seminars or certifications relevant to their position to encourage their teams to keep their skills sharp. Professional development is an important part of any job, but by creating opportunities for employees to grow and learn, organizations can better position themselves as a partner to their employees rather than just a place of work.

- **Show appreciation for employees.** Employees want to know that they're appreciated and noticed for their time and effort on the job, so when managers take time to recognize workers, it can go a long way.

While financial rewards like bonuses are usually appreciated they may not always be feasible to provide, so managers should also consider creative ways to recognize employees.

For some, a Wellness Day—where employees can take the day to rest and focus on their mental health—may be more meaningful than receiving a spot bonus.

The Adecco Group survey found that a majority (71%) of workers feel that having the right support for mental health at work will be important to them in the future. Companies that invest in building and creating working environments that better support the mental health of their employees is key to the success of an organization.

As companies continue to adjust their supply chain management strategies to meet changing environments, it's important to do the same with recruitment and retention plans. Jobs within supply chains are crucial and in high demand, and long-term opportunities are abundant for those who are interested.

Taking the important steps to obtain and retain employees will result in a skilled, satisfied, and motivated workforce—improving the company's operations all around. ■

[INSIGHT]

VIEWPOINT

by Joey Rubinstein
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Retail Inventory: Old Method, New Tricks

Toshifumi Suzuki led 7-Eleven Japan's spectacular rise from small licensee to the highest-grossing retailer in Japan. At the heart of his strategy was a simple management framework called Tanpin Kanri. The idea is simple: Take an active, rather than reactive, approach to restocking shelves.

Since 1974, 7-Eleven Japan has been helping its franchise owners do exactly that. Then in 2003, 7-Eleven Japan analyzed its sales and concluded that continuous flow of products to meet fluctuating demand allowed them to turn over products at a 70% rate. Tanpin Kanri was at the heart of this success.

Sounds obvious. But retail owners constantly fall into the trap of simply ordering what they're low on. Most just let their suppliers tell them what they should be stocking their shelves with.

It's easier, after all. Let a supplier representative come in, log what you're low on, and order replacements. This is reactive, not active, management—and fundamentally against the Tanpin Kanri method.

MOM AND POP BEAT THE COMPETITION

The Active Ordering method is actually easier for smaller retailers than larger retailers to adopt. Large retailers have to contend with so much data that it is basically irrelevant to identify granular trends on an item-by-item level basis, forcing them to rely on broader trends like category-by-category and the competitions' successes.

Top-down pressures also make it harder for store owners to be as flexible as they would need to be to adopt an active method. Like 7-Elevens, small to mid-sized retailers have the edge: They can more clearly see specific customer and item-by-item trends, and have more autonomy regarding supplier purchases.

Here's how smaller retailers can leverage that advantage to boost sales.

1. Ask the hard questions. It's easy to just let suppliers dictate what needs to be on the shelf, or look at the gaps and try to fill them as quickly as possible. Retailers should fight this instinct, and constantly ask: Am I acting or reacting in this purchase? Do I have good reason to think this will sell well, or am I just plugging holes?

Not every order has to be Active; a stocked shelf is better than an empty shelf. Pick a balance between acting and reacting that works well; we recommend 75/25.

2. Listen to the customer. The most successful businesses live and die by customer feedback. When it comes to ordering stock, the same thing should be true. What do customers care about? Take careful note of their actions as well as their verbal feedback.

Note repeat customers and what they usually buy. Design quick questions that will identify (non-intrusively) why they bought what they bought.

7-Eleven Japan estimated that 63% of customers visited at least twice a week. Don't let the opportunity slide—develop relationships with them, and figure out some active methods to stock your shelves with the things they like to buy.

3. Adopt the right technology. Steps 1 and 2 are a great start. But retail's investment in supply chain technology nearly doubled in 2021. If Mom and Pop don't want to be left behind, they'll have to consider going higher tech.

Technology is only as good as its users, though. It's easy to fall into the trap of simply using this tech to fill shelf gaps quicker and more efficiently, without regard for the content of the gaps. Make sure the tech is easy for employees to grasp and gives simple and actionable insights, just as long as the power to decide what goes on the shelf isn't just getting rid of a flashing "low stock" alert.

Tanpin Kanri is close to 50 years old, but still relevant to independent retailers. ■

[INSIGHT]

IT MATTERS

by Bruce Orcutt
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Digital Transformation: The Experience is King

A survey among supply chain leaders reveals that two-thirds of staff struggle to find the information they need to do their job. Alarmingly, 73% waste up to eight hours each week just trying to find data–leading to delays (46%), errors (28%), and bad customer experience (24%).

It's easy to see that documents remain an overwhelming challenge for the industry and something that I anticipate will be addressed this year with a boom in document automation. Research shows more than 70% of company bosses in the supply chain plan to update their intelligent document processing.

But what are the other major changes ahead for the industry? In reviewing and analyzing the latest trends on digital transformation, I identified three top priorities for the coming year.

1. The experience is king. It's always said that the customer comes first, but how about employees or suppliers? We know that good customer service is crucial to staying ahead of the competition. In 2022, however, the emphasis on a great experience will be a priority across the board, which also includes staff and partners. Smart companies are now more demanding of technology to transform the experience—the key metric for success.

Unfortunately, being able to measure the experience proves difficult. When leaders were asked how they measure customer experience, more than 55% said they base it on staff feedback, which means their business intelligence tools can't do it.

Organizations within the supply chain should be able to monitor, evaluate, and predict exactly how the customer journey is flowing and intercede when needed. This means every variation and bottleneck in processes and the documents fueling them—no matter the channel through which they entered the company or whether they were born digital or paper—directly impacts the experience.

When employees admit they can spend up to eight hours looking for information they need to do their job, it means they waste an entire day each week. This obviously has an impact on customer service. Knowing what causes this game of hide-and-seek in business documents and delivering to staff drag-and-drop technology tools that can understand content and context within documents are major factors to improving the customer experience.

Remember, the main reason that digital transformation falls short is because of bad experiences—sending employees, partners, and customers elsewhere.

2. Huge investments in document processing technology. The supply chain relies heavily on documents—from bills of lading to declaration forms, invoices to dock receipts, and more. As I referenced earlier, 70% of leaders in the supply chain say they plan to invest in technology to upgrade document processing. Analysts expect a 36.8% growth in the use of intelligent document processing (IDP) in the industry in 2022. Companies want to see a more seamless way of dealing with documents while reducing errors and speeding workflow.

That means taking the next step in document automation. Despite many organizations having invested heavily in digitizing paper, it is still not fully automated, and they are not taking full advantage of new technology.

For example, research commissioned by ABBYY shows that one-third of organizations in the supply chain are still doing many things manually—such as printing out electronic PDFs and then typing the data back into their software applications. The goal of digital transformation is to take away those troublesome, time-consuming, and error-prone manual steps and benefit from straight-through processing.

A Japanese global logistics company we work with used IDP to improve its current data capture solution for paying invoices and streamlining customs clearance. The switch reduced shipping delays and cut invoice processing times from 40 minutes to four minutes per document.

By upgrading legacy software like optical character recognition (OCR) with a more modern, no-code approach, companies can truly benefit from digital transformation. IDP uses technologies like artificial intelligence and machine learning to better understand, read, and analyze every piece of information on a document so it can make a decision on what to do with it—without a human having to get involved. Better still, it can learn from new documents and user interactions to make improvements along the way.

All sorts of documents can be processed touchless, such as purchase orders, invoices, trade bills, waybills, declarations, dock receipts, packing lists, labor logs and supplier or employee onboarding forms. And this type of friction-free document processing can definitely improve the experience for staff and customers. It's a win-win.

3. A shift in sourcing methods and upskilling staff with tech. Many people blamed the disruptions in the supply chain over the past two years solely on the pandemic. However, some of the most newsworthy problems, such as the Suez Canal blockage, were not related to COVID-19 and resulted in massive delays and negative impact to employers, partners, and employees.

Manufacturers and logistics providers quickly realized they needed to be more resilient and adaptable, and identified sourcing as a challenging issue. But the complex process of sourcing and onboarding new suppliers again lies with documents and processes. Negotiating agreements and setting up letters of credit and contracts all need scrutiny, better accuracy, and to be done at breakneck speed in times of crisis.

There is also the growing issue of labor shortages. While we saw staffing issues due to illness and quarantine, the post-pandemic Great Resignation is seeing the skills problem exasperated.

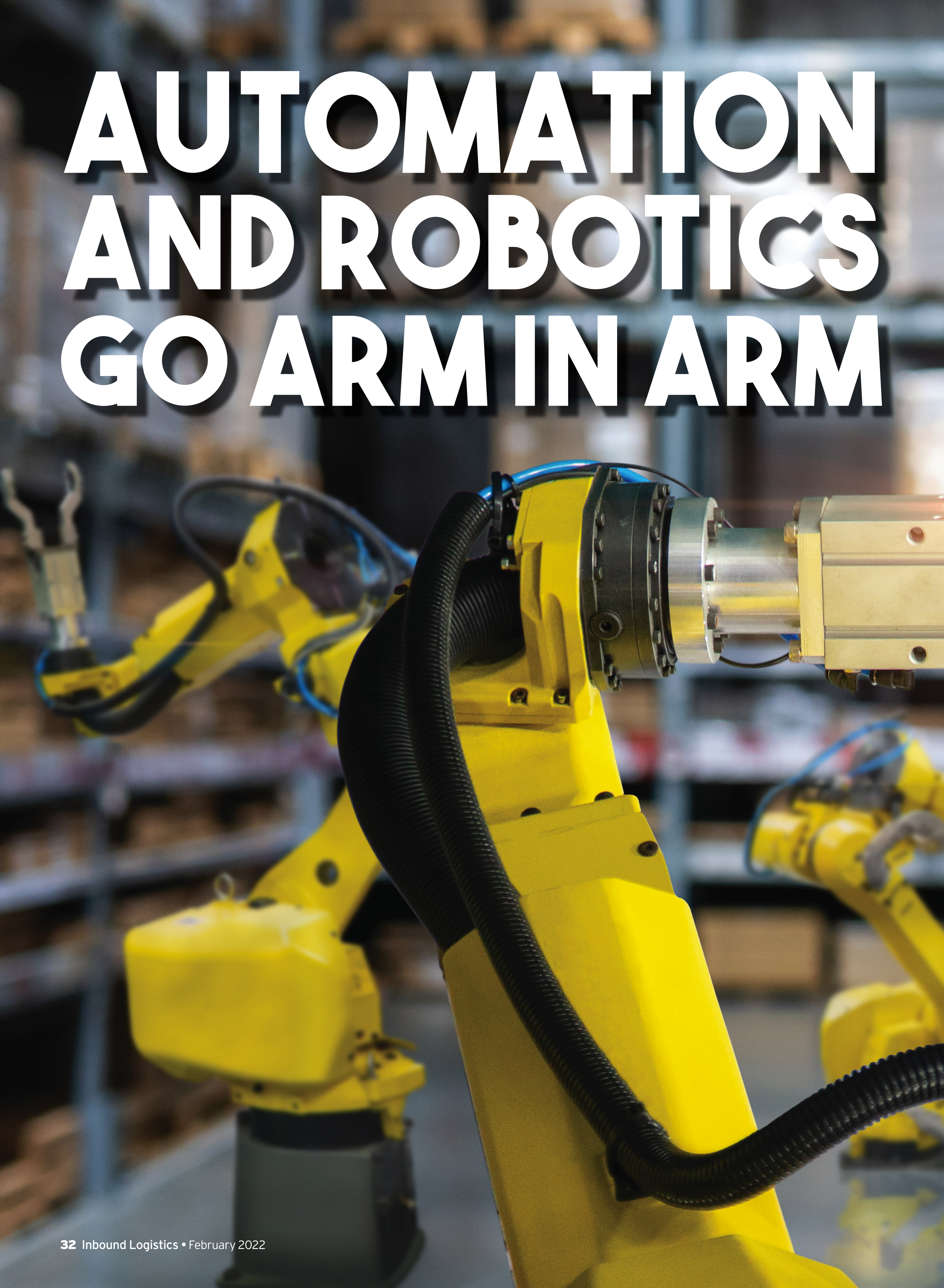
Those who are still working need to be upskilled to deal with the ongoing changes in technology. As intelligent automation replaces menial labor tasks, employees need more training on software applications.

Many technologies involve low-code/no-code platforms, which means the automation process is being put into the hands of employees. Staff will be responsible for initiating digital changes by using off-the-shelf solutions that combine advanced capabilities like machine learning and natural language processing along with traditional OCR.

This democratization of AI allows employees to digitally transform all sorts of document processes, such as a bill of lading, airway bill, cargo insurance certificate, invoice, delivery note, or packing list. What used to take months will now be done in days. In fact, analysts believe that by 2024, 75% of enterprises will have four or more low code/no code development tools that will increase productivity and improve operational efficiency.

2022 will shine a definitive spotlight on the experience as a metric for success in the transport and logistics sector. In shaping that goal, we will see unprecedented growth in new technologies like IDP, along with low code/no code applications that will be behind the upskilling of hundreds of employees. ■

AUTOMATION AND ROBOTICS GO ARM IN ARM



Today's robotics innovators arm warehouses and fulfillment centers with flexible and scalable automation solutions that are within reach for any company.

By Sandra Beckwith

When a Delaware Macy's department store with years left on its lease closed because of poor performance, managers knew they had an opportunity, not a failure. Doors were permanently locked to customers on Friday. On Monday, the same associates who smiled as they handed customers their purchases the previous week were acting as shoppers themselves, picking e-commerce orders from floor displays.

It was a temporary step in the facility's dramatic transformation into a "dark store," a brick-and-mortar location that has been turned into a micro-fulfillment center. Robotics are important to the operation.

"We started by tearing up the carpet, tile, counters, and fitting rooms, and turning the space into an empty shell," says John Seidl, a partner with robotics and software firm GreyOrange.

When finished, the former store leveraged the labor and efficiency benefits of his company's goods-to-person robots that bring hundreds of mobile shelving units to human pickers.

HOW FAST CAN WE GET THEM?

It's a sign of the times as e-commerce continues to grow while retailers and others struggle to find warehouse labor. Seidl cites a regional distribution center in Indiana that needs 100 people during peak periods, but has 20 open positions. "They told us, 'We need robots. How fast can we get them?'" he says.

Hanna Yanovsky, general manager of Caja Robotics, has those same conversations with customers. "Every operation needs to be so efficient to meet delivery demands, and it's not something humans can or want to do," she says.

The pandemic and corresponding labor shortages aren't the only factors leading to projections that worldwide commercial robot revenue in warehouses will have a compounded annual growth of more than 23% from 2021 to 2030, according to ABI Research. Today's robotics innovators offer a range of automation solutions that are more affordable, flexible, and scalable than conventional robotics systems.

Robotics solutions are better suited to the growing number of smaller, more urban, micro-fulfillment centers. These facilities typically aren't large enough for traditional expensive and immobile warehouse storage, retrieval, and conveyor systems.

DECODING AUTOMATION ACRONYMS

Here's a short guide to the warehouse robotics industry's acronyms and language.

AGV: Automated guided vehicle that transports heavy items on a defined route by relying on location sensors, magnets, and lasers to navigate a warehouse without human assistance.

AGVS: Automated guided vehicle system, a computer-controlled materials handling system that uses AGVs moving along a guideway.

AMR: Autonomous mobile robot that brings goods to a picking station. Unlike an AGV, it navigates with computer vision, sensors, and machine learning rather than warehouse floor infrastructure.

AMMR: Autonomous mobile manipulator robot that is similar to an AMR, but can also manipulate items on a shelf before delivering them.

AS/RS: Automated storage and retrieval system that places and retrieves items from pre-defined locations.

Cobot: Collaborative robot that interacts with people in a shared workspace, often to perform repetitive or hazardous tasks, freeing up human workers to focus on more skilled tasks.

G2P, GTP: Goods-to-person, an order fulfillment method that uses robots to retrieve goods and deliver them to the picking station.

MSU: Mobile storage unit that can be moved around the warehouse, often by an AS/RS.

PTG: Person-to-goods fulfillment, a human, manual process that sends workers to find goods to match orders. GTP robots eliminate the time and productivity loss involved with PTG.

ROC: Robotics operations center staffed by robotics technicians.

SLAM: Simultaneous localization and mapping, a process used by AMRs to map their environment, place themselves in it, and move through it.

Teleoperation: Controlling a device or machine remotely, as with materials handling equipment in a warehouse.

New robotic automation options can also be up and running more quickly. “With large-scale, conventional automation, it’s 18 to 24 months from the time I start thinking about automating before I move the first box out the door,” says Dwight Klappich, vice president and analyst at Gartner.

Return on investment might take five to seven years, making automation better suited to companies that are large, have big problems, and have the capital to invest, Klappich adds.

With steel prices at an all-time high, “the return on investment for conventional automation is less attractive,” says Rueben Scriven, senior analyst for warehouse automation at Interact Analysis.

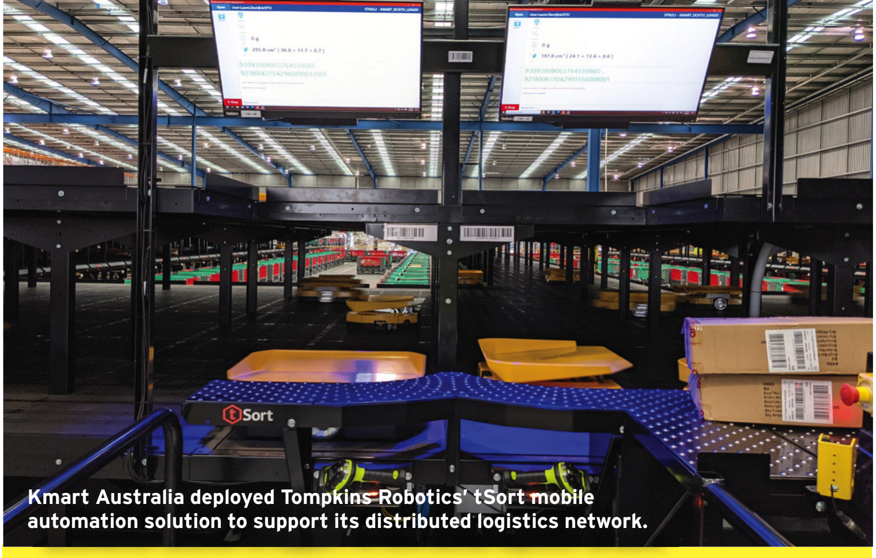
OFF THE CHARTS DEMAND

It’s good news for robotic solutions providers—GreyOrange has doubled in size during each of the past two years, for example. Klappich understands why, saying demand is “off the charts.” But so is the number of options, which can cause many warehouses that need automation to delay adoption.

While robotic automation systems can be operational sooner than conventional predecessors, selecting the best solution from all those options takes time.

What’s more, if you’re turning to automation to solve more than one problem, you probably won’t get everything you need from one vendor. Just as warehouses use different brands of materials handling equipment, they need multiple types of robots provided by several vendors. It’s why some robotics companies are acquiring brands with different product offerings, such as Locus Robotics’ recent acquisition of Waypoint Robotics to expand its product offerings.

“There’s a trend toward offering complementary solutions as an end-to-end process, with firms starting to mix and match technology,” says Mike Futch, CEO of Tompkins Robotics. “For example, we have robotic sortation, while other vendors offer robotic storage and retrieval, and still others provide robotic packaging.”



Kmart Australia deployed Tompkins Robotics’ tSort mobile automation solution to support its distributed logistics network.

ATTENTION KMART SHIPPERS

With continued sales and network growth creating challenges in Kmart Australia’s New Zealand retail distribution and fulfillment system, the company sought a scalable way to get merchandise out of fulfillment centers and into stores more efficiently and with fewer people.

The discount department store chain, with more than 240 locations in Australia and New Zealand, required a sorting system that could handle its wide-ranging mix of products, packaging, and product configurations. It also wanted a flexible solution it could relocate and reallocate to accommodate regional shifts in its growing distribution network.

The retailer’s RFP process led it to Tompkins Robotics and its modular tSort system for retail replenishment. The U.S.-based Tompkins Robotics team knew that completing the installation during a global pandemic when international travel was restricted would be a challenge, but the teams from both organizations had a plan.

To minimize staff travel, Tompkins Robotics hired an in-country integrator to set up the modular hardware, an installation process that typically requires less than half the time and labor of traditional sorting systems. “Our physical assets just roll off the truck and are put together like LEGO blocks,” says Mike Futch, CEO of Tompkins Robotics. His company’s technicians in the United States monitored and inspected the contractor’s work using a variety of visual monitoring tools.

The robotics firm also ran virtual software tests before its technicians arrived in New Zealand to complete the installation. “We always try to do the IT testing virtually to shake it all out before anyone goes on site to test,” Futch says. Once there, technicians ran end-to-end tests and trained staff before providing on-site support when the system went live in May 2021.

Completed in just five months, the system has allowed Kmart Australia to reduce manual handling, increase throughput, improve both safety and inventory accuracy, and use existing warehouse space more efficiently. Pleased with the results, the retailer quickly expanded the system a few months later to increase capacity by 20%. And, they accomplished that in a single weekend.

“It’s a tried and proven system that works well,” Futch says.

"Caja Robotics has done projects in the United States where ours is the main element, but there are additional solutions that link to ours from beginning to end," adds Yanovsky. "This is an important element for customers."

While some companies are anxious to implement robotics quickly, others that know they need to add automation to speed throughput, maximize storage space, and improve safety remain reluctant to move forward. "A surprisingly small percentage of the warehouse population uses robotics," says Scriven.

FEAR OF CHANGE

A primary obstacle to adoption is fear of change. "People are terrified about blowing up their fulfillment strategy," Seidl says, adding that inertia is his biggest competitor.

"The amount of change management in robotics systems is dramatically higher because you eliminate and completely replace the existing process," he notes.

Even so, robotics offer lower-risk solutions. "Nobody wants to waste money or make a big mistake, but they don't have to be as afraid about getting it right because the cost to switch isn't as high," says Klappich. "Some companies bring in five robots that do what they expect them to, then add five more, and then another five more."

Another problem with the low adoption rate is there are fewer industry mentors or colleagues who have gone through the process to learn from. "You need to be personally and professionally brave and the company you work for has to be brave," Seidl says.

"It's a huge step forward for them," agrees Ilan Cohen, CEO of Caja Robotics. His firm often overcomes reluctance by piloting automation in a small area of a warehouse before expanding. "This allows the company to see that they can still work hand-in-hand with other areas and that automation doesn't interfere with operations," he says.

Understanding that robotics solutions are more flexible than conventional, large-scale automation also helps reduce anxiety levels among Caja's customers.

Solutions such as GreyOrange's Ranger GTP intelligent autonomous mobile robots can improve speed and accuracy, cut operating costs, and empower the warehouse workforce.

Starting gradually and showing that they can make adjustments helps overcome hesitancy, Cohen adds.

Flexibility applies not only to how and where a company uses robotics in a warehouse, but, thanks to robotics-as-a-service, also to how many they use and when. With this innovation, companies can upgrade or downgrade as needed by leasing technology.

"With conventional, fixed automation, you either have to build the system to handle maximum capacity with some going unused throughout the year, or build it for normal capacity, then flex with manual labor for peak periods," says Scriven. "With robotics, you can lease that automation briefly for peak periods."

Tompkins Robotics plans to introduce robotics as a service in 2022. "During the holiday season, customers can double their capacity with more robots, then return them," says Futch. Tompkins Robotics customers use its sortation robots primarily for e-commerce fulfillment, store replenishment, and parcel shipping sorting.

Working with a consultant to make sure you make the best decisions for the situation can also help, but there are more automation options and configurations than there are advisors.

"You need a consultant who isn't aligned with a particular manufacturer and can look at the warehouse, understand the situation, and create a mission profile," says Jordan Teplin, strategic account manager with robotics consulting firm MacGregor Partners.

Finding someone with the right experience can be a challenge. "Most robotics people work in warehouse control systems while warehouse people use warehouse management systems," Futch says. "Many companies try to bring those two together so there's one brain, not two."

MAKE A LIST, CHECK IT TWICE

Yanovsky recommends using a methodical approach to understanding options and making an informed decision. "List and prioritize needs," she says. "Identify pain points, then get educated about solutions."

Automation is no longer a "nice to have" but a "must have," she adds.

Factor in software integration capabilities when exploring vendors. "Make sure the robotics vendors you consider have already integrated their control systems software into the warehouse management system or ERP solution you use," says Seidl. He also recommends working with a provider that has experience in your industry segment.

The technology is new enough and the market large enough that there's a sense of collaboration rather than competition among providers. "It's the dawn of a new era," says Futch. "Robotics automation suppliers have created and are refining unique, innovative solutions to address today's challenges."

"The market is so big that everybody will find their cup of tea," adds Cohen. ■

SUPPLEMENTING THE WAREHOUSE WORKFORCE WITH AUTOMATION

The pandemic created a lot of inequality. Some industries were hit with sharp declines or even halts to their business, leading to layoffs, pay cuts, and ceased operations. Others experienced crushing demands that left them without enough labor. As the world revs back up, businesses are still trying to adjust, especially within the shipping and logistics sectors.

Because of the surge in e-commerce, warehouse workforces are being stretched like never before. On top of a national labor shortage, one in three employees is unwilling to do work that requires them to be on-site full-time. Warehouse workers, specifically, are tired of walking 5-10 miles daily and often suffering from degenerative musculoskeletal injuries.

To address these problems, the industry is embracing automation. Why? Automation can help warehouses become more efficient in their order fulfillment processes—from picking to replenishing, counting inventory, and more. And for those who haven't begun adopting automation, the question is not if but when? Here's how autonomous mobile robots (AMRs) can supplement workforces while boosting overall productivity.

WORKFORCE AUGMENTATION

Workers and managers both gain from warehouse automation. It's a common misconception that robots are here to replace workers when the truth is that they are here to help them. Warehouse employees spend up to 50% of their day retrieving goods. This includes walking up and down aisles or lifting inventory off shelves for fulfillment. This excessive manual labor ends up leaving many employees with leg and knee injuries and rapid rates of burnout.

AMRs mitigate these issues by autonomously executing most of the walking, reaching, and lifting tasks. Employees can then spend time on higher-order tasks that require decision-making and problem-solving skills.

With automation in place, warehouse managers spend less time handling personnel issues—hiring, training, managing temps, job assignments. They spend more time overseeing strategy, operations, and inventory flow.

INCREASING PRODUCTIVITY AND ACCURACY

It's commonly said that about 90% of today's warehouses still run manually with minimal technology. Traditionally, only big corporations operating multiple giant warehouses had the capital to implement automation solutions.

Today, robotics is more accessible to businesses of all sizes. Robots are mobile and flexible, and have a faster time to value (or ROI). They are also commonly offered through robotics-as-a-service (RaaS) business models, which allows businesses to pay for robotics services as an operating expenditure vs. making capital equipment purchases.

Warehouses operating with robots can see a 5-10x increase in productivity levels. While AMRs are left to handle rote and arduous tasks, workers are free to work in bursts and on a variety of tasks. These tasks, such as quality control, packout, or managing new stock, can be more stimulating.

AMRs also offer the benefit of improved accuracy. As orders increase, so do the chances for human errors. Robots operate with machine precision and are programmed with AI software to pick only the specified item(s), in the right location and within the right quantities.

The benefits of warehouse automation are clear. Autonomous robots save warehouse workers from injury and harm, while also helping managers fill holes on their teams. AMRs enable businesses to meet the demands of consumers with increased precision and quality control. As we face a crisis within supply chains, autonomous solutions are key to restoring health to our economy.

– Lior Elazary, Co-founder and CEO, inVia Robotics

9 STEPS TO SAFEGUARD YOUR DIGITAL SUPPLY CHAIN

Even as digital supply chains have become more critical, they've also become increasingly vulnerable to attack. Here's how to lock up your information.

By Karen Kroll

Digital supply chains—the flow of information that accompanies physical supply chains, providing visibility and connections to suppliers and logistics partners—have become as essential to a company's success as the boxes, pallets, and containers they and their partners fill and move.

Digitally enabled supply chains are rapid, scalable, intelligent, and connected, says Alan Amling, distinguished fellow with the University of Tennessee Supply Chain Institute.

While the information that makes up the digital supply chain has always been important, the pandemic highlighted its criticality. Over the past few years, many companies, including those with best-in-class operations, discovered disruptions at Tier 3 or Tier 4 suppliers upended their own supply chains, says Andrew Stevens, research director within Gartner's supply chain technology group.

In 2020, more than 40% of organizations reported COVID-related disruptions in Tier 2 (and beyond) suppliers, finds a Business Continuity Institute (BCI) report. Without the visibility that strong digital supply chains can provide, these firms lack the information they need to craft alternate plans.

Even as digital supply chains have become more critical, they've also become increasingly vulnerable to attack. One-third of organizations reported supply chain disruptions caused by cyberattacks and/or data breaches in 2020, up from 26.1% in 2019, BCI finds.

One reason may be that more organizations are incorporating the Internet of Things (IoT) into their plants, warehouses, and equipment. The global number of connected IoT devices will jump to more than 27 billion by 2025, up from 12.3 billion in 2021, estimates IoT Analytics.

While IoT connections provide visibility and efficiency, they can leave organizations more vulnerable to cyberattacks, says Sebastian Reiter, partner with McKinsey & Company and digital supply chain expert.

Safeguarding digital supply chains has become essential. "Technology is a double-edged sword," says Randal Waters, senior vice president in the emerging risks group of Marsh Advisory. It enables efficiency gains, but the impact of an outage can be significant business interruption, he adds.

Here are nine steps that can help secure digital supply chains.

1 Take a security-first approach to prevent future cyberattacks. The supply chain system connects many vendors, suppliers, and organizations and it's inevitable that one organization has a weak security infrastructure. "Securing all endpoints within the supply chain system is critical to staying in front of supply chain threats," says Theresa Lanowitz, head of cybersecurity evangelism with AT&T Business.

2 Start with people. Criminals usually find it easier to call a company employee and try to persuade them to divulge information, or to send a "phishing" email that attempts to get information, rather than hack into a system, which requires some level of technical expertise, says Mark Simon, vice president of strategy with Celigo.

Moreover, phishing attempts are becoming more sophisticated and difficult to identify, even as employees are busier and often juggling multiple roles, making them more susceptible to these attempts.

Given that the biggest security risks tend to be not hardware and software, but employees, proper training and policies are key. For instance, employees should be instructed not to follow emails that purport to come from a company executive and request an immediate action that falls outside established processes.

When an email looks like it's from senior leadership, "there's an implied sense of urgency," says Simon. Employees may feel justified in circumventing security processes—exactly what the criminal is counting on.

Corporate policies should incorporate checks and balances that can help thwart social engineering attempts. For instance, an organization might prohibit the use of email, rather than the payment system, to initiate funds transfers to vendors.

3 Implement the appropriate governance. Strong governance ensures that each player in the supply chain has in place a clear and effective cybersecurity plan that is regularly maintained and remains up-to-date with ongoing requirements of the cyber industry, Lanowitz says.

An organization must work side-by-side with its vendors and suppliers to reduce weak points in its network and prevent vulnerability to attacks. With strong governance, organizations in the supply chain should have a strong digital security infrastructure.

4 Work closely with suppliers. Cyber-criminals typically take the path of least resistance when they try to penetrate a high-stakes corporate database, Amling says. Rather than attack the fortified networks of most large companies, some identify Tier 2 or Tier 3 suppliers that lack the capital or knowledge to protect themselves.

Businesses need to assess the security not only of their own networks, but those of their suppliers. That requires carefully evaluating potential vendors. Look closely at the contract terms: What risk is contractually defined, transferred, and/or shared? What are the potential damages if something goes wrong?

Ideally, vendors will have their own cyber-insurance policies, as this indicates they understand their cyber risks and have controls in place.

An external party should evaluate companies that provide digital supply chain services, such as cloud computing, software-as-a-service, or chatbots and virtual assistants using artificial intelligence, Brown advises. This could mean obtaining a SOC 2 report that examines the organization's logical and physical security controls.

Brown also recommends reviewing existing contracts. Over the past year or two, many organizations had to quickly move to cloud-based services, leaving little time to check their providers' governance and compliance protocols.

Now, they may find some contracts don't include reasonable cybersecurity protocols, such as the ability to audit the services provided. Organizations should seek to change the terms, if possible.

5 Implement security technology. While the human element is key in cybersecurity, technology also plays an essential role. Although the tools vary from one organization to another, a few are commonly used across industries, Waters says. One is multi-factor authentication, which requires users accessing accounts or apps to provide an additional identity verification, such as scanning a fingerprint or entering a code received by their phones.

Other cyber-hygiene controls Waters recommends include endpoint detection and response; secured, encrypted, and tested backups; and privileged access management.

Cyber-risk management information systems that consider key risk indicators can provide the transparency supply chain leaders need to ensure their organizations' cyber resilience, Reiter says. Looking at key risk indicators can help companies evaluate their digital assets and determine what controls are appropriate, given the threat levels to which assets are exposed.

6 Consider the cloud.

The cloud is gaining traction as a security tool, particularly for mid-market and smaller companies.

"With the increasing scale of many cloud providers, they can deliver security capabilities that may be out of reach for middle-market companies," according to the RSM US Middle Market Business Index 2021 Cybersecurity Special Report. Forty percent of survey respondents indicate they moved data to the cloud due to security concerns over the past year.

7 Test.

The axiom "failing to prepare means preparing to fail" holds true when safeguarding digital supply chains.

The traditional approach to testing supply chain services has generally been threefold: completing a questionnaire of compliance/risk management, and incorporating an annual right to audit review as well as an independent audit review, like a SOC 2 report, Brown says.

Today's approach takes these actions one step further and incorporates real-time monitoring of information on critical suppliers within digital supply chains.

As part of their testing efforts, organizations should develop business continuity plans, says Raj Samani, chief scientist and fellow with McAfee Enterprise and FireEye. That includes outlining the steps to take if a system goes down.

8 Consider insurance.

When evaluating cybersecurity efforts, consider whether risk transfer products have a role to play. No matter its size, any organization that is heavily reliant on its digital infrastructure should evaluate whether a cybersecurity insurance policy is right for them, Waters says.

A policy can reduce balance sheet volatility and the overall risk to the business, while helping to ensure its ability to continue serving customers.

9 Accountability remains.

While many supply chain organizations benefit greatly from partnering with third-party service providers, such as cloud computing partners, they can't outsource accountability.

"Where an external service provision within the digital supply chain operations fails, the accountability remains with the company," Brown says. Potential consequences include damage to the company's reputation and compliance penalties.

Companies need to consider warranty, indemnity, and liability provisions in their contracts with service providers. They also need to put in place the systems, policies, and technology that enhance the resilience of their digital supply chains and their supply chain networks.

The security challenges to digital supply chains remain formidable, yet a bright spot can be found. A growing number of business leaders and board members understand the importance of active involvement in building cyber-resilience, as well as the connection between cyber risk and their strategies.

More than 82% of respondents to the BCI report say management's commitment to supply chain risk is "medium" or "high"—up nearly 10 percentage points from 2019. ■

BEST PRACTICES TO MANAGE CYBER RISKS

These practices can help organizations manage their cyber-supply chain risks, according to the National Institute of Standards and Technology (NIST):

- Include security requirements in every RFP and contract.
- Deploy a security team to work on-site with vendors that have been accepted into the formal supply chain, to address any vulnerabilities and security gaps.
- Implement "one strike and you're out" policies with respect to vendor products that are either counterfeit or do not match specifications.
- Control component purchases tightly. Prequalify component purchases from approved vendors. Unpack, inspect, and X-ray parts purchased from other vendors before accepting them.
- Obtain source code for all purchased software.
- Establish track-and-trace programs to identify the provenance of all parts, components, and systems.
- Ensure personnel in charge of supply chain cybersecurity partner with every team that touches any part of the product during its development lifecycle and that cybersecurity is part of suppliers' and developers' employee experience, processes, and tools.

SUPPLY CHAIN FINANCE

YOU CAN BANK ON IT

Supply chain finance programs can successfully keep the cash flowing, enabling companies to cut debt and boost profitability.

By Karen Kroll

The adage "cash is king" remains as true as ever. Profitable companies can still run into trouble if they lack cash to pay their bills. This fact can give rise to tension with suppliers, who often need to receive payments more quickly than their customers—most of whom are trying to hold on to cash—prefer to pay.

Supply chain finance (SCF), sometimes referred to as "reverse factoring," is a working capital tool that can help both parties. "SCF enables a buyer to optimize working capital by extending payment terms to its suppliers, who in turn gain access to efficient financing via a bank or other third party," says Maureen Sullivan, head of supply chain at Mitsubishi UFJ Financial Group (MUFG).

Using SCF to successfully manage cash flow enables companies to cut debt and boost profitability, says Joerg Obermueller, senior vice president for supply chain finance with CIT. Conversely, failing to manage cash flow can lead to breached loan covenants, delayed shipments, and unnecessary debt.

SCF MARKET GROWTH

SCF offers several benefits over other working capital tools. It's often less expensive and more efficient. It also provides suppliers visibility to upcoming payments.

These qualities have helped drive growth in the SCF market. Global volume jumped by 35% between 2019 and 2020, to top $1.3 billion, according to the World Supply Chain Finance Report 2021.

Growing awareness of SCF among leaders at mid-market companies has also contributed to its growth. Initially, SCF was deployed primarily by corporations with at least several billion dollars in revenue, says Nathan Feather, chief financial officer with PrimeRevenue, a provider of working capital solutions. Now, some companies with several hundred million in revenue are using it.

Similarly, SCF funders previously tended to be large global banks. Over the past five years or so, the universe of funders has expanded to include local and regional banks, as well as non-bank funders.

While the term "supply chain finance" sometimes is used as a catch-all to describe different working capital solutions, it's increasingly used when referring to a defined task, says Thomas Dunn, chair of Orbian, which provides working capital management solutions. That task is the financing of receivables that the buyer has approved and confirmed.

SCF starts with the buyer in a business-to-business transaction. The buyer lets the financial organization know it's committed to paying a specific amount on a set date, to a specific supplier.

The buyer within an SCF program often is a large investment grade corporate, says John Monaghan, managing director with Citigroup. This is key, as the discount rate applied to the early payments is predicated on the

TOOLS TO BOOST WORKING CAPITAL

In addition to supply chain finance and traditional bank financing, several other tools can help companies boost working capital. They include:

Dynamic Discounting: With a dynamic discounting program, vendors decide when they'd like to get paid in exchange for a reduction in the price of the goods or services their customers purchased. Typically, the earlier the payment, the greater the discount. Dynamic discounting tends to be done on an invoice-by-invoice basis. Buyers use their own cash to make the payment.

Factoring or Receivables Financing: In factoring, a firm sells its accounts receivables at a discount to a third party—the factor—which assumes the credit risk of the buyers. The factor generally pays between about 75 to 80% of the receivables value upfront, and then the remainder, less a discount, when the customer submits payment. Factoring can make sense when companies are growing quickly.

Purchasing Cards: A purchasing card or P-card is a commercial card that allows organizations to use the existing credit card infrastructure to make business-to-business (B2B) electronic payments. For buyers, P-cards can streamline the procure-to-pay process, particularly for purchases of inexpensive items. Many also offer flexibility in billing cycles, allowing payment days or even weeks after a transaction, so buyers can hold on to their cash, even as their suppliers are paid more quickly.

buyer's credit rating, which typically is stronger than the supplier's, helping to rein in the cost of this financing tool.

For example, a smaller business looking to borrow from a bank or finance provider might be charged between 6 and 10% interest or more annually, Monaghan says. Financing through an SCF program runs a fraction of that, while offering faster access to funds.

The financial institution pays the supplier, usually before it collects from the customer, and less the discount. Often, payments are made days after invoice approval. The financial firm then collects from the customer on the originally scheduled terms, such as 90 days.

BENEFITS ABOUND

Supply chain finance funding is cost-effective, short-term, and uncommitted, Sullivan says. And by helping suppliers manage excessive exposure to a single or small concentration of buyers, SCF also helps mitigate risk.

SCF also offers transparency, says Donna McNamara, director with Citi. Suppliers gain visibility to the invoice approval process and payment time frame, and they can monitor invoices as they move through these functions.

Buyers benefit as well, Dunn notes. They can use SCF to strengthen relationships with suppliers. And by helping buyers gain quicker access to financing, they strengthen their supply chains.

In the past few years, SCF has also helped fund some buyers' environmental, social and governance initiatives, Obermueller says. Buyers can use supply chain financing to support diverse suppliers, offering faster payment at attractive rates.

In addition, the improved payment terms and liquidity SCF makes can allow some suppliers to invest in, for instance, more efficient equipment.

WHO USES SCF?

Historically, SCF programs tended to be concentrated in consumer goods and industrial companies, both of which purchase in large volumes from a range of suppliers. That has changed as SCF has gained adoption across many industries.

SCF programs have also been more prevalent in sectors with lower margins, where companies might struggle if they must wait to be paid, yet for whom the cost of traditional financing can eat into margins, Monaghan says.

Large logistics companies, like companies in other sectors, often establish SCF programs for their suppliers, Dunn says. In addition, some develop SCF arrangements that their clients can offer their own suppliers.

One example: Each month a logistics firm ships $1 million worth of pet food on behalf of its retail client from that company's suppliers. The logistics firm might sponsor an SCF program the retailer can offer its suppliers.

HOW TO LAUNCH AN SCF PROGRAM

While each SCF program is different, a common starting point for the funding firm is to identify the suppliers for which the program likely will be a solid fit, Feather says. Typically, not all suppliers are.

Historically, suppliers with lower annual spend would be better suited for a purchasing or virtual card. However, this is changing as the supply chain finance landscape and technology evolves, with some SCF providers offering solutions geared to these suppliers, Feather says. Among the suppliers invited into a well-structured SCF program, between 70 and 80% usually join.

Suppliers joining SCF programs need to be able to handle the documentation requirements, Feather says. While not difficult, they have to provide information, like their articles of incorporation, that allow the financing firm to comply with know-your-customer and other regulations.

The buyer handles the technical implementation of the SCF platform, Dunn says. Suppliers access the program online.

Once suppliers join an SCF program, they generally often can receive payment as soon as an invoice is approved, although they also can decide to wait. "The supplier gets control of its cash flow," Feather says.

Many buyers launch one segment of their supply chain, address any challenges, and then add other business units, Dunn says. Successfully starting an SCF program generally requires the involvement of multiple departments within the buyer's organization, including finance, treasury, and information technology.

The procurement department is also critical to success. "If they're not on board driving the solution, it's typically not successful," Dunn says.

ROADBLOCK TO BLOCKCHAIN

To date, blockchain hasn't played a big role in supply chain finance. "The lack of regulation and scalability, as well as security concerns, has a negative impact on the adoption rate of blockchain technology in SCF," says Joerg Obermueller, senior vice president for supply chain finance with CIT. These challenges need to be addressed to ensure blockchain can play a meaningful role going forward.

Blockchain could play a potential role in smart contracts, which would lower costs and boost efficiency, says Nathan Feather, chief financial officer with PrimeRevenue, a provider of working capital solutions. He also expects blockchain to be used to delineate ownership of assets, making the onboarding of suppliers more efficient. "We're a long way from that, however," he adds.

When bringing suppliers onto the platform, education is key, Feather says. One common area of focus is helping suppliers weigh the cost of the transaction fee against the benefit of improved cash flow. Another focus is the flexibility and control over cash flow they'll gain, especially when many are facing ongoing disruption and inflation.

AN SCF ROKU

SCF programs have come in for some criticism. Over the past year or so, the market had to navigate the collapse of Greensill Capital, which fell under the broad umbrella of a working capital provider. However, Greensill was "narrowly focused on lending to a small number of very high-risk companies," Dunn says.

A more minor complaint is the lack of a single dashboard for all SCF arrangements—essentially, "a Roku for SCF," Dunn says, referring to the device that aggregates content from multiple streaming services. Currently, if a supplier has some customers on one SCF program and other customers on another solution, it has to access each program separately.

Given the growth in SCF, its benefits appear to more than compensate for any shortcomings. As a just-in-time approach to inventory management has shifted to just-in-case, both buyers and sellers face pressure to acquire or sell more goods, Monaghan says. SCF helps companies on both sides of the equation.

Over the past 15 years, organizations have had to navigate the financial crisis and pandemic, among other shifts in the business world. "What stands out for both buyers and suppliers is that needs change over time," Feather says.

While working capital might not be a high priority for some businesses at some points in time, that can quickly shift. Early in 2020, the pandemic generated massive uncertainty, and SCF activity jumped.

Feather notes: "Having access to supply chain finance gives a buffer against a changing business climate." ■

5 TRENDS TO WATCH IN 2022

Over the years, supply chain finance has emerged as a bridge for buyers and suppliers, proving a range of finance and risk mitigation solutions to optimize the supply chain. As the global economy is currently undergoing turbulent times, supply chain financing will become all the more important. As we enter a new year, there are certain trends that we can expect to shape supply chain finance.

1. Healthy collaboration between advanced technologies and human capabilities. While technology is automating payment exchange and history, documentation, data analysis, and other processes, a workforce intervention with capabilities such as critical thinking, logical implementation, and client relations is a prerequisite for the success of the business. The biggest performance improvements happen only when machines and humans work in harmony, improving each other's strengths.

2. Enhanced risk management solutions. The pandemic highlighted the risks to global supply chains as organizations struggled with disruptions. In the coming year, businesses will take this into account and work toward creating a holistic ecosystem with better risk management and risk mitigation solutions.

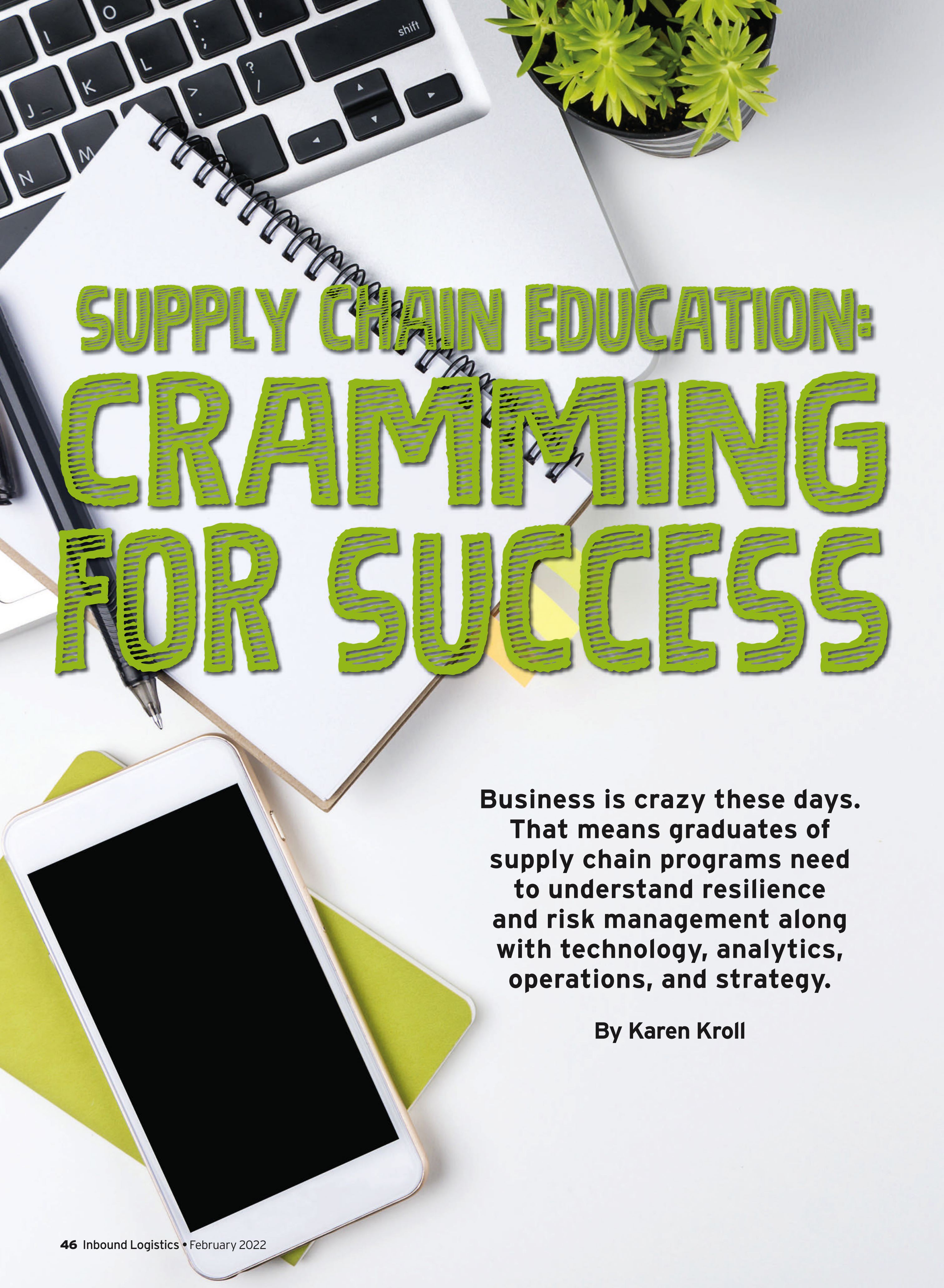
An "always-on, always-ready" solution will become a needed asset to provide timely action when disruptions and changes gain momentum across the globe. It enables organizations to get an extended view to continuously monitor and reach new supplier tiers and gain higher visibility to the supply base. Furthermore, technologies such as machine learning and artificial intelligence help assess credit risk and predict frauds and threats in real time.

3. Larger supplier pools. Accelerated digitization and collaboration will create a wide network with alternate suppliers, stakeholders, and facilitators. 2022 will bring a massive shift toward a "multiple-choice quotient" with expanded reach and many players providing higher value, improved financing, and better working capital.

4. Changing needs. The past two years have led to new habits, needs, and demands among companies across sectors. With such close-knit networks of suppliers and buyers, it is imperative for businesses to take the time to understand the evolving needs of buyers. COVID lockdowns and subsequent economic breakdowns, disruptions, and irregularities have been a driving factor in the changing behavior across supply chains and it falls to supply chain financing to ensure that these new capacities can be developed.

5. Regulating and optimizing compliance concerns. The past few years saw organizations implement automation strategies before evaluating compliance needs. The new era calls for the reverse. With government mandates and regulations changing constantly across geographies, global invoicing and tax compliance are becoming increasingly complex and fragmented. 2022 will see a transformation in business strategies where global organizations prioritize compliance resolutions in their automation approach.

—Kunal Ahirwar, CEO and Co-Founder, Earnvestt Technologies



SUPPLY CHAIN EDUCATION: CRAMMING FOR SUCCESS

Business is crazy these days. That means graduates of supply chain programs need to understand resilience and risk management along with technology, analytics, operations, and strategy.

By Karen Kroll

The master's in supply chain program at Massachusetts Institute of Technology (MIT) asked a global footwear company to provide a challenge for students to address. The company responded, asking if the students could help modify the design of its shoe boxes so they were sustainable, resealable, and sturdy enough to travel from the factory to either retail stores or homes, on their own.

To come up with an answer, the students had to consider the weight and size of the boxes, manufacturing operations, the supply chain, and costs, among other factors. "It was a fascinating exercise, dealing with the simplicity of a shoe box," says Len Morrison, manager, professional development for the program.

Yet when scaled across millions of shoes of different sizes, as well as complex supply chains, the challenges become formidable.

As the business world evolves, so do the skills companies seek in supply chain program graduates. Today's supply chain leaders need to understand technology, analytics, operations, and strategy, as well as how these "dance" together, says Maria Jesus Saenz, Ph.D., executive director, MIT SCM Master Programs and MIT Digital Supply Chain Transformation Lab.

The fundamentals of supply chain management—ensuring products are available where and when they're needed and in the right quantities—haven't changed. But advances in technology, and particularly analytics, are shifting how supply chain organizations achieve these objectives, says Prakash Mirchandani, professor and director, Center for Supply Chain Management at the University of Pittsburgh. That's impacting supply chain curriculum.

Purdue University, in West Lafayette, Indiana, offers a post-graduate program in digital supply chain management. This program is curated to help students understand the competitive marketplace in today's globally networked economy.

Supply chain education, like many organizations, is also incorporating a greater focus on resilience and risk management, prompted largely by the disruptions of the past few years. Similarly, growing awareness of sustainability and fair labor practices has prompted supply chain educators to also consider these elements of the supply chain.

Along with changes in curriculum, the ways in which education is delivered is shifting. To promote lifelong learning and allow more individuals to "upskill" even if they're unable to enroll in traditional graduate programs, more schools offer shorter courses and certificate programs, some of which can be used toward graduate degrees.

And while virtual learning is unlikely to become the only option, particularly in undergraduate programs, it appears here to stay.

FOCUS ON RISK AND ANALYTICS

While the topics of risk and resilience have long been included in supply chain education, they're now being formalized in supply chain classes, says Joseph R. Huscroft, Jr., Ph.D. and chair of the department of marketing and supply chain management at North Carolina A&T State University. Students might assess whether to boost the number of vendors supplying certain components or to add a second vendor that's closer to their operations.

Rather than an overwhelming focus on driving down costs—often the case until recently—they're considering more variables as they make decisions.

Historically, many programs trained students to look at functions as a set of processes that could be improved, perhaps through disciplines such as Lean or Six Sigma, says Mark Ferguson, senior associate dean of academics and research and professor of management science at the University of South Carolina.

That's shifting, with less focus on boosting the efficiency of specific tasks within a warehouse or manufacturing plant, and greater emphasis on data analytics, as well as on harnessing large, disparate data sets to gain insight.

The University of South Carolina has made a major effort over the past six to seven years to dramatically increase the number of courses that focus on data analytics. For example, it introduced a new graduate program in data analytics.

"Employers still want functional expertise, like marketing or supply chain, but analytics is the differentiator," Ferguson says.

Machine learning also needs to be part of an ideal supply chain curriculum today, says Sachin Modi, chair of the department of marketing and supply chain management and professor of global supply chain management at Wayne State University.

Managers often need to make decisions in uncertain environments, but now they'll have large amounts of data they can evaluate. Those who are adept in machine learning tend to be better able to identify which data to leverage to improve their decision-making.

MANUFACTURING CONCEPTS FOR SERVICE INDUSTRIES

As the United States moves toward a service economy, with sectors like healthcare and education gaining prominence, supply chain education has to keep pace. Some of the supply chain insight gained from traditional manufacturing is now being applied in the service sector.

For instance, determining how many appointments to leave open for patients who need immediate access to their family doctor or general practitioner can draw from the calculations used to make inventory management decisions.

"Manufacturing concepts are informing best practices in healthcare and other services," says Amy David, clinical assistant professor of management in the supply chain and operations management program at Purdue University.

A student team from the University of Pittsburgh worked closely with client executives to examine how a pharmaceutical distributor could respond to rapid growth and increasing industry complexity. The team developed and evaluated five different strategic changes to the distribution system.

Based on an analysis of primary and secondary data, the team recommended a hybrid distribution model and a new ordering platform. These shifts led to substantial estimated cost savings and a low payback period, Mirchandani says.

Another change in supply chain curriculum reflects the shift of supply chains to supply networks, in which a small disruption in one part can have ripple effects across all parts, Modi says. As a result, students need to learn how to identify the critical breaking points.

SOFT SKILLS REMAIN CRITICAL

Even as employers look for technical expertise, they also want candidates who have strong "soft" skills. At North Carolina State University, for instance, the executive education program on supply chain leadership includes a focus on skills such as the ability to influence others, communicate effectively, work with teams, and motivate employees.

"We hear a lot about these topics," says Rob Handfield, executive director of the Supply Chain Resource Cooperative and professor of operations and supply chain management.

Greater awareness in business and society of what sometimes is referred to as "the triple bottom line"—or people, planet, and profit—is also influencing supply chain education. Sustainability, closed loop supply chains, labor practices, and fair trade are attracting interest in the corporate world and in supply chain education, David says.

As part of this, schools are "diving deeper to understand even more how interconnected we are," Huscroft says. For instance, transportation management discussions delve into the universe of containers and chassis, along with the population of truckers. Students consider how a shortfall in any of these areas can bring supply networks to halt.

Graduate supply chain students are exploring reverse logistics, recycling, and the circular economy, Huscroft says. They might consider how and whether to change product packaging to reduce the amount of material that needs to be recycled or disposed.

Diversity is a prominent topic, especially at the graduate level. While many programs have long discussed supplier diversity, they now also focus on ways to modify recruiting practices to build more diverse supply chain workforces, Huscroft says.

RIPPED FROM THE HEADLINES

As the subject of supply chains has captured headlines over the past year or two, it has prompted more students from a range of backgrounds to enter supply chain programs. Students who've studied other languages can find many opportunities in global supply roles.

No matter the background of these new students, all benefit. "They add to the classroom discussion," David says.

At the same time, students who come with a background from outside business or supply chain may need additional exposure not just to supply chain topics, but also to subjects like finance and marketing, Mirchandani says. They might capture this through additional coursework or workshops.

ONLINE COURSES, CERTIFICATES

Along with changes to supply chain curricula, the ways in which information is delivered are changing as well. One of the most significant changes is a greater emphasis on "programs that deliver lot of value in short time," Modi says. Not everyone can take several years out of the workforce to study in a traditional graduate-level program. Yet, many people want to "upskill themselves," he says.

That's leading to a range of certificate and other programs that focus on specific subjects and offer flexibility. In some cases, students can accumulate credits and certificates that over time lead to a degree.

"There's a trend to small, stackable credentials," David says. Instead of a years-long graduate program, supply chain professionals may earn one certificate and then another; eventually, some may be able to convert them to masters credits.

Among the new programs added to the University of Pittsburgh over the past few years is a certificate program in business analytics. Students can complete it in one term, and add it to their master's in supply chain management, which typically takes two terms.

North Carolina State University offers a certificate program for engineering students who'd like to take supply chain classes. They're able to combine their technical skills with supply chain challenges.

Every January, during MIT's SCALE Connect Conference, students from all six global SCALE centers get together in Cambridge for three intense weeks of career development workshops. They earn a Certificate in Global Logistics and Supply Chain Management from the MIT Global Scale Network in addition to the master's in supply chain they receive from their respective institutions.

Through the MITx MicroMasters Program in Supply Chain Management, thousands of people across the globe can take courses from the school's supply chain faculty. Students who complete five of these courses, usually over about 18 months, and score well on the comprehensive final exam, can apply to MIT's accelerated five-month master's degree through the blended supply chain management program. If accepted, these students join the other students in the master's in supply chain program on campus for the last five months of their program, and graduate as a single, combined cohort.

On average, the "blended" students have about seven years of experience and tend to be older than those in the residential program, Saenz says.

Some courses last just a few weeks. During the SCALE Connect Conference held each January, students spend three weeks at MIT, earning a Certificate in Global Logistics and Supply Chain Management from the MIT Global Scale Network. This certificate is in addition to the master's in supply chain they'll receive from their respective institutions.

And while classes still include lectures and tests, many programs today require students to work with companies to address real-world supply chain challenges. These exercises allow students to apply classroom theory to actual problems and develop the "ability to resolve ambiguous situations when the problem itself is not that clear," Mirchandani says.

Before the pandemic, many schools offered virtual learning opportunities. But post-pandemic, most schools significantly ramped up their remote course offerings and that shift appears permanent.

REMOTE LEARNING HERE TO STAY

While many schools had already been offering online courses, most ramped up their offerings during the pandemic. That shift appears permanent. Over the past few years, the idea of remote instruction as "lesser than" in-person classes has diminished, David says.

Indeed, the benefits of some remote instruction have become clear. For instance, when students are presented with challenging material in an online course, they can replay and review the session until they understand it. That's especially helpful at the graduate level, when students may come with a wide variety of experience and knowledge.

Another benefit: Online courses can help students, and especially undergraduates, remain on track for graduation even if they take a semester abroad or work at an internship.

Virtual learning also allows schools to expand the number of students they can accommodate, Huscroft says. Instead of 30 students in a single classroom, a professor may be able to reach several times that number online. This also can help accommodate the schedules of nontraditional students.

At the same time, in-person classes likely will continue to play a major role. Many students, and especially those in undergraduate programs, want the experience of in-person programs.

Another obstacle can be the investment required to access the technology that will allow for a worthwhile virtual learning experience.

For instance, simply recording or streaming a professor conducting an in-person class often results in a poor virtual experience, as it's difficult for the professor to address both the remote and in-person audience.

It may be acceptable in some cases, such as providing the video to students who need to miss a few classes because they're sick or quarantining, but it's rarely ideal, Huscroft says. Yet the cost of quality remote-learning tools may strain some school budgets.

PREPARING FOR A MORE STRATEGIC ROLE

While the current supply chain disruptions are making life more difficult for many individuals and businesses, they're also demonstrating the importance of the supply chain function. As strong supply chains are increasingly viewed as providing organizations with competitive advantages, and not simply as cost centers, more students in supply chain programs will find a receptive job market when they graduate.

Supply chain programs are adjusting so they can prepare their graduates to lead organizations through an ever-changing roster of challenges. ■

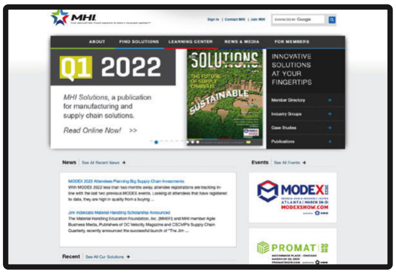
WEB_CITE CITY

bit.ly/il_wcc

IN THIS SECTION:

Associations - Education

ASSOCIATIONS



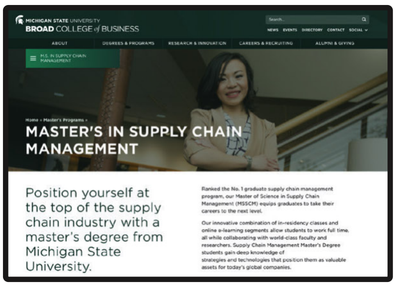
MATERIAL HANDLING INDUSTRY (MHI) • www.mhi.org

Material Handling Industry (MHI) is an international trade association that has represented the industry since 1945. MHI members include material handling equipment and systems manufacturers, integrators, third-party logistics providers, consultants, and publishers. The association also sponsors trade events such as ProMat and MODEX to showcase the products and services of its member companies and to educate industry professionals on the industrial productivity solutions provided through material handling logistics.

EDUCATION

IOWA STATE UNIVERSITY • www.ivybusiness.iastate.edu

At the Iowa State University Ivy College of Business, we bring together world-class faculty, staff, programs, and facilities to deliver business education for a rapidly changing world. We prepare students for a future of progress, giving them the vision and skills to go out and make a difference in the world. We provide a variety of real-world experiences outside of the classroom. Our supply chain program has consistently ranked among the top 10 programs in the world for research.

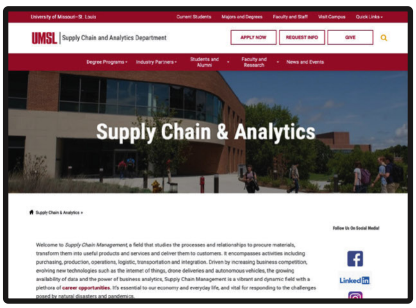


MICHIGAN STATE UNIVERSITY BROAD COLLEGE OF BUSINESS
execed.broad.msu.edu

Are you ready to advance your career in supply chain management, develop your knowledge and skills, or enrich your organization? Look no further than Executive Development Programs from the Broad College of Business at Michigan State University. Our executive education and corporate learning programs are tailored for today's business needs and provide immense, long-lasting value and access to professional networks.

UNIVERSITY OF MISSOURI-ST. LOUIS • umsl.edu/supplychain

Designed for professionals working in purchasing, operations, logistics, and transportation who want to apply analytical technology to improve data-driven and actionable decisions, the Master of Science in Supply Chain Analytics, a STEM-designated 30-credit hour program, includes eight core analytics, supply chain management and synthesis courses, plus two electives in finance, information systems, marketing or supply chain. The degree also prepares data scientists, analysts, and technicians by enhancing domain knowledge in supply chain management.



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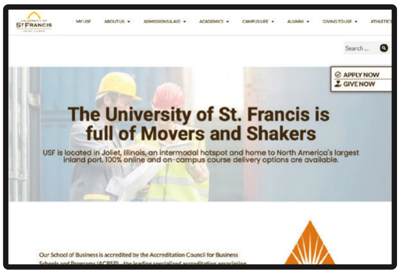
Education - Ports

EDUCATION



THE UNIVERSITY OF ST. FRANCIS • stfrancis.edu/movers

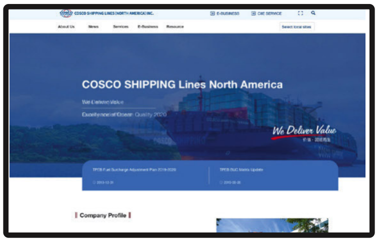
The University of St. Francis is full of movers and shakers. USF is located in Joliet, Illinois, an intermodal hotspot and home to North America's largest inland port. 100% online and on-campus course delivery options are available. Courses include BBA in supply chain management, undergraduate minor in supply chain management, graduate certificate in logistics, and many more options. To find out more, visit stfrancis.edu/movers.

ENTERPRISE AUTOMATION

SMC³ • www.smc3.com

SMC³—the leading provider of freight transportation technology data and solutions—delivers the only integrated suite of intelligent technology data solutions geared toward the less-than-truckload and truckload industries. As an leader in both transportation software innovation and supply chain education, more than 5,000 North American shippers, carriers, logistics service providers, and freight-payment companies rely on SMC³'s sophisticated LTL base rates, content, and expert bidding tools to make the best business decisions, achieve higher returns on their transportation investments, and meet the dynamic demands of the market.

OCEAN



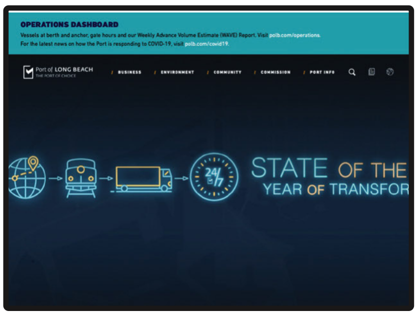
COSCO SHIPPING LINES (NORTH AMERICA) • www.cosco-usa.com

COSCO Shipping brings the highest quality of ocean cargo transportation services to every corner of the globe, with one of the largest, newest, and "greenest" fleets making frequent and timely calls to the busiest ports worldwide. COSCO Shipping delivers your containerized cargo quickly, economically, and securely, interfacing with rail, road, barge, air and more, with advanced equipment and technology leading the way to absolute supply chain efficiency. And, there is no other ocean carrier who knows China better.

PORTS

PORT OF LONG BEACH • www.polb.com

The Port of Long Beach is one of the world's busiest seaports, a leading gateway for trade between the United States and Asia. During the next 10 to 15 years, the Port of Long Beach plans to create at least four container terminals of more than 300 acres each, and to build at least one other large terminal. The new terminals will have dockside rail facilities, which allow cargo to be transferred directly between ships and trains. Such transfers speed deliveries between Long Beach and markets nationwide. For more information on the advantages and services offered by the Port of Long Beach, visit www.polb.com



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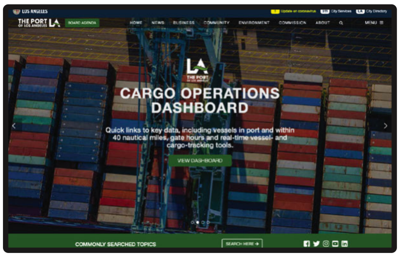
Ports - Robotics

PORTS

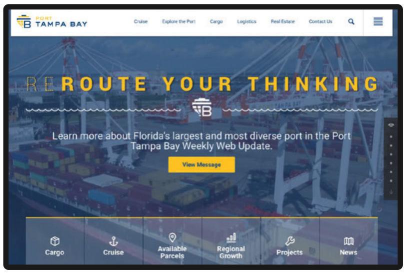


PORT OF LOS ANGELES • www.portoflosangeles.org

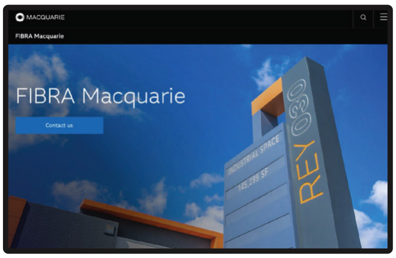
The Port of Los Angeles is the busiest container port in the United States, sustaining its rank as number one for over two decades with record volumes for containerized trade. An industry linchpin, the Port is an established leader in maintaining an efficient, sustainable supply chain, and a trailblazer in modernization and cybersecurity, taking a leadership role in adopting new technologies to improve the reliability, predictability, and efficiency of the flow of cargo across global seaborne trade. Both competitive and collaborative, the Port of Los Angeles serves as an economic bellwether and the premier international trade gateway of Southern California.

PORT TAMPA BAY • www.porttb.com

Tampa/Hillsborough County boasts some of the highest-rated international and domestic shipping facilities in the nation. Strategically located on Florida's west coast, the Port of Tampa is easily linked to rapidly expanding markets in Central and South America, and beyond the Panama Canal. The port also provides ship building, maintenance, and repair. To learn more about these services, visit the port's website.



REAL ESTATE



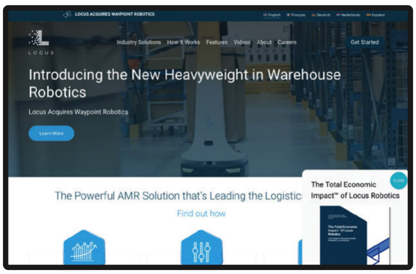
FIBRA MACQUERIE • www.fibramacquarie.com

FIBRA Macquarie is a Mexican real estate investment trust focused on the acquisition, ownership, leasing, and management of industrial and retail real estate properties in Mexico. The company is well-positioned to capitalize on the favorable long-term economic and demographic trends in Mexico. FIBRA Macquarie provides consistently strong operational and financial performance by putting customers and investors first.

ROBOTICS

LOCUS ROBOTICS • www.locusrobotics.com

Locus Robotics' innovative autonomous mobile robots make it easy to optimize your warehouse operation, and respond to e-commerce volume growth and seasonal peaks while giving you control over your labor costs. LocusBots operate safely alongside people, making them more efficient and effective compared to traditional order fulfillment systems. Workers are able to fulfill more orders with less labor without the need to reconfigure or disrupt your warehouse.



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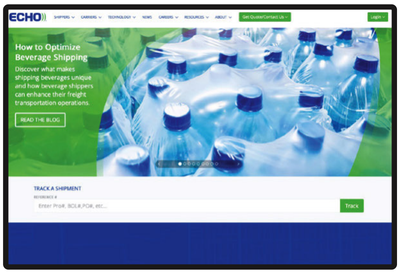
Tracking – WMS

TRACKING



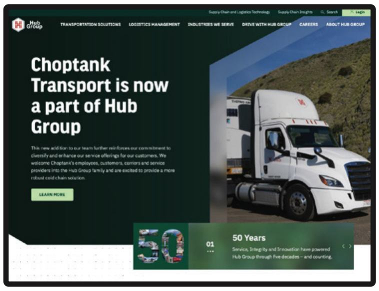
ECHO GLOBAL LOGISTICS • www.echo.com

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.

TRUCKING

HUB GROUP • www.hubgroup.com

Hub's extensive service network — built over many years — enables it to provide innovative transportation solutions that are versatile, flexible, and designed to deliver maximum efficiency. With this advantage, Hub Group is able to collaborate with customers daily to help them meet their transportation challenges. With intermodal, highway, and logistics transportation offerings, the Hub Network is your single provider—coast to coast, border to border. Visit the website to learn what Hub can do for you.



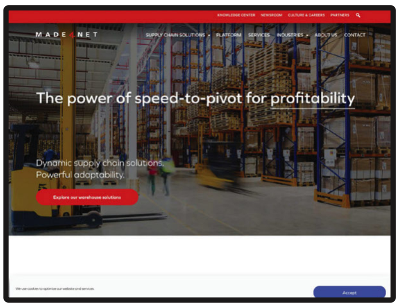
LYNDEN • www.lynden.com

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.

WMS

MADE4NET • www.made4net.com

Made4net provides best-in-class supply chain execution and warehouse management software for organizations of all sizes to improve the speed and efficiency of their supply chain. The company's end-to-end SCExpert platform offers a robust WMS solution that enables real-time inventory visibility, labor management, and equipment productivity with performance analytics that drive faster, more accurate order fulfillment and improved supply chain efficiency. In addition to the best-of-breed WMS, the platform offers integrated yard management, dynamic route management, proof of delivery and warehouse automation solutions that deliver true supply chain convergence.



SUPPLYCHAINInsights

The Latest Free Whitepapers, Videos, Podcasts, and More…

WEBINAR

THREE DISRUPTORS ALREADY EMERGING IN Q1 2022

Offered by Everstream Analytics

If your year is off to a hectic start, you're not alone. Watch this webinar to learn more about the trends leading 2022, including increased regulatory risk, water dangers for specific regions and industries, and labor relations. Get expert perspectives on the risks that will impact your operations, your suppliers, and *their* suppliers.

bit.ly/Q1Disruptors

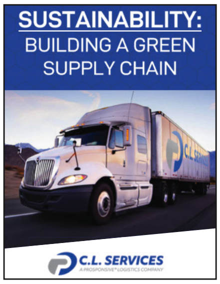
WHITEPAPERS

TOP 5 WAYS SELF-DRIVING FORKLIFTS PROVIDE A COMPETITIVE EDGE

Offered by Vecna Robotics

Labor force insecurity combined with intensifying market demand has made the cost of delaying improvements too high. Facilities that advance their operations with driverless equipment reduce overhead costs while speeding fulfillment, improving workflows, and extending their staff. Learn how companies using this equipment are getting ahead.

bit.ly/VecnaJan22SCI

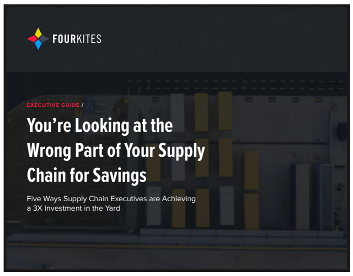


HOW TO BUILD A SUSTAINABLE SUPPLY CHAIN

Offered by C.L. Services

U.S. transportation emits 1.9 billion tons of carbon every year on average, and about 23% of these emissions come from medium- and heavy-duty freight trucks. With continued expansion of global markets, freight trucking emissions could skyrocket in the coming years. This whitepaper highlights how companies are actively working to reduce emissions and build a more sustainable future.

bit.ly/CLJan22SCI



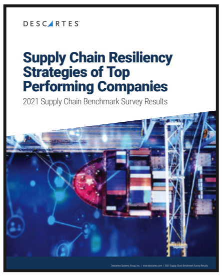
5 WAYS YARD MANAGEMENT SYSTEMS GENERATE ROI

Offered by FourKites

Supply chain budgets have been updated, revised, and revised again in the wake of global supply chain disruptions. You may notice a trend emerging: a significant increase not just in the cost to secure capacity, but the costs of holding onto assets for too long as well. This whitepaper discusses why reining in the high costs of facility operations is a necessary part of any executive's supply chain strategy.

bit.ly/FourKitesJan22Eb

WHITEPAPERS

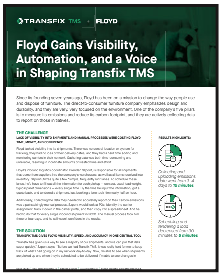


SUPPLY CHAIN RESILIENCY STRATEGIES OF TOP PERFORMING COMPANIES

Offered by Descartes

With the supply chain crunch likely continuing well into 2022, the situation for many organizations could go from bad to worse unless they have solid strategies. This benchmark survey analysis uncovers the supply chain resiliency strategies of top-performing companies as well as the critical steps you can take to reduce risk and create a more resilient supply chain..

bit.ly/DescartesJan22Eb



FLOYD GAINS VISIBILITY, AUTOMATION, AND A VOICE IN SHAPING TRANSFIX TMS

Offered by Transfix

Direct-to-consumer brand Floyd Furniture struggled to manage shipments with its full-truckload and less-than-truckload carriers due to manual processes, costing them time, money, and confidence. Learn how Floyd lowered the cost for shipments quarter over quarter, decreased the time to schedule and tender loads, and reduced the time to collect emissions data from several days to 15 minutes.

bit.ly/TransfixDec21Eb

THIRD-PARTY LOGISTICS WAREHOUSE BENCHMARK REPORT

Offered by 3PL Central

Using aggregated responses from logistics professionals who own or operate third-party logistics (3PL) warehouses, this report provides insight on industry-specific topics including analysis of best practices for growth opportunities, the labor shortage, technology integration, and trends 3PLs need to know to remain competitive.

bit.ly/3PLCentNov21Eb

PODCAST

Jeremy Schneider

FROM FOOD TO PHARMA: HOW HAS THE COLD CHAIN EVOLVED?

Jeremy Schneider
Business Development Director, Controlant

The ripple effect of global supply chain disruption has touched everything from food to pharmaceuticals. And for shipments that rely on temperature-controlled environments, the challenges grow even more complex. As companies look for new ways to do more with less, innovating on the fly becomes more important. Jeremy Schneider of Controlant discusses the state of cold chain today.

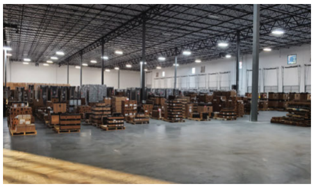
bit.ly/ControlantJan22Pod

Listen on: Apple Google Alexa Spotify

INBRIEF

New Services and Solutions

> SERVICES



> **Gebrüder Weiss** opened a 65,900-square-foot warehouse in Conyers, Georgia. The new facility provides businesses with storage, pick and pack, retailer compliance capabilities, e-commerce solutions, and value-added services such as kitting.

> Companies will have rail-served distribution warehouse space in Q4 2022 with a new 393,680-square-foot warehouse located in Bloomingdale, Georgia, just off Exit 148 on Interstate 16. **Capital Development Partners** broke ground on the River Road Logistics Center, which will offer dual rail connection to the Genessee and Wyoming rail service and provides access to the Port of Savannah.

> **Maersk** and the **Port of Rotterdam Authority** reached an agreement for the logistics provider to construct a cross-dock and cold storage complex, scheduled to be completed in 2023. Located at Prinses Amaliahaven in the Rotterdam port area, the cross-dock will be used for the short-term storage of fast-moving consumer goods while the cold store will be used for the transhipment of agri-food products, including frozen meat, fish, vegetables, and fresh fruit.

> **SEKO Logistics'** new e-commerce business unit expands its international cross-border shipping, global fulfillment, heavyweight last mile, and returns and recommerce solutions. SEKO Ecommerce supports brands selling through multiple channels and marketplaces, including Alibaba, Amazon, eBay, Tmall, and Walmart. It leverages SEKO's integrations with e-commerce platforms such as Shopify, Magento, Commerce Cloud, and Demandware.

> **Marine Repair Services-Container Maintenance Corporation** (MRS-CMC) introduced a loaded container storage solution at 18 depot locations throughout the Southeast, Mid-South, and Gulf regions to provide shippers additional space to store loaded containers. MRS-CMC depots in Charleston, South Carolina; Greer, South Carolina; Houston, Texas; Memphis, Tennessee; and Savannah, Georgia, feature new load lift equipment. Two additional Savannah locations will open in the first half of 2022.

> PRODUCTS

> **BEUMER Group's** new pouch system is designed to streamline reverse logistics operations. With a capacity of more than 10,000 items per hour, the BG Pouch System buffers, sorts, and sequences single items to limit manual item touches and automate returns and order handling processes.

> PowerStak stackers from **Presto ECOA** meet a range of load transporting and stacking requirements. PowerStak units are equipped with powered drive, allowing operators to move palletized loads over long distances in warehouses and distribution centers, manufacturing and assembly work cells, different types of loading docks, and big-box retail and home improvement centers.

> **Brother Mobile Solutions** introduced two models to its line of RuggedJet mobile label and receipt printers. The new RJ-3200 models—the 3-inch RJ-3230BL and RJ-3250WBL thermal printers—feature a microprocessor that

provides users with connectivity options, such as Bluetooth, WiFi, and AirPrint, and a longer-lasting lithium-ion battery.

> **ORBIS Corporation** added a StakPak Plus container to its suite of offerings to accommodate unique-shaped parts commonly found in the automotive supply chain. Available in 32-inch x 15-inch and 24-inch x 15-inch footprints, StakPak Plus totes feature a permanent collar that adds height and internal volume.

> TECHNOLOGY

> **Overhaul,** a supply chain visibility solution, now offers its real-time visibility and risk management SaaS platform across Microsoft Azure cloud services. Organizations can build supply chain resilience within Azure's ecosystem of partners and alliances across industries such as retail, manufacturing, and healthcare.

> **Nulogy,** a provider of supply chain collaboration solutions, and **Vantree Systems**, a provider of automated EDI solutions for supply chain operations, launched a partnership to accelerate data automation for contract suppliers. Nulogy-enabled supply chain facilities can leverage data integrations to help trading partners—such as contract manufacturers and co-packers—communicate and interact quickly.

> Shippers with multiple ERP systems can integrate them more easily with Open Message Systems Interface (OMSI) from **IntelliTrans.** The solution provides visibility from a purchase order number—as well as other reference numbers and information—across modes.

> Commerce automation platform **Linnworks** launched an integration with **eBay Fulfillment by Orange Connex** (eF), which gives Linnworks customers visibility of their eBay Fulfillment activity, while tracking orders and inventory levels. The integration offers sellers end-to-end management of customer inventory, and provides order fulfillment services, including same-day handling and late cut-off times.

> The Edge Stacker from the **Raymond Corporation** is a motorized, lithium-ion stacker with a 2,600-pound capacity. Designed for light-duty applications, the Edge Stacker offers high maneuverability with the capability to lift loads as high as 140 inches. It features adjustable base legs to suit multiple pallet sizes and aisle widths.

CALENDAR Logistics Events 2022

Connect with industry peers, join thought-provoking discussions, and discover the future of supply chain.

OCT 10-12, 2022

CHICAGO, IL

Parcel Forum

parcelforum.com

Join parcel shipping and distribution professionals to learn how to better streamline your warehousing operations and delivery models to remain competitive. Discover how to ship more packages, more cost effectively, as the industry undergoes tremendous change.

MAR 21-23, 2022
ORLANDO, FL

TLC Annual Conference

tlcouncil.org

Attend educational sessions with experts and practitioners offering practical advice for daily logistics practices. Three full-day seminars cover contracting for transportation services, freight claims in plain English, and transportation and logistics law.

MAR 23, 2022
NEW YORK, NY

Optimal 2022

bidops.com/optimal

Curious about how AI is revolutionizing procurement? Optimal is an event for supply chain teams who want to explore where procurement meets AI to drive digital transformation. Engage with thought leaders, discuss industry topics, network with peers, and attend professional development workshops.

MAR 28-31, 2022
ATLANTA, GA

Modex

modexshow.com

As the speed of manufacturing, supply chain, and transport operations accelerates, the future depends on forward-thinking solutions. From illuminating education to next-generation technology and equipment in action, this event will empower your supply chain with more possibilities.

MAR 29-31, 2022
ROTTERDAM, THE NETHERLANDS

LogiChem

bit.ly/LogiChemEU

Network with Europe's leading heads of supply chain, logistics, planning, and customer service as they share practical insight for rolling out a successful sustainability strategy. Learn how to create a digital network that enables end-to-end visibility and build a successful risk mitigation strategy to address capacity constraints.

APR 20, 2022
VIRTUAL

Next-Generation Supply Chain Leadership

bit.ly/OnTheDock

Being an effective supply chain leader is increasingly challenging with disruptions and new technology. This session explores the attributes of next-generation supply chain leadership, as well as how current leadership can adapt and better communicate between generations at work.

APR 26-28, 2022
ATLANTIC CITY, NJ

International Partnering Forum

bit.ly/IntPartForum

This event connects global leaders and businesses in the supply chain, offers networking opportunities, and delivers breaking updates on the offshore wind energy industry, from technology to policy. With three active projects, two nacelle manufacturing facilities, a monopile facility, and a wind superport, New Jersey is a focal point for the offshore wind supply chain.

MAY 3-4, 2022
DALLAS, TX

American Supply Chain Summit

supplychainus.com

This platform fosters collaboration on the impact of market dynamics and new technologies for current and future supply chain and operations leaders. Examine key case studies on how to navigate disruptions as well as how top facilities roll out workforce management, advanced analytics, process improvement, and automation.

MAY 16-18, 2022
VANCOUVER, BC

World Ports Conference

worldportsconference.com

This virtual event assesses the indispensable role of ports in global maritime trade and brings together key industry stakeholders for learning, information sharing, networking and collaboration. Attendees explore topics such as climate and energy, data collaboration, risk, and resilience.

MAY 22-25, 2022
VIRTUAL OR ORLANDO, FL

ISM World 2022

bit.ly/ISM22

ISM World brings together thought leaders, supply chain and procurement professionals, and the suppliers that support them, focusing on the key topics that impact supply management professionals today and the trends to come. Get a smaller and more in-depth, in-person experience and attend break-out sessions on demand.

JUL 15-16, 2022
FORT WAYNE, IN

Expedite Expo

expediteexpo.com

Logistics professionals from all over North America learn about the newest expedite trucking industry news, equipment, career opportunities, and products geared to expedite owner-operators and drivers.

AUG 31-SEPT 1, 2022
PHILADELPHIA, PA

Home Delivery World

bit.ly/HomeDelivery22

This conference for global last-mile logistics uncovers innovative solutions for retailers, grocers, consumer packaged goods companies, and third-party logistics providers facing challenges from warehousing to fulfillment. Covering route optimization, reverse logistics, grocery delivery, parcel spend, white glove, and more, this is a must-attend to boost your e-commerce knowledge.

These in-person events were scheduled to proceed as of press time.

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Lynden — pg. 5
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ASSOCIATIONS/EVENTS

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SUM OF ALL (IM/EX) PORTS

The transport of goods via ship has been around for centuries, gaining massive efficiencies in the 1950s when Malcom McLean invented containerized shipping. Here's a quick look-sea:

The global shipping container industry was $8.7 billion in 2019. It is expected to reach **$12 BILLION** by 2027.

AROUND 95% of the world's goods are transported by sea.

There are **835 ACTIVE PORTS** around the world. The United States has more than **360** commercial ports.

The **PORT OF SHANGHAI** has the greatest cargo volume in the world.

The **PORT OF LOS ANGELES** has the greatest cargo volume in the United States. It handled approximately 9.2 million TEU containers in 2020.

Major U.S. ports handled an estimated import container volume of **2.24 MILLION TEUs** in January 2022, a 9% increase from January 2021.

Sea freight usually takes about **ONE MONTH** from China to the United States.

The Ports of Los Angeles and Long Beach handle **40%** of containerized imports received in the United States.

WORLD SEABORNE TRADE BREAKS DOWN TO:

52% container

22% tanker

20% general cargo

6% dry bulk

Sources: *Thomasnet.com; World Shipping Council*