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Logistics MANAGEMENT®

September 2024

33rd Annual Study of Logistics and Transportation Trends

Puzzling path forward

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LM management UPDATE

AN EXECUTIVE SUMMARY OF INDUSTRY NEWS

◆ **IANA's Casey sets retirement date.** Joni Casey, president and CEO of the Intermodal Association of North America (IANA) will be retiring from her position at the end of 2024, after 27 years in the role. A replacement has not been named, but IANA said that its Board of Directors has launched a search to identify her successor. IANA cited various accomplishments it has seen under Casey's leadership, including: growing membership from several hundred companies to more than 1,000; the creation and expansion of industry technology programs under its Intermodal Information Services; the Scholarship Program aimed at fostering the next generation of talent in freight and intermodal transportation, with cumulative awards exceeding $5.3 million; and the initiation of an industry Advocacy Program designed to increase the Association's visibility before policymakers. "It's been a privilege and an incredible opportunity to witness and contribute to the evolution and growth of the intermodal industry," said Casey. "I'm proud of IANA's accomplishments on behalf of intermodalism and our members over the years, and I'm deeply appreciative of the guidance and support I've received from the Board and the staff of the Association."

◆ **Norfolk Southern commits more than $200 million into Alabama-based 3B Corridor.** Atlanta-based Class I railroad Norfolk Southern (NS) recently announced that it's making a major investment toward growing capacity on what it called "a key Alabama-based rail line" known as the 3B Corridor. NS said that it will invest more than $200 million into the 3B Corridor, which connects markets in northern and central Alabama to the Port of Mobile. The carrier added that this investment helps to position NS to be equipped to handle expected growth across various Southeastern sectors. This initiative is comprised of both terminal and track-based infrastructure improvements in the form of central and southwest Alabama capacity projects, customer-specific projects in North Alabama and also north of Mobile, yard upgrades in Wilton, Ala., and various regional grade crossing improvements as well.

◆ **Roadrunner heralds Western Canada expansion plans.** Chicago-based Roadrunner, a national less-than-truckload (LTL) services provider, with a focus on long-haul, metro-to-metro shipping, said that it's making inroads in Western Canadian with expansion into Vancouver, Calgary, Edmonton and surrounding areas. Earlier this year, the company rolled out LTL service offerings into Toronto and Montreal. "We're launching new service to Western Canada on the heels of ultra-successful openings of Toronto and Montreal earlier this year," said Tomasz Jamroz, COO at Roadrunner. "Our customers have repeatedly asked us to complement our Eastern and Central Canada offering to include the West. We're playing into our strengths in these markets, and we're able to provide the service, quality, and on-time LTL experience our customers now expect from Roadrunner." The new services are available for all Roadrunner origin locations that ship freight to Seattle, Jamroz added.

◆ **Kodiak, J.B. Hunt, and Bridgestone Americas partnership hits 50,000 autonomous miles.** A trio of well-known companies across three different vertical markets heralded a significant autonomous trucking milestone. The companies—Lowell, Ark.-based J.B. Hunt Transport Services; Nashville-based Bridgestone Americas; and Kodiak Robotics Inc., a Mountain Valley, Calif.-based autonomous trucking company—said that its weekly delivery collaboration has officially topped 50,000 autonomous long-haul trucking miles. This endeavor, which kicked off in January, is comprised of Kodiak's autonomous trucks hauling Bridgestone's passenger car tires between South Carolina and Dallas, according to the companies. They added that over this period there have been no accidents, while having hit 100% on-time pick-up and delivery, coupled with the three companies also expanding efforts in the form of more weekly deliveries on the route.

◆ **USPS fiscal Q3 earnings see mixed results amid another net loss.** Fiscal year 2024 U.S. Postal Service (USPS) second quarter earnings saw some improvements amid another net loss for the quarter. Operating revenue, at $18.8 billion, increased 1.0%, or $191 million, annually, and total quarterly volume, at 26.566 million pieces, fell 1.7% annually. USPS also reported a quarterly net loss of $2.5 billion, compared to a $1.7 billion quarterly loss a year ago, matching the fiscal second quarter. Shipping and Packages revenue, at $7.7 billion, increased 2.4% annually, with volume up 2.7%, to 1.742 billion pieces. Priority Mail Services

LM management UPDATE

AN EXECUTIVE SUMMARY OF INDUSTRY NEWS

revenue was down 40%, to $1.726 billion, with volume off 40%. Parcel Services revenue, at $2.65 billion, was off 1.1% annually, and volume, at 920 million pieces, was down 1.3%.

◆ **Körber Supply Chain Software signs deal to acquire MercuryGate.** Hamburg, Germany-based Körber Supply Chain Software, a joint venture between Körber AG and KKR, said that it has inked a binding agreement to acquire Cary, N.C.-based transportation management systems (TMS) services provider MercuryGate International Inc. Terms of the deal were not made publicly available. The transaction is subject to customary closing conditions and regulatory approvals, according to Körber officials. The company added that MercuryGate is known for its strong capabilities in multimodal optimization and execution as well as its expertise and capabilities in driving rapid implementation and time to value. According to Körber, the acquisition is a strategic move that extends Körber Supply Chain Software's capabilities in delivering what it called "a comprehensive, innovative, adaptable, and scalable supply chain execution portfolio."

◆ **DHL makes significant investment in North Jacksonville logistics hub.** DHL Supply Chain recently announced the creation of a massive distribution facility in Jacksonville's Northside neighborhood. The $64 million investment will include the construction of a 600,000-square-foot facility near Kraft and Eastport roads, expected to be completed by the end of 2025. The development, known as "Project Empire" during its planning stages, is projected to create at least 100 full-time jobs, further solidifying Jacksonville's reputation as a key logistics center in the Southeast U.S. The new DHL facility is strategically located near major industrial developments, including Amazon's facilities and several liquefied natural gas operations. The site is located close to Jacksonville's deep-water port, interstates, and rail systems, allowing easier access to customers throughout the Southeast.

◆ **The Supply Chain Council makes its debut.** A new bipartisan advocacy group, with a goal of "working to secure and strengthen America's supply chain," was recently introduced. The group, titled the Supply Chain Council, said that its key focus is to bring business and labor together in order to protect American jobs, invest in domestic infrastructure, and to safeguard the supply chain economy from global instability. Its membership is comprised of business and labor groups, as well as other supply chain stakeholders. "The Supply Chain Council is the only unified, national organization bringing together each link of the supply chain across every industry—from our ports to your porch," it said. "With a mission to develop and advance the best practices and public policies at the federal, state, and local level, the Council will work to ensure the supply chain, which brings the goods and services Americans need, will be protected and resilient in a rapidly changing global environment."

◆ **Procter & Gamble, Johnson & Johnson, and Whirlpool executives' keynotes will be among the highlights of NextGen conference agenda.** If you're looking to hear from top-notch speakers, the NextGen Supply Chain Conference is the place to be this October. In addition to previously announced keynote addresses from executives at Procter & Gamble, Johnson & Johnson, and Whirlpool, the lineup now includes leaders from a diverse group of organizations, including U.S. Cellular, Carhartt, Hai Robotics, Leidos, Corning, Agility Robotics, and NewCold, among others. Keynote speakers this year include Amy Rardin, global senior director at Procter & Gamble; Luis Roman, vice president of MedTech Supply Chain at Johnson & Johnson; and Jennifer Springer, senior director of customer fulfillment at Whirlpool. This year's NextGen Supply Chain Conference, presented by *Supply Chain Management Review* and Peerless Media, will be held on Oct. 21-23 at the Chicago Athletic Association hotel in downtown Chicago.

◆ **Get your logistics podcast fix.** *LM* has rolled out a new podcast series. Group news editor Jeff Berman is interviewing industry analysts, academics, consultants, lobbyists, and executives about all things logistics and supply chain on a weekly basis. Subscribe to Supply Chain 24/7 or go to logisticsmgmt.com to start listening. •

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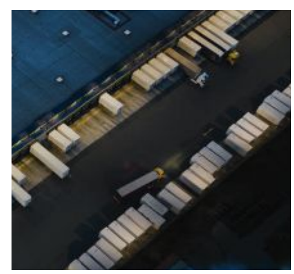

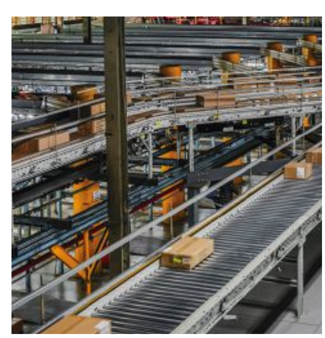

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PEERLESS MEDIA

Brian Ceraolo President and CEO

EDITORIAL OFFICE

50 Speen Street, Suite 302
Framingham, MA 01701
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- Large TL carriers, fighting sluggish freight demand, see hope in 2025

LM VIEWPOINT

Annual Study of Logistics and Transportation Trends:

Puzzling path forward

THIS MARKS THE 33RD YEAR that *Logistics Management* has partnered with Karl Manrodt, Ph.D., of Georgia College on our Annual Study of Logistics and Transportation Trends. Over those three decades, the study has become recognized as the "ultimate report card" on overall logistics operations performance, as shippers open up to share how they feel they're managing amidst the continual disruption.

Manrodt is joined once again by Christopher Boone, Ph.D., of Mississippi State University. Over the past four years, Boone has taken the reins of the five-month survey process and has been instrumental in widening the breadth of the survey's scope to encompass the state of technology adoption as well as how shipper organizations believe they're managing the ongoing labor crisis and the challenges created for talent management.

We're pleased to have Joe Tillman, manager of education programs at SMC3, rejoin our research team. His expertise helps us delve into the "human capital crisis" in transportation. Additionally, we welcome Doug Voss, Ph.D., professor at the University of Central Arkansas, whose expertise enriches our team this year.

Any long-time reader of *Logistics Management* knows that this survey was historically focused on trends in freight spending and how carriers performed on three metrics—correct invoice, on-time delivery, and damaged shipments. Those measures are still captured in the survey, as those trends offer us the best snapshot possible of modal shift strategies taking place.

"Freight-spend shift trends are important, but only one window into the market," says Boone. "Today's logistics professionals navigate evolving regulations, talent competition, and emerging technologies. Missing any piece of this puzzle can lead to operational disruptions and inefficiencies."

Over the last four years the survey team has designed questions to help shippers put context around what all those pieces mean today. For example, the acceleration of technology across all aspects of logistics not only bodes well for more streamlined operations, but will help meet the needs of a younger labor force, a group that's essential to operations and growing strong.

"Given talent procurement issues and continued reluctance to recommend logistics and transportation careers—which may be driven by the industry's stressful, interminable nature—firms must adopt technologies that automate routine tasks so personnel can achieve better work-life balance," says Voss.

This year, we found that 54% of respondents are using or implementing back-office automation in their logistics operations—a 16.2% increase in current usage from 2023. "The good news is that the intended goal is adopting technology to improve employee productivity [88.9%] and boost employee engagement and retention [73%]," says Boone.

While those technology figures show good intention, the data around developing talent shows a gap. "While the technology numbers are upbeat, I'm a bit surprised in the lack of respondents who say they have a dedicated learning and development team and there's a shortage of knowledgeable trainers/instructors within the organization," says Tillman. "Training and tech needs to be hand in hand."

Talent training and retention will always be a top priority—no matter how much we automate. "One of the factors we sometimes forget is that when some of us started our careers, the discipline was referred to as 'physical distribution,'" adds Manrodt. "While automation tools make workers more effective and efficient, we'll still need workers who are physically present. The physical realm adds too much complexity to what we do to be completely automated."

Michael A. Levans, Group Editorial Director
Comments? E-mail me at
mlevans@peerlessmedia.com
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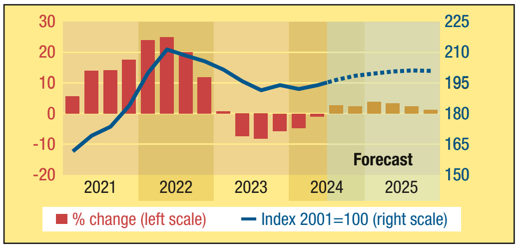
price**TRENDS**

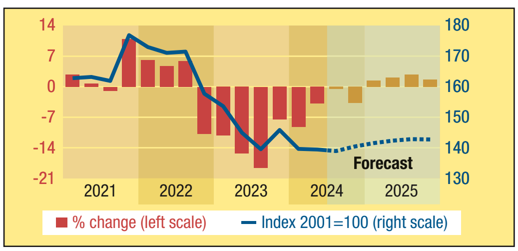
Pricing across the transportation modes



% CHANGE VS.:	1 month ago	6 mos. ago	1 yr. ago
General freight - local	0.0	1.9	3.4
TL	0.4	0.2	-1.9
LTL	2.2	2.0	7.1
Tanker & other specialized freight	0.0	0.8	-0.8

TRUCKING

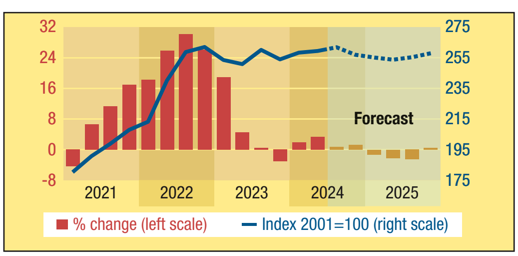
Inflation trends look better now for trucking companies. Examining three-month rate-of-change trends, prices were up 0.4% in the most recent surveys. That's a big change from when industry tags plunged 8.6% in August 2023. Ever since then, the inflation rate has been rising steadily, similar to the 10-month period seen in June 2020 to March 2021. These same patterns can be seen in both TL and LTL. Truckload inflation, however, slumped to a deeper trough, down 22.5% last summer. By September, truckload inflation will have finally crossed from negative to positive territory. Forecast: The average annual inflation rate for the entire industry will be down 0.2% this year and up 2.7% in 2025.



% CHANGE VS.:	1 month ago	6 mos. ago	1 yr. ago
Air freight on scheduled flights	-1.7	-2.4	-0.9
Air freight on chartered flights	-0.7	2.9	2.4
Domestic air courier	0.9	0.6	8.7
International air courier	0.8	0.2	6.6

AIR

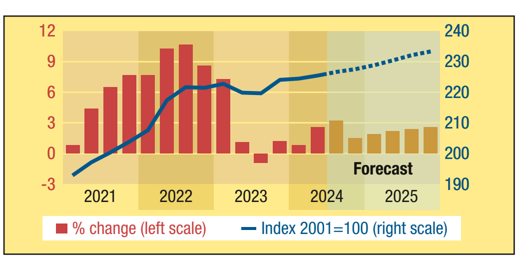
In the price trends arena, the worst appears to be over for U.S. companies flying freight. For airfreight service on scheduled flights, the three-month rate-of-change in prices sits at negative 2% now. That inflation rate had reached a nadir of negative 18.9% in August 2023 after peaking at 11% in December 2021. Meanwhile, inflation in nonscheduled airfreight landed at 3.4% in July 2024. That's sedate compared to the 26.7% peak inflation rate set in July 2022 and the swing down to negative 6.6% in July 2023. Forecast: The average annual inflation rate for freight in the belly of the plane will be down 4.4% in this year and up 2% in 2025.



% CHANGE VS.:	1 month ago	6 mos. ago	1 yr. ago
Deep sea freight	0.1	-2.9	-6.6
Coastal & intercoastal freight	0.3	3.5	11.9
Great Lakes - St. Lawrence Seaway	0.3	3.4	5.0
Inland water freight	0.7	3.1	5.1

WATER

Inflation trends in the water transportation industry are sailing relatively calm waters now. Three-month rate-of-change calculations show the industry swimming around a 2.6% inflation rate. That's a shift from the negative 3.1% rate logged in the fourth quarter of 2023, and happily much more navigable than the 30% rates that raged in the third quarter of 2022. The most intense up-and-down inflation trends have been evident in the deep-sea and Great Lakes data series. Inflation in the inland waterways markets, meanwhile, have been drifting down from 19.8% in the summer of 2022, to 9.5% in 2023, to 4.7% in July 2024. Forecast: Water industry prices are expected to be up 1.8% this year and down 1.4% next year.



% CHANGE VS.:	1 month ago	6 mos. ago	1 yr. ago
Rail freight	0.6	0.1	3.8
Intermodal	1.0	-3.6	2.2
Carload	0.5	1.0	4.3

RAIL

During the three-month period ending July 2024 compared to the previous year, average transaction prices in the rail transportation industry increased 3.3%. That's up from the previous summer's 1% price drop, but still far below the 11% rate hike seen two summers ago. Intermodal rail has been the engine behind this trend. Over the same time periods, producer price index calculations show intermodal inflation up 0.9% in July 2024, down 12.3% 12 months ago and up 23.6% 24 months ago. Carload tags at the same time were up 3.9% now, up 1.6% a year ago, and up 8.7% two years ago. Forecast: Rail industry prices are expected to increase 2% this year and 2.3% in 2025.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NEWS analysis

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Various factors are driving U.S.-bound import volumes

Amid mixed economic readings, peak season, the Red Sea situation and other levers, import growth is well ahead of seasonal trends.

BY **JEFF BERMAN**, GROUP NEWS EDITOR

WHILE U.S.-BOUND IMPORT VOLUMES REMAIN HEIGHTENED, these gains come at a time when the nation's economic outlook remains muddled.

That "muddling" is related to an ongoing mixed economic outlook in the form of things such as solid, but not spectacular, GDP readings; inflation, which is still up but showing improvement; a mostly solid, but softening employment outlook; an ongoing rebalancing of inventories; and varying consumer spending trends.

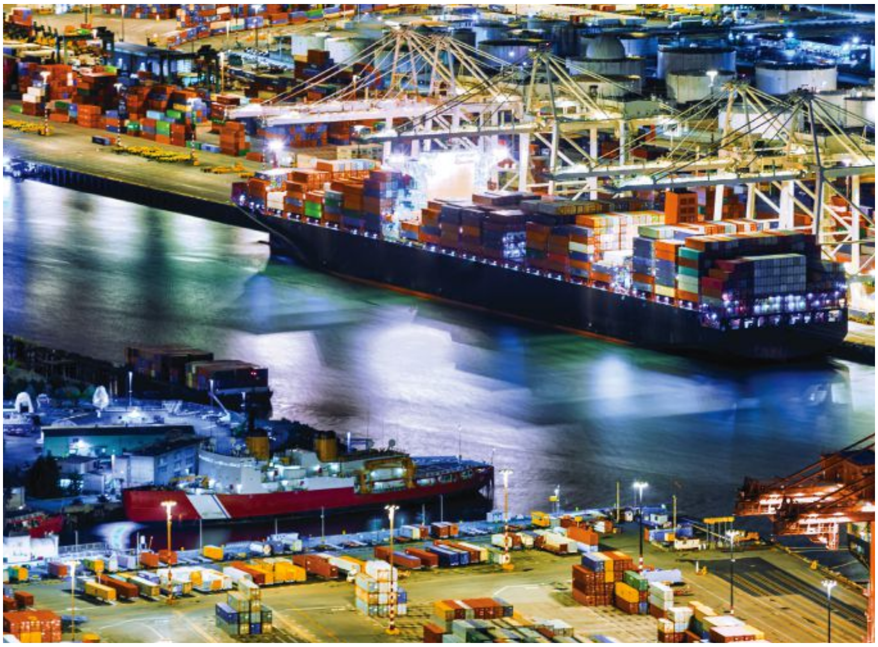
While that covers the macro side of things, there are also a host of issues to monitor as they relate to the intersection of the economy and imports, including the upcoming Presidential election; a potential East and Gulf Coast ports strike; global trade and tariffs; and the ongoing Houthi pirates' situation in the Red Sea.

Looking at year-to-date import volumes for the Port of Los Angeles (POLA) and the Port of Long Beach (POLB), the two largest U.S. ports, imports are up 14% and 20%, respectively, through July, with each port reporting that July marked the highest total volume for the month in the ports' histories.

POLA executive director Gene Seroka was bullish about the state of imports, with a positive future outlook: "We're now seeing an influx of year-end holiday goods coming across our docks a little bit earlier than usual. Importers have told me that with issues in the Red Sea and ongoing East Coast labor talks, they're being extra cautious this year. So, those holiday products are arriving now to avoid risk later in the year, and these goods are coming at the same time as are more typical imports, for back-to-school, fall fashion, and Halloween."

Indeed, an early peak season has helped boost volume at the Port of Los Angeles, according to Seroka. "In fact, our Port Optimizer data shows that we can expect a robust August, with volume at or above the 850,000 TEU mark," he added. "Given everything we know today, I believe the American economy and consumer confidence will remain strong. This should sustain a healthy demand for goods coming through our port throughout the balance of the year."

To that end, Paul Bingham, economist at S&P Global Market Intelligence, said



that there's no question this year that shippers have actively moved to reduce risk by advancing cargo—or importing into the U.S.—earlier than usual.

"The East and Gulf port labor issues, the disruptions that have come from the closure of the Red Sea route, and factors such as low water levels in the Panama Canal have all contributed to this shift, with this tremendous import surge into the West Coast," said Bingham. "The U.S. consumer has stayed strong."

Looking ahead, Bingham said S&P Global Market Intelligence is anticipating that the strong import growth seen in 2024 will continue into 2025, although that comes with the caveat that there could be a slower rate of growth in the U.S. and Canada, with faster growth coming from Europe and Japan. He added that this will affect trade demand due to shifts in sourcing, supply, and consumption.

"It will also affect the pace of growth that's possible for U.S. trade to serve both U.S. export markets and U.S. import markets," said Bingham. "We're anticipating that the trade as a consequence, that has grown strongly on the import side this year will continue to grow next year, but not at the not at the same pace of change that we've seen in 2024."

Regarding a potential East and Gulf Coast ports strike, Jonathan Gold, the National Retail Federation's vice president for supply chain and Customs policy, said that retailers are concerned by the possibility of a strike at those ports, as contract talks remain stalled.

"Many retailers have taken precautions including earlier shipping and shifting cargo to West Coast ports," added Gold. "We hope to see both sides resolve this issue before the current contract expires because retailers and the economy cannot afford to see a prolonged strike." •

3PL

U.S. 3PL revenues see significant annual declines, according to Armstrong report

DECLINES PACED BY TWO KEY THIRD-PARTY LOGISTICS (3PL) market segments led to annual 2023 U.S. 3PL revenue losses, according to a report recently issued by Brookfield, Wisc.-based supply chain consultancy Armstrong & Associates.

The report, "Divergence—Latest Third-Party Logistics Market Results and Outlook," said that U.S. 3PL market net revenues, which Armstrong defines as gross revenues less purchased transportation, fell 12.8% from 2022 to 2023, to $129 billion, with overall gross revenues down 26.1% annually. The total U.S. 3PL market revenue came in at $299.5 billion for 2023.

This annual decline is in stark contrast to recent years, with a 24% annual revenue increase in 2022 and a 48.1% gain in 2021, which is the highest annual growth rate since Armstrong started collecting this data in 1995. The firm reported that 2000 and 2010 marked the second- and third-best growth years, with annual increases of 22.9% and 19%, respectively.

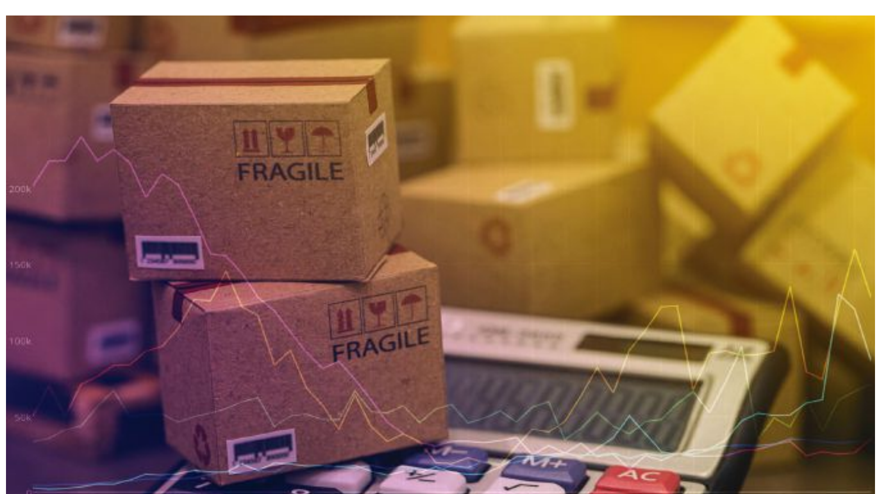
The report explained that the 3PL sector has not seen revenues at this level since prior to 2021, with 2021 representing the strongest. For 2023, Armstrong said that there's "been a divergence within the global 3PL market, with the sectors experiencing the biggest declines being non-asset-based international transportation management [ITM] and domestic transportation management [DTM] revenues falling from the surges seen during the pandemic to what it called the ongoing post-shutdown normalization."

Conversely, the Armstrong report shows that asset-based transportation, also known as dedicated contract carriage (DCC), and value-added warehousing and distribution (VAWD) saw gains.

Total 2023 DTM gross revenue, at $123.6 billion, was down 22.4% annually in 2023, said Armstrong. DTM, which is made up of freight brokerage and managed transportation services, saw net revenue growth fall 25.8%, to $19.6 billion. Armstrong said that revenues were impacted by consumers spending less, as well as shippers working down warehouse inventories, declining 2023 imports, and falling truckload rates and demand.

ITM gross revenues, at $74 billion, were off 49.3% annually, and net revenue, at $28 billion, was down 34.2%. The report noted that the ITM environment has dramatically changed since mid-2022, with ocean freight rates from Asia to the U.S. trending down to pre-pandemic levels.

Armstrong added that in the third



quarter of 2022, ocean shipping rates and domestic transportation rates began disinflation in the U.S., as consumer demand moderated and supply chain operations stabilized. China to U.S. and European ocean shipping rates declined as much as 90% since the peak in early 2022.

DCC gross revenue, at $29.7 billion, eked out a 0.7% annual gain, and net revenue, at $29.6 billion, was up 1.4%. Armstrong attributed this gain to shippers wanting to lock in capacity in 2023, following what it called "a turbulent 2021," as well as an increased ability to attract drivers through wage increases and better recruiting—and having the needed capital to invest in equipment.

VAWD gross revenue, at $68.1 billion, increased 1.6%, and net revenue, at $51.9 billion, headed up 4.1%. Most VAWD 3PLs had full warehouses in 2022 and, during the first quarter of 2023, were scrambling to find more, according to Armstrong. Total U.S. warehousing inventory space increased an estimated 14% from 2021 to 2023 to 12.2 billion square feet. VAWD 3PL space grew 14.2% to 2.7 billion square feet over the same timeframe.

Evan Armstrong, president of Armstrong & Associates, told *LM* that in prior years, especially from 2021-2022, the 3PL sector was a beneficiary of high inflation.

"After the pandemic, we saw demand really come back strong," said Armstrong. "Everybody started spending, so inventories got depleted and had to get replenished, which increased import activity. There was a lot of domestic, especially, dry van freight that was tied to getting those shelves restocked. There were significant increases in third party logistics in 2021 and 2023, then last year things normalized."

For 2024, Armstrong expects U.S. 3PL market revenue to come in at $311.9 billion. •

—Jeff Berman, group news editor

TRUCKING

Knight-Swift continues foray into LTL arena with DHE acquisition

KNIGHT-SWIFT TRANSPORTATION, parent company of the second-largest truckload carrier, is continuing its march into the less-than-truckload (LTL) marketplace.

Knight-Swift Transportation Holdings Inc. recently announced that it is acquiring Los-Angeles-based Dependable Highway Express—acquiring the operating assets and assumed certain liabilities of the non-union regional LTL division of DHE. The acquisition is expected to be immediately accretive to Knight-Swift's earnings per share, the company said.

The move follows Knight-Swift's very aggressive actions in the LTL marketplace following the closure of Yellow Transportation, the nation's 4th-largest LTL carrier, last Aug. 6.

Knight-Swift spent about $2.2 million to acquire 10 Yellow Corp. terminal leases in the western U.S. Three are in Idaho; two each in Colorado and Kansas; and one each in Missouri, Nebraska and Georgia. Knight-Swift had truckload-related revenue of $3.9 billion last year.

Knight-Swift's LTL plan is to have complete 48-state coverage by 2025. It entered the LTL arena about three years ago, when it acquired AAA Cooper for around $1.35 billion.

"We're excited to take the next step toward building a nationwide LTL business, and especially to grow our network to include the key Southwest markets of California, Arizona and Nevada," said Knight-Swift CEO Adam Miller. "This transaction increases our LTL terminal

and door counts by approximately 10% and brings our network's coverage of the U.S. population to approximately 70%. The strategic value of acquiring a strong Southwest competitor like DHE is meaningful given the impact to our coverage area."

Miller said that DHE will eventually connect with its existing AAA Cooper and Midwest Motor Express businesses to provide seamless coast-to-coast service to customers.

Dependable CEO Ronald Massman added that the entire Massman family is immensely proud of the legacy built by the DHE LTL team and thankful for their efforts over our many years in business. "While we never intended to sell the division, we have watched with admiration as Knight-Swift set about building a leading national LTL business," he said.

Massman said when Knight-Swift approached it about a transaction, both parties immediately saw the strategic merit of the Dependable LTL division joining the platform.

Financial terms were not disclosed. Knight-Swift estimates that DHE generated approximately $122 million in total operating revenue over the past 12 months, with an operating margin of approximately 10%.

DHE workers and assets will operate as a separate brand under the AAA Cooper corporate group. Joe Finney served as COO of DHE prior to the transaction and will continue leading DHE as its president after the transaction.

Robert W. Baird & Co. analyst Garrett Holland wrote in a research note that this acquisition is beneficial for Knight-Swift, in that it adds an important missing geographic piece of the LTL network in the Southwest, which his firm expects Knight-Swift can further supplement over time.

"The acquisition helps fill in an important gap in the Southwest for Knight-Swift's LTL network and adds exposure in key markets including California, Arizona, and Nevada," Holland wrote. "The deal increases Knight-Swift's LTL terminal and door count by about 10%, as DHE operated 14 service centers." •

—John D. Schulz, contributing editor

LTL

'Major changes' coming to NMFC that will impact carriers, shippers and 3PLs

THE NATIONAL MOTOR FREIGHT TRAFFIC ASSOCIATION (NMFTA) is preparing major National Motor Freight Classification (NMFC) changes to take effect in the first quarter of 2025.

These changes will impact carriers, shippers and third-party logistics (3PLs) providers, the NMFTA stated.

"Our goal is to simplify the NMFC and make it easier to classify your freight on the first try," said Keith Peterson, director of operations for NMFTA. "This will help reduce the friction between shippers, 3PLs, and carriers. The changes are set to take place in 2025, and we need all NMFC and/or ClassIT users who ship via LTL motor carriers or freight brokers/3PLs to be aware."

When asked how this is going to affect shippers, 3PLs, and carriers, Peterson shared that "freight with no handling, stowability, and liability issues will be on a standard density scale and the NMFC item number, sub, and freight class could change, so it's essential to stay informed about these changes and communicate them throughout your logistics network."

Although the Docket isn't released until January of 2025, the NMFTA stated that it's talking about this now to give all NMFC users the chance to understand what's changing and how they can prepare.

"We're focused on enhancing the user experience to make it easier to both use and understand the NMFC," said Peterson."These changes will increase efficiency making it easier to classify freight accurately on the first try." He added that the goal of the changes is to reduce any friction between carriers, shippers and 3PLs.

To ensure that NMFC updates aren't occurring at once, NMFTA has implemented a phased-in approach, with the first changes coming in Docket 2025-1. The upcoming phases that will be incorporated by the NMFC consist of:

-standardized density scale for LTL freight when handling, stowability and liability issues are not present;

-unique identifiers for freight with special handling, stowability or liability needs;

-condensed and modernized commodity listings; and

-improved usability of the ClassIT classification tool.

Both the NMFTA and NMFC expect the changes to streamline workflows, enhance communication and visibility and increase the overall satisfaction of everyone involved.

"We estimate to move as many as 3,500 single-class items to 13 subcategories," said Nate Ripke, director of commodity and standards development for NMFTA. "With Docket 2025-2 and thereafter, additional changes are likely to be made, which is why we're scheduling LTL Listening Sessions this summer."

The LTL sector is seeing more carriers push for "density-based pricing," which will likely increase LTL costs.

Mike Regan, chief relationship officer and founder of TranzAct Technologies, said "that a whole bunch of shippers are not really well versed on what density-based pricing means or understand how it will affect their costs."

Historically, the way freight has been rated in the LTL sector is by classification. The NMFC used four criteria to aggregate products into freight classes: Density; Handling (or susceptibility to being damaged); Stowability; and Liability (value of the product being shipped).

Classes could go anywhere from class 50 up to class 500, and once products were "classed," determining the cost to ship them was simply a matter of determining an individual shipment's weight and distance to its destination, it said.

Density-based pricing, which began in the last decade, changes things for shippers. Whereas, in the past, commodities have been assigned a classification dependent on the average density, a.k.a. pounds per cubic foot, (and other criteria) for all products moving under that description, now LTL carriers are using dimensioner technology to obtain accurate density information on every shipment being put on their trailers.

LTL carriers no longer have to rely on averages. What this means is the product description is no longer the sole determinant of the freight class. Instead, the NMFC is being amended to include more and more density-based classifications within a product description category.

Regan gave an example: Under the "old" system Item # 95190, "Hardware NOI" was considered either Class 70 or 77.5. Today, the NMFC has created eleven subcategories ranging from Class 60 to Class 400 based on the "pounds per cubic foot."

"Stated a bit differently, you could have two shipments with the same commodity description and have two different class rates," added Regan. "This significantly complicates your task in computing your potential freight charges." •

—John D. Schulz, contributing editor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Supply Chain Currents

Brooks A. Bentz has spent more than 50 years in supply chain and transportation. He is a former board member and adjunct professor, University of Denver Graduate Supply Chain program, and chairman, Rail Industry Advisory Group, National Railroad Hall of Fame. To contact Brooks with a news tip or idea, please send an e-mail to brooks.a.bentz@gmail.com.

Key characteristics of emerging digital supply networks

"THE FUTURE AIN'T WHAT IT USED TO BE," opined Yogi Berra.

In the current climate, this seems more true than ever, with much uncertainty, chaos, conflict, and polarization on many fundamental issues.

This was borne out with the onset of the pandemic, which illustrated the brittleness and fragility of supply chains around the globe. Of course, supply chains hadn't been truly stress-tested in the way they were with the global pandemic crisis.

When I started in the railroad business as a brakeman in 1969, supply chain technology relied on Telex machines, rotary-dial phones and the U.S. Mail. Field "communications" were all manual. We had five-man crews and, when switching in yards, we walked the car tops to pass signals by hand or by lantern.

In the intervening period, we've made great leaps forward, with the size and speed of technological innovation amping up capabilities at a furious pace. A *Forbes* report from 2020 said that the digital universe had reached 44 zettabytes (44 trillion gigbytes) or 5,200GB for every person on earth. They projected this universe doubling in size every two years.

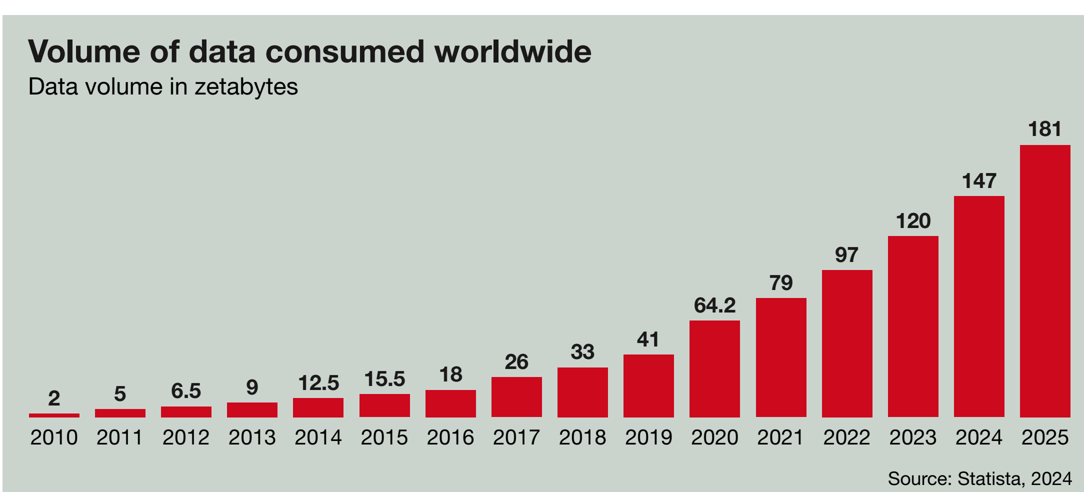
Well, it reached 97ZB in 2022 and, as of this past July it's at 147ZB, a fairly astounding level of growth, with no apparent end in sight.

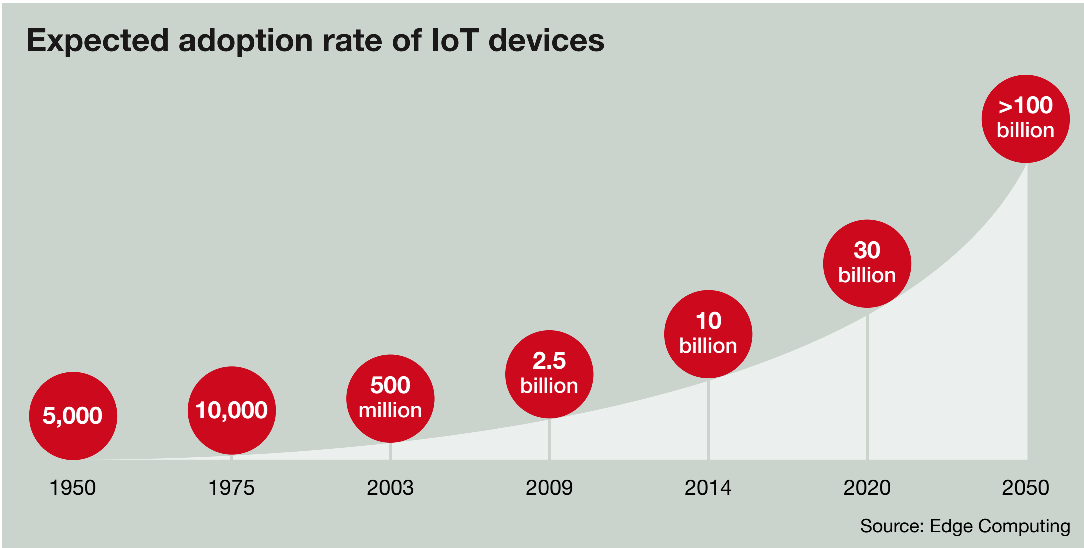
The sharp edge of this becomes duller when you examine the use of all this data. Estimates are that as little as 3% is actually tapped, with machine learning driving a large percentage of the rapid growth behind the scenes.

> **"AI-enablement will be essential in accessing and analyzing such enormous piles of data in order to make use of it in the digital supply chain."**

A key point in all this as that AI-enablement will be essential in accessing and analyzing such enormous piles of data in order to make use of it in the digital supply chain. It simply outstrips even a tech-enabled human's ability to cope with it all. It's no mystery that we're all becoming increasingly more connected through technology.

The use of such devices has rapidly advanced,





as well. For example, truck drivers no longer need to pull over and use pay phones to call dispatch, or even rely on in-cab radio communication. Virtually all necessary tools are available on their hand-held devices, from traffic and weather to pick-up assignments, pay information, hours of service monitoring and performance data.

All of this is driving better supply chain performance. According to Kevin Mahoney, managing director and one of the leading supply chain practitioners at Deloitte: "New technologies and tools have driven supply chain transformations and allow the traditionally linear supply chain to collapse into an agile interconnected network that unlocks new value across the digitized nodes."

This has created better, faster, and smarter integration across capabilities and allowed organizations to achieve their ambitions:

-become more cross-functionally integrated;
-become more globally applicable, while achieving local customization;
-enable more effective user adoption;
-move closer to having a single source of truth;
-unlocked real-time supply and demand balancing; and
-enable a more AI and automation-driven culture.

Mahoney points out key characteristics of emerging digital supply networks:

1. "Always-on" agility. Securely, DSNs pull together traditional datasets along with new datasets that are, for example: sensor-based; location-based; and "right-time" vs. "real-time."

Outcome: Rapid, no-latency responses to changing network conditions and unforeseen situations.

2. Connected community. Real-time, seamless, and multi-modal communication and collaboration across the value network with: suppliers, partners, and customers.

Outcome: Network-wide insights from centralized, standardized, and synchronized data (the elusive single version of the truth).

3. Intelligent optimization. A closed loop of learning is created by combining: humans, machines, data-driven analytics, predictive insights, proactive action.

Outcome: Optimized human-machine decision making for spot solutions.

4. End-to-end transparency. Use of sensors and location-based services provide: material flow tracking, schedule synchronization, balance of supply and demand, and financial benefits.

Outcome: Improved visibility into critical aspects of the supply network.

5. Holistic decision making. Based on contextually relevant information, functional silos are now transparent and delivering parallel visibility, such as: performance optimization, financial objectives, and trade-offs.

Outcome: Better decision-making for the network as a whole.

So, the digital supply chain is already with us and growing apace. Those who figure out how to utilize the rapidly developing and proliferating tools to maximize the utility of the gargantuan gobs of accessible data will lead the pack into the future. •

Newsroom Notes
with Jeff Berman

Jeff Berman is group news editor for the Supply Chain Group publications. To contact Jeff with a news tip or idea, please send an e-mail to jberman@peerlessmedia.com.

Examining the impact of a potential East and Gulf Coast ports' strike

AS THE DAYS GET CROSSED OFF THE CALENDAR, the ongoing situation regarding the broken-off labor talks between the International Longshoremen's Association (ILA) and the U.S. Maritime Alliance (USMX) continues to be further scrutinized. The current contract between the parties is set to expire on Sept. 30.

The ILA is the largest union of maritime workers in North America, representing workers at 36 ports from Maine to Texas. And the USMX is an alliance of container carriers, direct employers, and port associations serving U.S.-based East and Gulf Coasts. The current six-year labor deal between the parties was completed in Sept. 2018 and covers roughly 14,500 U.S. East and Gulf Coast port workers.

On June 10, one day before talks were scheduled to take place between the ILA and USMX, the ILA announced that it had suspended talks —right at the time when negotiations of local agreements under the parties' coast-wide Master Contract were ongoing.

ILA said that it cancelled those Master Contract talks with the USMX upon learning that APM Terminals and Maersk Line are using an "auto gate" system that autonomously processes trucks without ILA labor. ILA added that this system, which was initially identified at the Port of Mobile, Ala., is also being used at other ports. The ILA called this another example of USMX members unilaterally circumventing the coast-wide Master Contract, calling it a "clear violation" of the agreement.

With talks stalled and no clear outcome known at this point, *Newsroom Notes* reached out to S&P Global Market Intelligence economist Paul Bingham to get a clear read on what an East and Gulf Coast ports' labor strike could mean for the supply chain, as well as the economy, throughput, port operations, and congestion.

"We've already seen impacts in the way supply chain managers are attempting to mitigate risks by advancing shipments and utilizing West Coast port gateways more this year," explained Bingham. "Supply chain managers' recent experience with the West Coast ILWU-PMA longshore labor contract talks, plus the broader congestion challenges companies managed through in the shipping boom during the pandemic, has led to these proactive steps."

As for impacts on supply chains and the economy from a potential strike, Bingham pointed out that a critical factor would be the duration of the strike, noting that consequences from a strike that ends quickly may be minimal—similar to port operations with common holiday or weather disruptions

"Because supply chain managers have been able to prepare, impacts would be less than from an unanticipated port operations disruption," said Bingham. "However, if a strike extends beyond a few days, the daily impacts and costs would begin to grow despite that mitigation planning."

> **"Even though the threat of a strike lingers, Bingham said he believes that the risk of a long-duration port disruption is very low at this point in 2024."**

Examples of port disruption costs cited by Bingham can include procurement of expensive air cargo service for immediate critical shipments to keep factories operating, or modal or source supply diversion to obtain goods through other gateways still in operation.

What's more, Bingham observed that some exporters would be affected by delays in delivery and payment for overseas sales, while other exporters may lose sales that they can't recover if they're unable to ship quickly enough and customers have supplier options.

There are also directly related economic impacts from port disruptions on port-related businesses concentrated around the affected seaports, according to Bingham. He added that those impacts are mostly offset when the ports return to operations, depending on the duration of the disruption, and whether cargo diversion to other ports or modes of transportation has reduced the total port throughput and associated business revenue.

Even though the threat of a strike lingers, Bingham said he believes that the risk of a long-duration port disruption is very low at this point in 2024, with this being an election year and the underlying operating conditions reflecting carrier, terminal operators, and shippers all having taken steps to reduce potential port disruptions.

With little time remaining until the expiration of the current ILA-USMX contract, it remains to be seen how things play out. However, Bingham's insight and analysis regarding the situation make it clear that even should a strike occur, it could be fairly temporary. That is a good thing. •

Innovation strategies

By Elenna Dugundji, Andres Ayala,
Ria Verma, and Thomas Koch

Elenna Dugundji, Ph.D., is a research scientist at MIT CTL. She can be contacted at elenna_d@mit.edu. **Andres Arturo Ayala Mennechey** and **Ria Verma**, master students in the MIT Supply Chain Management program (SCM), are developing the chatbot described in this article for their SCM Capstone project. **Thomas Koch** is an MIT CTL Postdoctoral Associate (thakoch@mit.edu). For more information on the chatbot project and/or to get in touch with research team members, please contact Elenna Dugundji, Ph.D.

Harnessing generative AI for smarter supplier negotiations

Project seeks to "place a data scientist in the pockets" of procurement professionals.

OF THE NUMEROUS AI APPLICATIONS in supply chain management, supplier selection, risk resilience, and contract negotiation are often cited as offering the most potential for generative AI. The need for high volumes of text and data makes these areas particularly suitable for such applications.

However, many organizations struggle to overcome the complexities of integrating generative AI into mainstream operations, one reason that projects often fail.

A pilot project at the MIT Center for Transportation & Logistics (MIT CTL) aims to overcome these complexities and demonstrate how targeted, real-world applications of generative AI can be successfully implemented in the procurement function.

The project team is developing a chatbot for a leading pharmaceutical company with a direct and indirect annual spend of over $35 billion. The bot will help category managers negotiate more effectively with suppliers by providing comprehensive information on key questions like how prices are trending for specific materials.

Addressing data issues

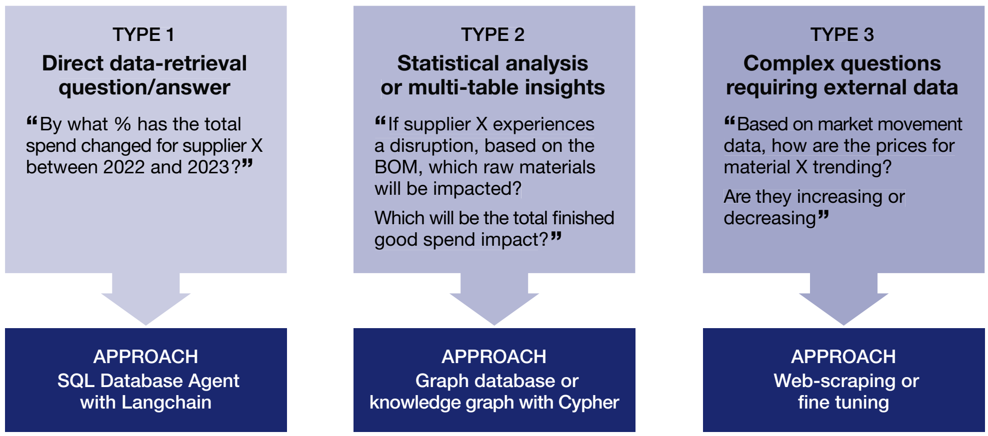
Category managers rely on a multitude of data sources, including spend analyses, bills of materials (BOM), and other industry-specific information, to devise effective negotiation strategies. However, existing sources of this data are often underutilized because they are not easy to access or are relatively limited.

For example, ERP systems represent a key source, but the number of systems and their complexity can be problematic for users. Also, current methods for data retrieval, such as visualization dashboards, often require extensive navigation and a steep learning curve for newcomers. Category managers can turn to data scientists for ad-hoc analyses.

Still, these specialized staff may be in short supply, and relying on them too much

FIGURE 1

Category manager questions



Source: Authors

creates bottlenecks that impede the information-gathering process.

With these difficulties in mind, the pilot’s goal is to augment (increase efficiency) and automate (reduce time) the collection and collation of information that category managers need when negotiating with suppliers.

While the necessity of data scientists would not be reduced, generative AI could “place a data scientist in the pockets” of every procurement professional in this application area. As a result, the technology would increase managers’ efficiency, democratize data access, and foster data-driven decisions in supplier negotiations.

These benefits could be realized regardless of the category managers’ technical prowess or experience level, allowing procurement professionals to focus more on strategic aspects of their jobs.

Choosing the best approach

A defining feature of generative AI is its ability to provide coherent and contextually relevant responses and flexible phrasing options that allow questions to be framed differently. For example, the technology can translate free-form text into SQL or another data-querying language to extract information, thus extending the scope of inquiries beyond pre-defined questions.

This capability differentiates the technology from traditional chatbots based on fixed question-and-answer pairs. Furthermore, generative AI can empower users to perform complex tasks like generating graphs and conducting statistical analyses without requiring a coding background.

“Generative AI is not protected against the well-established “garbage in, garbage out” or GIGO effect, which underscores the importance of data quality and modeling.”

When integrated with more sophisticated models, these tools can even undertake advanced tasks such as predictive and prescriptive analytics, showcasing their versatility and depth in creating new insights from the available data.

Given these capabilities, it is vitally important that the new chatbot is designed to respond to the types of questions the pharmaceutical company’s category managers typically ask in preparation for negotiations with suppliers.

The insights the company’s procurers look for vary in complexity. We initially categorized these questions into separate use cases and organized them into three buckets. This categorization is crucial as each question type can benefit from different models (see Figure 1).

> **"Significant challenges must be overcome before the chatbot becomes integral to the company's procurement operations."**

A retrieval-augmented-generation (RAG) approach was employed with the company's actual data. The RAG approach involves retrieving data from a knowledge database relevant to a question and providing it as context to large language models (LLMs) that generate a response. The model was deployed using Azure-OpenAI's LLM within a secure environment.

The RAG method can be advantageous for reducing inaccuracies or "hallucinations" primarily because it prioritizes fetching information from the existing knowledge base, ensuring that the content is anchored to retrieved, reliable texts.

An important question for the project team is whether or not it is better to use an off-the-shelf AI solution to meet these various demands rather than developing a solution in-house. A bespoke chatbot can avoid the time and cost of developing a tailored solution. However, the team opted for an in-house solution for several reasons.

Generative AI is not protected against the well-established "garbage in, garbage out" or GIGO effect, which underscores the importance of data quality and modeling. The complexity of the models and data architecture significantly impacts the resulting output. Hence, the benefit of designing a tailored model while still using a proprietary LLM is the increased flexibility this affords data scientists to swiftly iterate, test various models, and deploy solutions in secure, private environments.

Another advantage of the in-house option is that it can be tailored to specific organizational needs while keeping costs and the need for computationally skilled persons manageable. Furthermore, given the experimental nature of this field, piloting a proof of concept first can help foster trust from relevant stakeholders and make it easier to secure investment funds.

The project's "low-hanging fruit" was to address Type 1 questions first (see Figure 1). Preliminary iterations utilized a LangChain SQL Database agent (LangChain is a Python library that offers tailored LLM applications that can be deployed for different tasks using different agents).

Much higher accuracy was achieved when using careful prompt engineering (designing the input to produce an optimal output), such as formatting the free-form text intentionally to replicate query language.

This approach poses two critical questions:

how can the likelihood of user error be accounted for, and how can category managers be protected from potentially inaccurate information when questions are posed ambiguously?

One strategy is to encourage category managers to learn and embrace pseudocode—a mix of plain language and coding syntax that explains how a program should work—without using actual programming language. Even without a technical background, using words like filter and aggregate or breaking down complex queries into smaller sentences first can greatly increase the tool's accuracy.

Another approach focuses on refining the user interface. Implementing a dropdown menu can guide users away from entering free-form text where this type of input is not ideal for the model.

A help area that clarifies users' objectives before inputting free-form text can be included. In addition, an instruction-tuning facility at the back end of the application can guide the agent in answering a specific category of questions in a purposely directed way.

Next steps

Following a review of the preliminary chatbot version by the sponsor company's CPO, the plan is to refine the model and develop a comprehensive roadmap to scale it further. A particularly promising avenue involves using a graph database or knowledge graph instead of a relational database to establish connections between BOMs and spend data, unlocking more profound insights geared toward addressing more complex questions. This refinement represents a significant opportunity to enhance the procurement organization's analytical capabilities.

We also intend to research and develop a roadmap to facilitate the full-scale deployment of a fully accessible chatbot. This will involve outlining the roles and responsibilities of the functional groups involved in this process.

Significant challenges must be overcome before the chatbot becomes integral to the company's procurement operations. These include data quality and access issues, API permissions for security, difficulties of latency and accuracy when using relational databases for the LLM, and the reliability of deployed applications.

However, the chatbot has the potential to deliver substantial benefits. Also, the project could set the stage for steady, transformative progress in advanced AI and establish a new benchmark for efficiency and innovation in procurement. •

33rd Annual Study of Logistics and Transportation Trends:

PUZZLING path forward

Logistics professionals navigating their path forward face challenging market conditions, an evolving regulatory environment, a rapidly changing technology landscape, and an increasingly competitive labor market. Our research team puts context around this year's findings and offers insight to help shippers fit the pieces together.

BY **CHRISTOPHER A. BOONE**, PH.D., ASSOCIATE PROFESSOR, MISSISSIPPI STATE UNIVERSITY;
KARL B. MANRODT, PH.D., PROFESSOR, GEORGIA COLLEGE AND STATE UNIVERSITY;
DOUGLAS VOSS, PH.D., PROFESSOR AND SCOTT E. BENNETT ARKANSAS HIGHWAY COMMISSION ENDOWED CHAIR, UNIVERSITY OF CENTRAL ARKANSAS;
JOSEPH TILLMAN, MANAGER EDUCATION PROGRAMS, SMC3

Logistics and transportation is an intricate puzzle of interconnected routes, carriers, shippers, modes, and supply chains. Delivering success requires these pieces to fit seamlessly together. However, the complexity of modern operations extends beyond just the physical networks.

Today's logistics and transportation professionals must navigate challenging market conditions and an evolving regulatory environment while competing for talent and continuously evaluating new and emerging technologies. Missing or neglecting even one piece of this puzzle can cause operational disruptions, inefficiency, and missed opportunities.

The 33rd Annual Study of Logistics and Transportation Trends explores these pieces, revealing insights into how industry leaders are working to navigate this puzzling environment and shape the path forward.

This year's study examines transportation spending, competitive strategy, and performance in order to better understand how firms are executing and differentiating themselves.

Market conditions

Spending. Transportation spend is a large piece of the logistics puzzle. This year, spending on private fleets dropped 50% to 7.23% of transportation spending, down from a six-year high of nearly 15%. Truckload (TL) spending has slowly increased while spending on dedicated fleets and less-than-truckload (LTL) services saw slight declines. Intermodal transport posted its highest percentage of spending over the last decade at 6.5%, while air, domestic ocean, and barge freight all increased last year.

What about the Titans, those shipper operations in companies with sales over $3 billion? These large shippers have more in common with the overall trends than they do differences. The Titans differ mainly in spending *less* on small package (less than 2% of spend) and LTL (under 5%). This makes intuitive sense, as larger firms are more likely to ship larger quantities, thus requiring fewer small package and LTL services.

Strategy. Competitive strategy is another crucial piece of the operational environment. The most notable trend is the continued dominance of the "Mix: Be all things to all

Survey details

The 33rd Annual Study of Logistics and Transportation Trends surveyed more than 200 industry practitioners, 85% of whom had 15 or more years of industry experience, and 80% serve in C-level, vice president, director, or managerial roles. Participants represent organizations with fewer than 100 to more than 5,000 employees and annual revenues ranging from less than $250 million to more than $9 billion.

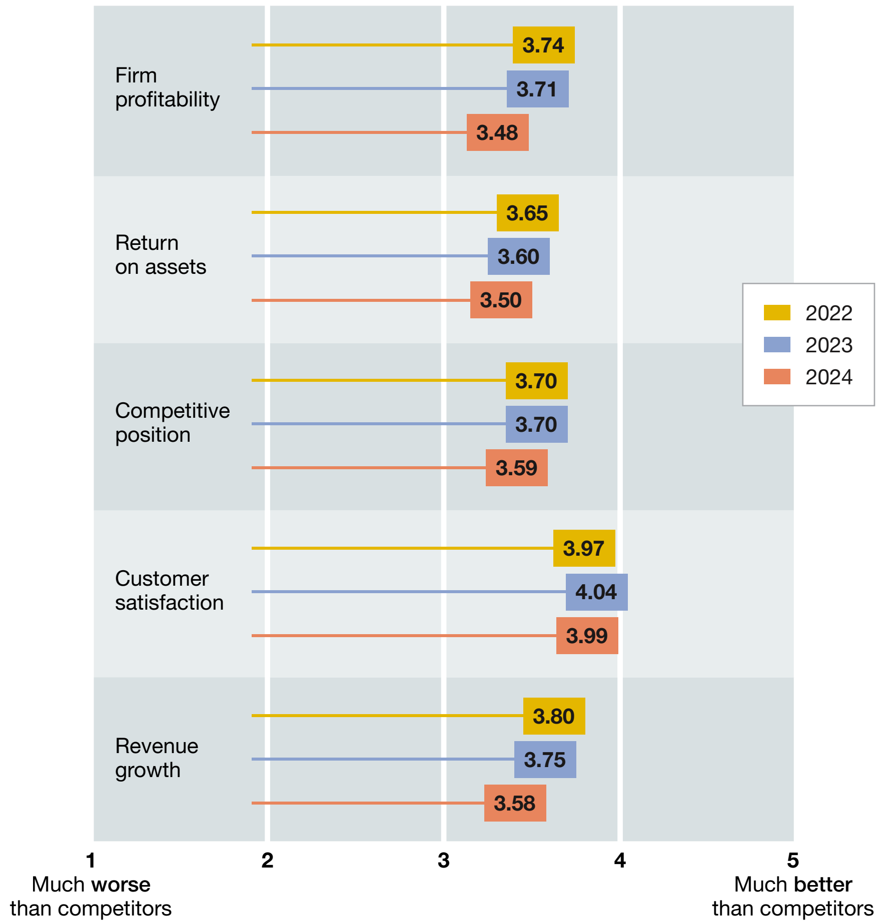
people" strategy, which remains steady at 54.6%. We believe this reflects the continued prioritization of flexibility to meet various customer needs.

In contrast, cost leadership strategies have substantially declined from 7.4% in 2019 to 3.1% in 2024, highlighting less emphasis on competing primarily through lower prices. Meanwhile, customer service remains an essential strategy for 22.7% of the companies in 2024, up from 21.7% in 2023.

More than 19% of responding shippers are now opting for a product and market innovation-focused strategy, up from just 9.3% in 2019, recognizing innovation as an increasingly important competitive differentiator.

Performance. This year's study revealed declines in all four tracked performance measures from 2023, with many of the metrics at their lowest levels in three years. When comparing their performance to competitors, shippers reported declines in firm profitability (3.48 in 2024, down from 3.74 in 2022) and return on assets (3.5 in 2024, down from 3.65 in 2022). Although customer satisfaction levels remained high (3.99 in

Firm performance



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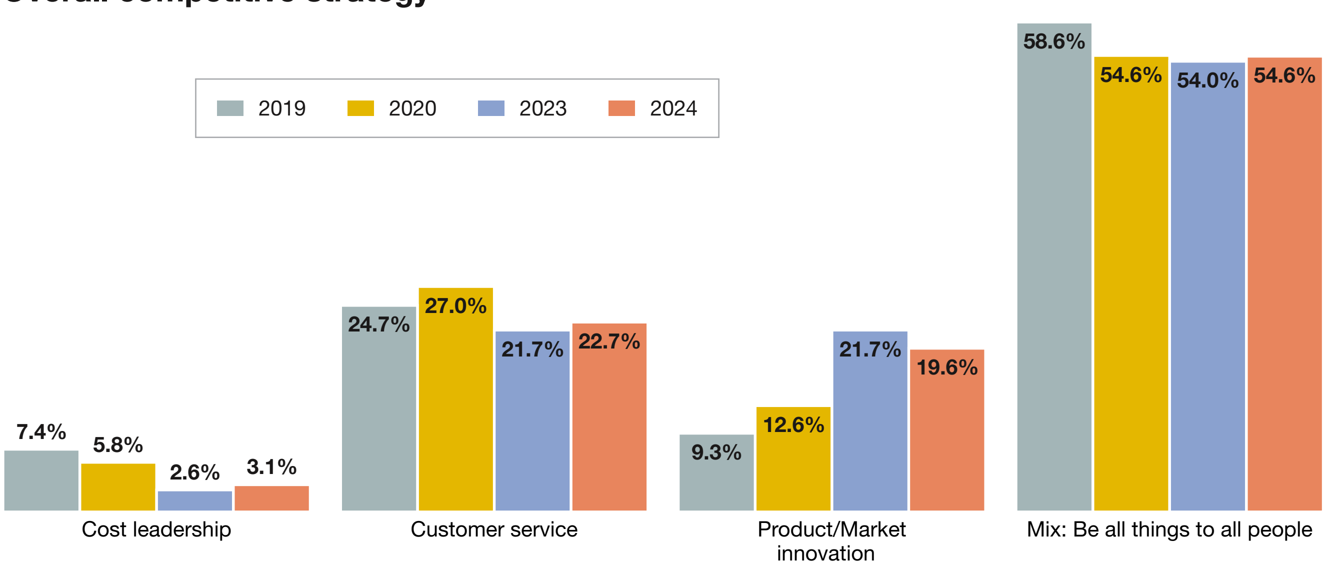
Overall competitive strategy



Source: 33rd Annual Study of Logistics and Transportation Trends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2024), competitive positioning (3.59 in 2024) and revenue growth (3.58 in 2024) were both down from 2023 and 2022.

Regulatory requirements

A dizzying array of government policies and regulations—which often add complexity and cost while requiring new technology and training—constitute another challenging piece of the puzzle. We included questions in this year's study to determine the regulations that may have the most impact on operations.

Respondents were presented with various regulations and asked to indicate their impact on firm operational costs. In the survey, 64% of respondents indicate that regulations had increased operational costs by 1% to10%, while 21% say regulatory burdens increased their costs by 10% or more.

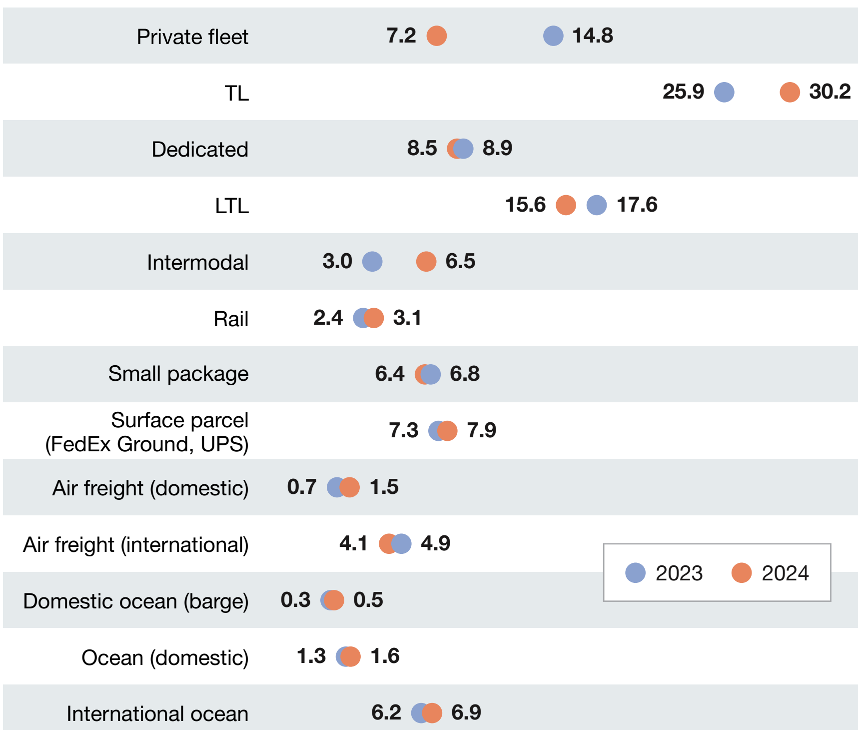
Environmental, economic/financial, and trade/customs regulations had the greatest impact on cost. Respondents believe these will continue to affect their bottom line over the next one year to three years, and they also believe that labor and employment regulations will play a significant role. This concern is likely driven by independent contractor classification rules, such as California's AB5, and truck driver minimum wage disputes.

Technology

Technology is another pivotal piece of the logistics and transportation puzzle. Companies must carefully consider new technologies that align with business strategy and cost-effectively deliver desired results. This year's study provides insights into which technologies shipper organizations are adopting; drivers of their adoption decisions; and impacts of recent technology adoptions.

Technology adoption. The study

Freight spending shifts



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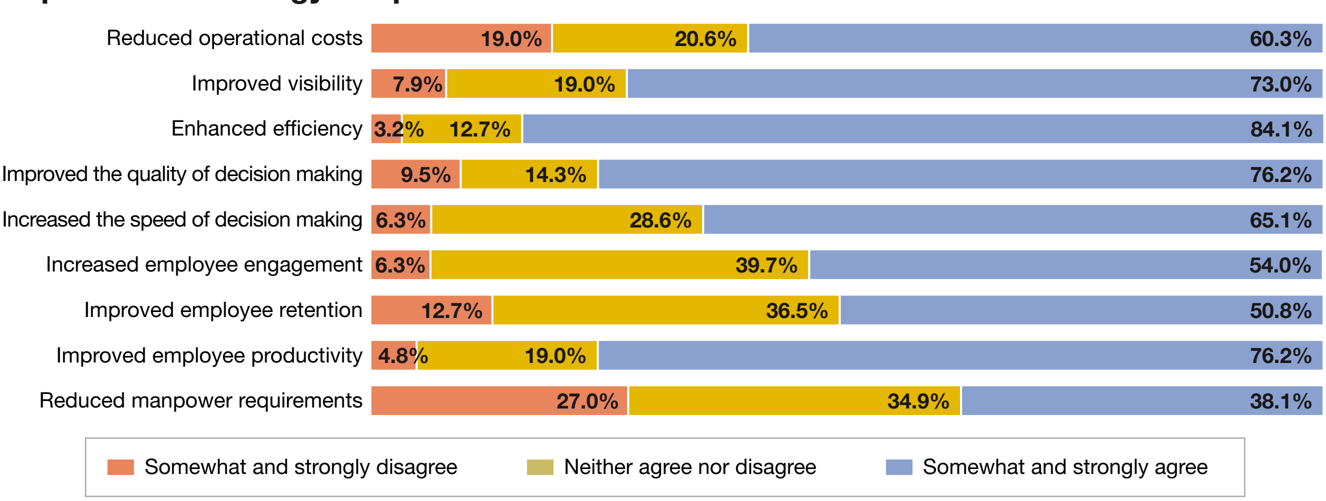
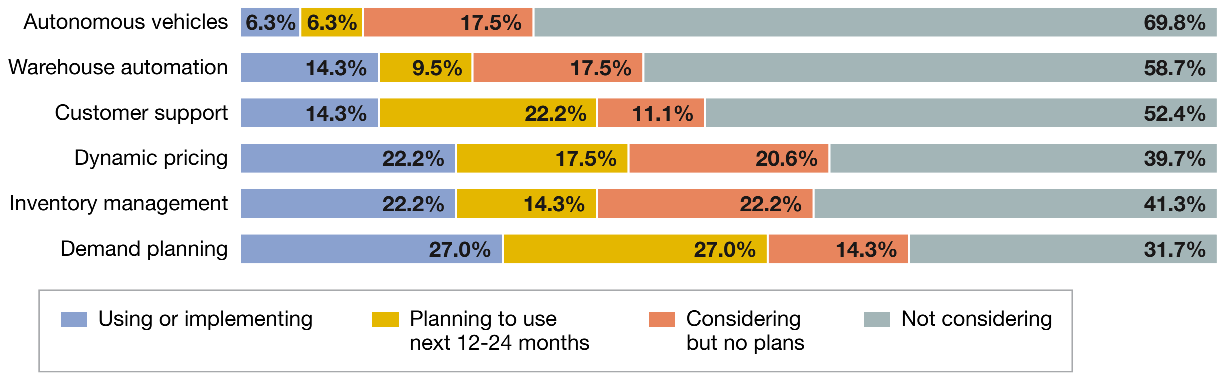
Impact of technology adoption



Source: 33rd Annual Study of Logistics and Transportation Trends

AI enhanced technology adoption



Source: 33rd Annual Study of Logistics and Transportation Trends

found that 54% of respondents are using or implementing back-office automation, with another 19% planning to adopt it within 12 to 24 months. This focus on back-office automation represents a 16.2% increase in current usage from 2023.

These findings are consistent with the broader industry trend of technology investments to help streamline administrative processes and routine tasks. Participants also report the adoption of safety-related technologies (36.5% using or implementing) as well as predictive and optimization-related technologies to support improved forecasting (38.1% using or implementing) and route optimization (31.7% using or implementing).

Logistics and transportation operations seem more cautious when adopting more advanced technologies like autonomous vehicles (6.3% using or implementing) and warehouse automation (14.3% using or implementing).

Adoption drivers. Logistics and transportation operations primarily adopted technology to improve employee productivity (88.9%). Additionally, logistics operations desired technology to improve employee engagement and retention (73%).

It's worth noting that the top two drivers are both employee-focused, reflecting intentional efforts by companies to improve employee performance and enhance the work environment. Only 39.7% of the study participants indicate that technology was adopted as part of an effort to reduce employee headcount.

Technology benefits. It appears that most companies are achieving their employee-focused goals. More than 84% agree that recent technology adoptions have enhanced efficiency, and 76.2% reported improvements in employee productivity.

Participants also report improvements in visibility (73.0%), quality (76.2%), speed (65.1%) of decision-making, and reduced operational costs (60.3%). Participants also indicate that technology adoption makes a positive impact on employee engagement (54%) and retention (50.7%).

Talent management

The talent management piece of the logistics and transportation puzzle is incredibly complex. When this article was written (July 2024), the U.S. Chamber of Commerce reported 8.1 million job openings, but only 6.8 million unemployed workers.

This discrepancy represents a significant challenge for our labor-intensive industry. Our findings provide insights into the industry's talent management challenges and strategies companies use to help address their requirements.

Talent gap. Participants reported challenges in finding and hiring for various positions. The most difficult-to-fill positions were those requiring experienced mid-level managers and low-wage laborers (both at 46.3%).

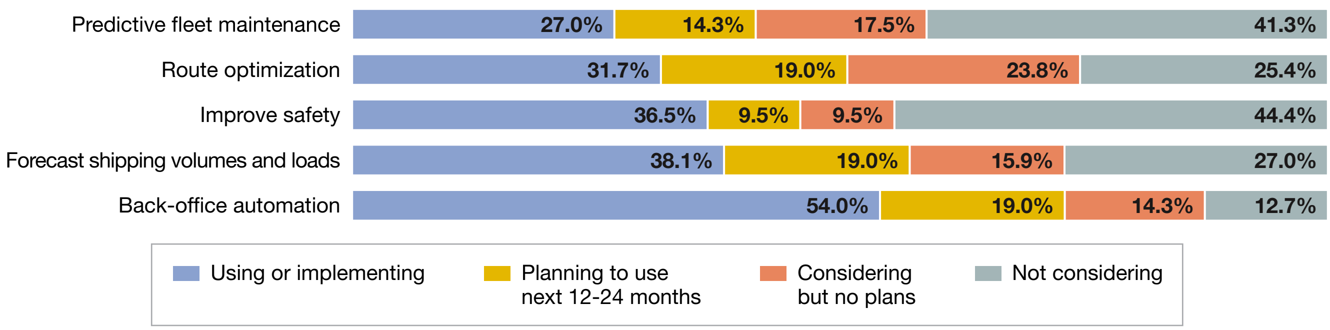
These results are consistent with those of other industries and governments reporting talent shortages in these areas. Sales and marketing positions (41.8%) and entry-level managers and supervisors were also difficult to fill (41.8%), further highlighting the challenges of hiring employees with leadership experience and technical skills.

Attracting talent. It is often suggested that negative perceptions of the logistics and transportation industry limit its ability to attract top talent. The Annual Study of Logistics and Transportation Trends has explored some of these perceptions over the last couple of years in hopes of identifying measures to address misperceptions and better position the industry to attract top talent.

Again, this year, participants were asked to compare logistics and transportation careers to those in other industries. Responses indicate that logistics and transportation management careers offer greater job stability as well as more opportunities for personal growth and to make meaningful organizational contributions.

These benefits can be used to promote

Technology adoption



Source: 33rd Annual Study of Logistics and Transportation Trends

industry career opportunities. However, logistics and transportation careers are perceived to lag other industries in flexibility, benefits, defined career paths, as well as the availability of career-related education and training. These are noteworthy areas because next-generation talent considers many of them to be critical.

Developing talent. This year's study also the explores challenges companies face when trying to upskill and reskill employees. Results suggest many companies may have gaps between their training strategies and needs.

Participants indicate that their companies rely on in-house training programs, but only 39% of participants report that their company has a formal learning and development department.

They also indicated that the most significant challenges to upskilling and reskilling were a lack of time for training and a shortage of knowledgeable trainers within the company. This gap presents a potential risk to companies as they seek to attract new talent and help current employees develop skills needed to remain competitive.

Key takeaways

The modern logistics and transportation management puzzle has many different, complex pieces. Industry professionals navigating their path forward face challenging market conditions, an evolving regulatory environment, a rapidly changing technology landscape, and an increasingly competitive labor market.

Here are a few of our key takeaways after putting context around this year's Annual Study of Logistics and Transportation Trends.

Invest in training and development. Whether internally or through partnerships with professional or trade associations and universities, companies should seek to offer flexible, accessible training programs that provide continuous learning opportunities tailored to individual employee needs. This investment can help companies improve employee retention and productivity while also more effectively competing for new talent.

Monitor and adapt to regulatory changes. It's important to remain abreast of regulatory developments and proactively adapt business practices. This may seem overwhelming. While larger firms may employ or retain legal counsel to monitor regulations, others are encouraged to join industry trade groups who provide members updates on important regulatory developments. Firms who feel over-regulated should be encouraged by recent Supreme Court decisions (e.g. overturning the Chevron Doctrine) that curtail regulators' power.

Adopting the right technology matters. According to this year's findings, 84% of participants observed increased efficiency due to recent technology adoptions, with 76.2% also acknowledging enhancements in employee productivity. The right technology investments can also help attract new talent and address critical skill gaps.

Be a cheerleader for our industry. In this year's study, the percentage of respondents who "strongly agree" they would recommend a career in logistics and transportation declined from 19.4% in 2022 to 18.3% in 2024. This decline underscores the importance of industry leaders and professionals being cheerleaders for our industry, actively promoting the advantages and opportunities in this field.

Adapt to market conditions. We believe the spending, strategy, and performance trends noted in this year's study reflect the challenging conditions of the freight market. Excess capacity and changes in consumer demand have driven down rates, while operational and labor costs are increasing.

Many industry experts expect these conditions to persist for the remainder of the year and into 2025, suggesting we will continue to see performance impacts and companies adapting their spending and strategies to remain competitive and meet customer expectations.

Companies must stay agile and responsive while carefully and strategically managing their resources to navigate these challenges and sustain their performance in a volatile environment. •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FARM TO FRIDGE: Food & beverage's complex dance

Labor market woes and changing customer demands continue to push food and beverage companies to explore new solutions, including automation and robotics.

BY **BRIDGET McCREA**, CONTRIBUTING EDITOR

Food and beverage distribution is a complex dance involving a lot of moving parts, requirements and regulations. Perishable products, ever-shrinking shelf life, tight turnaround times and food safety concerns all come into play when moving and storing food and beverage.

Fresh and frozen goods require extra care, and the latest update to the Food Safety Modernization Act (FMSA) now requires all companies that make, process, pack or hold higher-risk foods to maintain detailed traceability records (beyond what was previously mandated).

Consumer tastes are also changing—a reality that puts even more pressure on food and beverage companies that have to pivot quickly to meet these needs or risk

being left behind—and the warehouse labor shortage remains in full effect. In spite of these roadblocks, the companies that embrace innovation, efficiency and transparency are ensuring a smooth flow from "farm to fridge."

In some cases, age-old habits have been hard to break in the food and beverage sector, where many of the largest companies have been around for a long time. "There's a mindset of: 'Well, we've always done it this way, so we're maintaining course,'" says Brandon Novak, senior director at Alpine Supply Chain Solutions, "versus trying to adopt the new technologies and innovations that are out there and can help these companies overcome their challenges."

However, not all food and beverage companies are sticking to their old ways of doing things. Novak recently visited a few different manufacturers and distributors that want to "overhaul their entire supply chains," and are looking to robotics, automation, and AI-driven data analytics for help achieving that goal. This is new territory for many of them, he adds, but these companies want to be leaders in their respective industries.

"The rest of the food industry should start taking notice of some of those capabilities. It's historically a low-margin industry, which means that a lot of additional capital is usually not expended when it doesn't have to be," Novak explains. "As a result, both manufacturers and distributors in this space tend to be a bit behind when it comes to the [advanced] capabilities enabled by newer technology."

Help wanted

The labor shortage has hit the warehousing and fulfillment space hard, and the food and beverage sector isn't immune. Like many other industries, it's now looking to more automation and technology to help fill those gaps and free up human workforces to focus on more strategic tasks. Frozen food producers and distributors face different challenges on the labor front, namely due to the environments that people have to work in.

"There's always labor concerns in the frozen sector, which is looking for automated options to help fill in those gaps," says Novak. Companies are also looking for ways to capture data ahead of time and get out in front of the fulfillment process, versus managing everything reactively. These and other strategies help food and beverage companies prioritize inventory, manage product shelf life and maintain good traceability records.

At DMW&H, senior account executive Michael Roe says the lack of labor continues to be the driving force behind many technology and automation investments in the food and beverage space.

"People just don't want to work in warehouses anymore,

Automation is often the answer for wholesalers, retailers and other companies that have to strike the right balance between having more work to do, but with fewer resources.

Customized materials handling solutions can minimize lead times and maximize shelf life for perishable foods, such as fresh fruits and vegetables, dairy products, and baked goods.

and even when they do want to work there, retaining those individuals is difficult," says Roe. "It's very easy for someone to go work for another company for just a little higher hourly rate."

This situation creates an opportunity for companies to look at things "in a different way," says Roe, and to leverage automation, new technologies and other innovations to run their operations.

Food distribution, for example, has traditionally been a "pallet-in and pallet-out" or "single-SKU pallet-in and single-SKU pallet-out" operation. That's changing, according to Roe, who says mixed-case palletizing is now gaining in popularity.

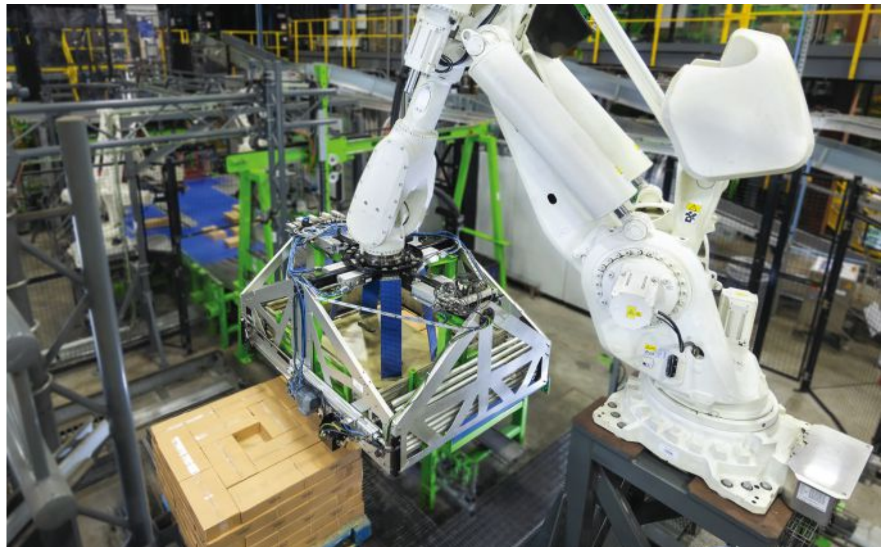
For example, you may have several layers of a similar SKU on the bottom of the pallet, which is topped off by individual cases or quantities of other SKUs. This can complicate the distribution process, Roe explains, "but with the right technology and automation and planning in place, it's definitely a strategy that more companies are considering."

Credit the lack of labor with driving these types of decisions in a work environment where "throwing more people at it" was generally considered the best way to solve a problem or to ramp up an operation.

Instead, companies are looking at options like Movu's pallet shuttle automated storage and retrieval system (AS/RS) combined with DMW&H's indaGO warehouse execution system (WES) software to move products in and out of frozen facilities. The pallet shuttle can operate in temperatures as low as -13 degrees Fahrenheit.

This is just one example of how food and beverage companies are thinking outside of the box and coming up with more creative warehousing approaches.

"A lot of companies are getting more proactive about finding better and smarter ways to get the job done, versus just throwing more labor at the situation," says Roe. "The overall attitude has certainly shifted in a more positive and open direction when it comes to automation technology, for sure."



Companies are delivering more store-friendly or aisle-ready pallets to stores to help gain efficiencies on the retail floor.

Managing SKU proliferation

The grocery store has become a dizzying arrays of flavors, niche brands, options and healthy choices. As consumers demand more customization and variety, food manufacturers are responding by offering more and more choices.

As a wider range of products are made and sold, distribution centers have to find new ways to grapple with the SKU proliferation that comes along with it.

Online grocery shopping is also playing a role in the SKU proliferation trend because it allows for a wider selection than ever before. With less physical shelf space constraints, for example, retailers can stock an even broader range of SKUs and give customers access to niche products and interesting options they may not find on the store shelves.

This has added a new dynamic to the supply chain and forced companies to rethink their traditional "pallet-in, pallet-out" approaches.

"Managing that many different SKUs in the conventional [warehouse setting] is extremely difficult," says Jason Denmon, vice president of sales and customer service at Symbotic. The situation gets even more difficult when there are fewer labor resources to go around. Automation is often the answer for wholesalers, retailers and other companies that have to strike the right balance between having more work to do, but with fewer resources.

"By leveraging automation, food and beverage companies can provide more SKUs to retail store outlets and in a way that works best for those retailers," says Denmon.

For example, companies are delivering more store-friendly or aisle-ready pallets to stores to help gain efficiencies on the retail floor. That way, as the pallets arrive at the store, every single case and stack doesn't have to be sorted down to smaller carts that can be used out on the floor.

Instead, the aisle-ready pallet can be

moved out onto the floor and used to replenish the shelves. This eliminates multiple steps in the receiving and replenishment process, and also makes better use of human labor.

Denmon says food and beverage companies are also looking for new ways to stretch their dollars and invest in automation that doesn't come with a high, upfront price tag. In response, he says Symbotic recently partnered with SoftBank to offer a "warehouse-as-a-service" entry point for automation through their joint venture, GreenBox Systems.

"It's about creating options for companies regarding how they want to commercialize their automation investment, and whether they want to invest their own capital," says Denmon, who is seeing much interest in the new offering. "We give them the option to pay for it on a variable basis."

No one wants to work in a freezer

Looking ahead, Derek Rickard, director of sales at Cimcorp Automation, expects more food and beverage companies to adopt the technology and automation required to run its operations without having to rely as heavily on human labor. "Getting people to work in a warehouse is tough enough, let alone for a second or third shift or in a cooler or freezer."

Rickard also sees more applications for mixed-case palletizing in the industry's future and says equipment vendors are slowly moving in this direction. He also sees significant opportunity in the area of automated trailer and ocean container loading and unloading, which has fairly high potential in the fast-paced, high-volume food and beverage distribution space.

"There are some companies focusing on this area right now," Rickard adds, "including startups that have received venture capital funding." •

—*Bridget McCrea is a contributing editor for* Logistics Management

Many grocers use reusable plastic crates (RPCs) to minimize environmental impact beyond food waste.

YMS Update: Optimize your yard, optimize your business

Ready to ditch the manual operation? Here's a look at the increasingly important role that yard management systems play in the smooth, efficient running of overall logistics operations.

BY **BRIDGET McCREA**, CONTRIBUTING EDITOR

Let's face it, the warehouse yard has always been considered something of a "black hole" when it comes to visibility, data-sharing and coordination. It's a place where yard jockeys use tractor-like vehicles to move trailers around, often relying on the "clipboard method" to manage and report on their activities.

And while the global pandemic—and the ensuing increases in online orders plus capacity constraints and labor shortages—forced companies to adopt more streamlined and touch-free yard management tools, demand for those systems has since leveled off as supply chains normalized.

Still, Simon Tunstall, senior research director in the logistics and customer fulfillment team at Gartner, Inc., says he's been fielding "quite a few inquiries" for yard management systems (YMS) this year. These systems track trailer locations, manage appointments, streamline processes and reduce dwell times. Available as part of larger software suites or as standalone solutions (what Gartner calls "specialist systems"), YMS helps companies transform their yards from disorganized hubs and into well-oiled machines.

Broad range of applications

Whether a company needs a YMS or not depends on a few factors. Tunstall says simpler operations that have one facility and minimum requirements can often get away with using software that offers basic dock appointment scheduling capabilities.

Other companies can get the functionalities they need from the YMS that comes with their broader enterprise resource planning (ERP) solution (or other software suite), but some need more capabilities. For the latter scenario, a specialist solution (aka, "best of breed") is often the better bet.

"There are still many yards out there that are using manual processes and may not need very extensive yard management capabilities," says Tunstall, "but would still benefit from a YMS."

He points to two different scenarios that would warrant a specialist YMS: for the warehouse that has two or more yard jockeys handling each shift; or for the operation that has multiple sites and wants to use one solution to "see what's going on" at those locations. For many companies, the activity happening at those "locations"—or in some cases, what's happening at a single warehouse or DC—takes place in a vacuum.

Isolated and disconnected from what's happening in the rest of the facility (or, as trailers move out of the yard and onto the road), the average yard remains ripe for a technological overhaul.

"The yard is often an island all its own," says Amarendra Phadke, CTO, North American consumer products and retail engineering practice at Capgemini, "and a place where companies still face issues understanding where trailers are and where they need to be at any given point."

One of the biggest impediments of yard visibility is the many different disconnected or manual systems that companies rely on to run this part of their supply chains. There's a lot of paperwork to process, drivers to schedule and idle time to minimize. Most of these functions can benefit from automation and data-driven decision making, but not all companies understand the value of applying advanced technologies in their yards.

This oversight can become a major problem when a reefer battery dies while out in an untracked location in the yard and all of its contents perish as a result. Put simply, you can have the best WMS and TMS systems available on the market, but they won't help if entire loads are damaged or lost while under the control of a supervisor that relies on clipboards for gathering and sharing information.

Here's how it works: YMS in Action

When one express parcel delivery company decided it was time for a more modern yard management system (YMS), it turned to C3 Solutions for help.

Already familiar with the vendor's YMS offering, the company was bogged down by an existing solution that was no longer meeting its yard management needs.

For starters, the existing YMS was outdated and lacked modern features and functionalities. Training users on the system also took too much time. "It was easily six months before someone was able to use the system fluently," the company's process improvement manager explains. "That was too long."

That six-month training timeline became an even bigger burden as the company grew and hired new employees. "We were limited by the fact that there was always a group of people in the pipeline, taking that much time to progress," he says.

Hitting a tipping point

The parcel delivery company hit a tipping point with its current YMS about two years ago, right around the time the C3 introduced a "new and improved" version of its yard management solution.

The company reviewed several different solutions available on the market at the time, but ultimately decided to implement the C3 solution.

"We made that decision after evaluating and understanding the differences across those various systems," the manager explains.

Some of the key selling points included a more user-friendly interface that was much easier to use. This simplicity significantly cut down the amount of training time needed to get users up to speed on the platform.

"Now it only takes a month or two for someone to gain a really good grasp and understanding of what's going on in the YMS," he adds.

Increasing efficiencies in the yard, on the dock

With its new YMS in place, the parcel delivery company can also leverage more automation and free its team members up to focus on more strategic tasks. "We thought we were using automation until we moved to this new system," the manager says. "The old system took quite a bit of manual intervention, while this one offers a much higher degree of automation."

For example, the company is using automation to streamline processes from the moment a truck arrives at the gate. The check-in process has sped up significantly with no additional effort on the part of the staff.

Trucks are directed to specific docks where their cargo is unloaded, and then the trucks are directed to a spot in the yard (or, a different dock for reloading).

"This is just one example of how the YMS' automation tools have helped us gain better efficiency both in the yard and at the dock," the manager adds. "It's a major difference from what we were using before."

—Bridget McCrea, contributing editor

Ripe opportunity to chase

The current warehouse labor shortage is another factor that's driving more companies to invest in their current vendors' YMS systems or one that's being offered by a best-of-breed, standalone provider. Not only are companies dealing with high labor churn, they're also expected to provide modern, digital tools—not clipboards—that employees can use to do their jobs effectively and efficiently.

"We see more companies focused on ensuring that they're assessing the operators' needs and driving simpler user experiences," says Phadke. "That way, even if there is a churn from a labor perspective, those companies can better absorb, handle and manage that turnover."

He's also seeing a bigger emphasis being placed on enterprise end-to-end visibility, with the yard being one of several components that has to be a part of those conversations and technology investments. "There's a focus on automation and what goes on inside your four walls," Phadke says, "with what happens between your network, warehouse and enterprise still being a ripe opportunity to chase."

What's next for YMS?

Efficiency is paramount in the logistics world, yet many companies continue to use clipboard and handwritten notes to manage their yards. The good news is that YMS is often more affordable than WMS, TMS or other supply chain management applications.

The software also starts to deliver benefits pretty quickly, according to Tunstall, who tells companies to assess their current tech stacks before layering a new YMS on top of it. For example, if your current WMS vendor offers a basic YMS as part of the package, that option may be a good fit for your operation. If you need more functionalities and capabilities than that, Tunstall says, explore some of the specialist solutions available on the market.

From a futuristic viewpoint, Tunstall expects to see artificial intelligence (AI) playing a larger role in yard management. "We're seeing increasing interest in both AI-enabled vision systems and RFID in the yard management space," he explains. "Going forward, AI-enabled vision systems will go beyond experimentation, based on the real use cases that we're starting to see in that area."

Tunstall expects interest in YMS to continue, albeit at a slower pace than a few years ago, when there was an "urgent need" to put a system in place to manage visiting drivers. At the time, many companies rolled out visiting kiosk capabilities that enabled touch-free and streamlined admission to the yard.

Today, the focus is on making the yard more efficient, minimizing dwell time and gaining better visibility over what's happening out in the yard. "These are all things logisticians should be focused on anyway," Tunstall concludes, "but a YMS can help in these areas, whether that system comes from an existing vendor or a specialist." •

Bridget McCrea is a contributing editor for Logistics Management

Global footwear innovator taps 3PL expertise to boost U.S. presence

FitFlop's global expansion strategy required a different logistics approach to maximize its growing popularity in the United States. Through its new 3PL partnership, it created an innovative footwear force to be reckoned with.

BY **BRIDGET McCREA**, CONTRIBUTING EDITOR

Sliding your feet into a pair of flip flops brings a wave of relaxation. FitFlop understands the feelings that its variety of sandals and footwear invokes, and it has been a game-changer since entering the industry in 2007. At the time, it was generally accepted that a shoe couldn't look good and feel great, but the London-based newcomer set out to turn that assumption on its head.

In fact, the company responded with a sandal that combined style with science, and it continues to dream and defy conventions associated with footwear. Its mission? To design smart footwear that works with your body to optimize your energy, every day—and it was ready to continue that mission here in the United States.

A blend of comfort and science comes to the U.S.

One of FitFlop's secret weapons is a long-time collaboration between a biomechanist and a beauty entrepreneur, both of whom work together

FitFlop recently rolled out a two-day delivery option for customers in the United States, where it didn't previously offer that expedited shipping choice.

to create stylish footwear that goes well beyond your typical pair of flip flops or sandals. For example, the company uses "Microwobbleboard technology" to develop a midsole that features a specific density that encourages better posture and muscle engagement.

Sandals remain a mainstay for the company, but FitFlop has also expanded into boots, clogs, and sneakers over the last few years. Today, it has a presence in more than 70 countries and a supply chain that spans the globe.

In mid-2023, the company opened its first U.S. store in New York City. It also established partnerships with key wholesale customers across North America, making its comfortable footwear more accessible to a wider swath of customers.

The footwear manufacturer's expansion strategy also required a different logistics approach to maximize its growing popularity (most of its products are made in Asian factories, the majority of which are in Vietnam). FitFlop needed a new third-party logistics provider (3PL) that could cover its expanding North American operations, so it began evaluating its options.

"We'd been working with one 3PL for a while, but the shape of our market and our logistics requirements naturally changed over the course of time," says Sal Billington, global logistics director. "We wanted a partner that could collaborate with us, leverage the different shipping options in the United States and deliver faster in Canada."

This was especially important because it would support FitFlop's digital selling strategy. "We wanted to extend our order intake window, pack quicker, and ship those orders out later in the day," says Billington, whose team evaluated a few different 3PLs before selecting Ryder System. "The 3PL's operational solutions side and client base—particularly in terms of the e-commerce operations that it supports—made Ryder a good fit for us."

Later cutoff times, two-day delivery options

Today, the 3PL handles all FitFlop's outbound deliveries in North America, including the receipt of those goods at its warehouses, fulfillment of orders, and then the assignment of deliveries to carriers or other freight providers.

Ryder receives the stock and then

picks and packs the orders. Then, the transportation providers pick up those shipments at Ryder's warehouse and deliver the goods to wholesale, dropship customers, and digital consumers.

FitFlop also recently rolled out a two-day delivery option for customers in the United States, where it didn't previously offer that expedited shipping choice. From its location in Ohio, for example, the 3PL could always offer FitFlop's customers standard delivery of two days to five days depending on what U.S. shipping zone that customer was in. Now, customers can pay extra to have orders delivered within two days.

Billington says Ryder also helps the brand "rate shop" across a basket of carriers that the 3PL uses. "We can look at some of the other providers in the market and compare pricing and service across all the various options," she explains.

Getting everything right

FitFlop began working with Ryder in January 2024, so, while Billington's recounting of the companies' time together is favorable, she couldn't share any specific results or benefits of the alliance yet. "Every time you open a new warehouse, there's always that painful journey getting everything right," she says. "Now that we've passed through that phase, we're focused on stabilization and continuous improvement."

For example, Billington says she's tracking the positive results over a consistent period of time, which this year will likely bump right up against the company's peak shipping season. "By September, we'll have our peak plan locked down," she explains. For me, it's all about stabilization so that we can deliver that first peak very successfully."

From there, Billington will look for even more ways to continuously improve the company's North American logistics operations with Ryder's help. That approach will carry right into 2025 and will include reviewing the year one results and improving the efficiency of certain processes and simplifying others. She expects this focus on continuous improvement to continue, namely because FitFlop operates in an industry where no one can afford to sit still or rest on their laurels.

"Things change quickly in the fashion world. When it comes to footwear, in fact, customer demand can pivot within the course of a single season," Billington points out. These quick pivots require an agile, flexible supply chain that's ready to rise up and meet the challenge in an efficient, effective manner—all while continuing to innovate and develop great products that customers love wearing.

Supporting a multifaceted supply chain

From sleek slides to sporty sneakers, FitFlop's footwear caters to various styles and activities. This allows the manufacturer to target an even wider audience that wants a comfortable, on-the-go style that aligns with current fashion trends. The company has even collaborated with some notable Thai designers to ensure that its unique, comfortable shoes exceed its customers' expectations.

"We're always pushing for our customers to have very up-to-date products in their closets," says Billington, "which is why we always need a strong logistics infrastructure behind us,

ready to deliver those products on our behalf." She adds that FitFlop has that infrastructure and ideal location with its 3PL partner, a company whose own corporate culture aligns very well with the footwear manufacturer's own mission, goals, and culture.

Billington has a team based in the United States and visits Ryder's location every few months and enjoys watching the 3PL's employees in action. "Their team cares a lot about us as a client. They love the product and always look after it for us," she says, adding that the care shows not only in the picking and packing process, but also on the reverse logistics end, where they quickly receive, inspect, and repackage saleable products.

"I've stood and watched them in the warehouse repurposing our footwear, making it neat, tidy, repackaging it, and putting it back in a box so it looks like new," says Billington. "I love watching that process because it makes me feel really good to know that our partner has nurtured our product back to a saleable status." •

Bridget McCrea is a contributing editor for Logistics Management

Boscov's: Speed regained in retail distribution

A complete modernization of the sortation and conveyance at Boscov's DC, along with updated software and a new order processing area, have transformed the ability of the department store chain's DC to move more cartons in less time—with fewer labor resources—while permitting more frequent replenishment shipment for stores.

BY **ROBERTO MICHEL**, CONTRIBUTING EDITOR

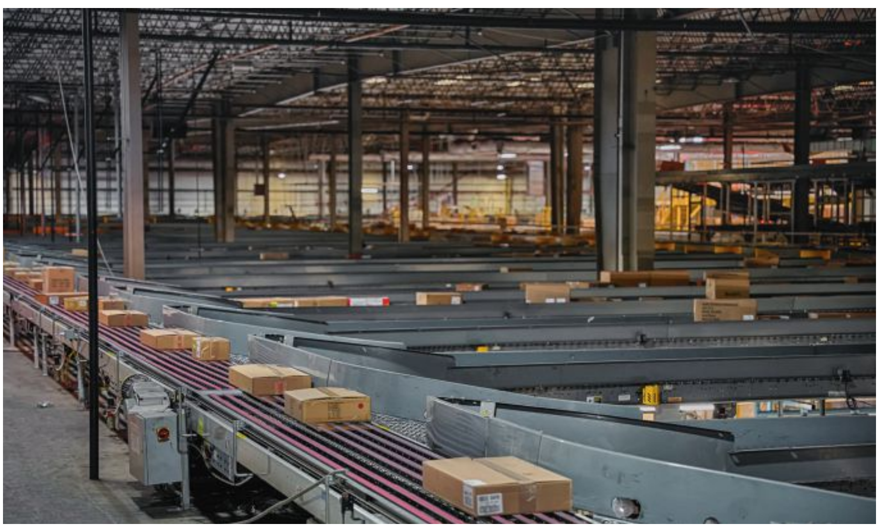
Everything runs faster at Boscov's DC in Reading, Pa., now that its conveyor and sortation systems have been replaced and revamped with new hardware, controls and software.

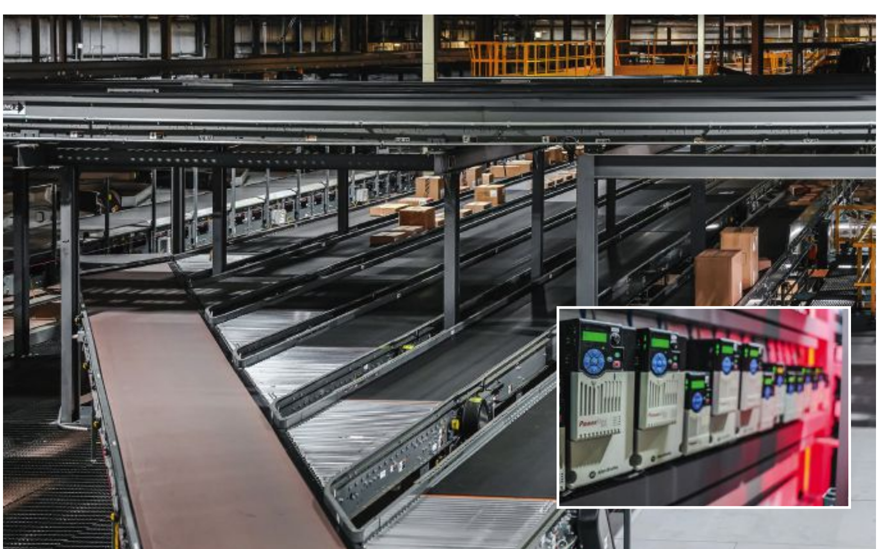
Combine this complete automation overhaul with a new order processing area that eliminates the need to store some goods in trailers in the yard, and the outcome is a step-change improvement in order fulfillment speed for the family-owned department store chain.

"We really wanted to get to the point where we could streamline the operation and just get everything out on a much quicker basis," says Robert E. "Bob" Goonan, senior vice president of logistics for Boscov's.

Achieving speed in its DC is nothing new for Boscov's. In the early 2000s, the operation installed and later reconfigured its conveyor and sortation systems to support rapid flow-through of pallet shipments earmarked for stores

Jeff Fusco/Getty Images for Peerless Media





The project updated the controls for existing conveyor and sortation, added one new sorter and sawtooth merge (shown at bottom).

using advanced ship notices (ASNs), a type of electronic data interchange (EDI). Our 2004 story focused on how the sortation and ASNs enabled cartons to be crossdocked from receiving to shipping in 7 minutes, while the 2008 story looked at how additional sortation capabilities and more dock doors helped Boscov's keep pace with its growth and ambitious store expansion plans.

Much has changed since. For one, some of the automation and software had become outdated, so an overhaul was in order after close to 20 years of use. The company's growth plans are also more modest than they were 20 years ago.

After the recession in 2008, the company downsized its store network to 40 stores and is slowly building back. The chain has steadily recovered, exceeding $1 billion sales in 2013, and in recent years has returned to stable growth, adding on average one store per year. The chain is back up to 50 stores.

The operation still makes heavy use of ASNs (86% of inbound shipments have ASNs) to permit rapid flow-through, especially during peak seasons, says Goonan, but during non-peak times, the situation flips, and more goods are held at the DC in reserve.

Over the years, this need to hold goods for later order processing led to inventory handling challenges, since there wasn't enough racked storage and shelving in the DC to hold everything. At one point before Boscov's latest project, more than 100 trailers were being used to hold stock, which led to inefficient double handling of inventory.

Between the need for a more structured order fulfillment area and the aging automation, by 2020, Boscov's reached out to a systems integrator (DLN) seeking ways to create a new order processing area, modernize the sortation and other automation to regain

make it happen

The sortation and conveyor also serve processing areas where repacking or prepping of goods for stores takes place. Now there is more flexibility and redundancy in servicing these areas.

speed, and generally increase efficiency for flow-through orders and orders fulfilled from stock.

"We were getting congested in some of our areas due to volume, and we weren't getting shipments out as fast as we could," says Goonan. "Gradually, we had to use additional hours or expand shifts to keep up. We also needed to get more product into the building, and just improve throughput and efficiencies all around."

The overall driver for the project, says Goonan, was growth in volume and in more fulfillment activity from goods held in stock, necessitating a modernization of its legacy automation, as well as a way to order pick from stock more efficiently.

"Volume had outgrown the existing capabilities in the building" says Goonan. "Increases in product, in stock retention, and the addition of stores, made it difficult to handle our peak seasonal volume. The warehouse management system, warehouse control system and the conveyance as it was designed in 2008 was no longer adequate and could not handle the product range and flow effectively."

The modernization was multifaceted. While it did not enlarge the 395,000-square-foot DC, the project included:

- all new automation hardware and controls, which began seeing production use last year;
- additional sortation capacity;
- increased storage capacity, with six aisles of pallet flow rack and 24 aisles of shelving in a new order processing area, OP2; and
- a new warehouse execution system (WES) software functionality from DLN to drive order picking from stock retention (went live in February 2024).

The improvements reduced the need for extra shifts and overtime, while bumping up throughput to a level where the DC can now ship 65,000 cartons in a 10-hour shift, whereas previously, it was a struggle to ship more than 50,000 cartons in less than 16 hours. At the same time, that speed at the DC translates into more frequently, finer-grained replenishments to stores.

Those more frequent deliveries, geared more to what stores need at the time, makes shipments easier to receive, stock and manage at the store level, while keeping the stores topped off with right mix of goods, which is crucial for Boscov's because most of its e-commerce orders are filled from stores.

The improvements at the DC level, including new software to manage order picking, are supportive of a more just-in-time approach to replenishing stores, rather than sending them fewer larger shipments that complicate staffing and stock management at the stores.

"We're now able to replenish the stores more in line with what they need right now," says David Krommes, director of distribution. "For instance if we want a store to keep 10 of a product on hand, and the store sold five yesterday, we can

Other activities that are part of the material flow include a garment-on-hanger processing area, and a new racked order processing area where picks are made on orderpickers.

just put in a pick and replenish that store with what they need."

Modernization

Boscov's is America's largest family-owned department store, with roots going back to 1914 when founder Solomon Boscov began selling household goods locally in Pennsylvania and later opened a dry goods store in Reading.

That evolved into the first Boscov's Department Store, with the next generation growing the company into a chain of department stores in the mid-Atlantic.

Today, Boscov's has 50 stores in Pennsylvania, New Jersey, Maryland, New York, Connecticut, Delaware, Ohio, Rhode Island and West Virginia. The chain's stores offer a broad range of goods, with the company stressing selection, value, customer service, as well as community partnerships. As a result, the Reading DC must crossdock or stock a range goods including apparel, home goods and seasonal items.

The retail industry has grown more e-commerce focused since the project 20 years ago, and for Boscov's, this is done by fulfilling most orders through its stores. The ability of the DC to replenish more frequently and in a more pinpoint manner, helps the e-commerce strategy by avoiding out of stocks, and making shipments easier to process for stores, giving staff more time to help customers or fill online orders.

While the older hardware was still working, it was hard to find parts for some of the systems. Boscov's and DLN determined a full-scale modernization was in order, with all new hardware, warehouse control system software to manage the automation, and use of DLN's WES capabilities to drive order picking from stock retention.

Some additional conveyor was added to move goods through the building more effectively, but new hardware and supporting technology, like new imager/camera-based bar code readers, helped improve speed by ensuring minimal gaps between conveyed items.

For example, the older automation relied on a large three-to-one merge area to move product into the main shipping sortation area. That was replaced with a six-lane, sawtooth merge that brings six lanes of goods together to move them to shipping sortation areas.

The sawtooth is servo-controlled so each lane of accumulated cartons (slugs of product can be built up in advance) flows into the merge rapidly and sequentially with minimal gap between cases. This allows more volume from receiving or order picking processes without bottlenecking.

"Before, we were not able move that product fast enough and that was impeding our ability to unload fluidly," says Goonan.

In effect, says Goonan, improvements like the new merge table and additional conveyor infeed lines allow the DC to convey and sort more volume in less time. It's just one example, notes Goonan, of how the project was like adding new parts and tires to a vintage sports car to restore its speed.

"We tuned up the engine, which you can relate to new controls, and changed to the latest performance tires, which you can equate to new conveyor, so that everything just moves faster than it did before," Goonan says.

A secondary benefit of the updated automation is that it runs noticeably quieter than the legacy systems. "If you're standing next to one of these new conveyors, you can have a normal

While a large percentage of cases flow right through the DC to stores, the DC does have multiple order processing areas that need to be managed as part of the overall order flow out to stores.

Jeff Fusco/Getty Images for Peerless Media

conversation in a fairly normal tone of voice, and that's amazing," says Goonan.

Order fulfillment area

Prior to the latest project, the DC had 85,000 square feet dedicated to stock retention, including some floor-based bulk storage and 66,000 square feet of racked space. As part of the DC renovation, an additional 55,000 square feet of rack and shelving was added to reconfigured areas within the building to create the new order processing area (OP2).

During non-peak seasons, relatively more product is stored in stock retention, compared with peak seasons, when about 70% of all shipments are flow-through shipments that never go into stock.

Six rows of pallet flow rack, and 24 aisles of rack and shelving for cartons were installed in this reconfigured space, which was previously an underutilized area of multi-level high-bay racking. This nearly doubled the DC's internal storage space, and all but eliminated the need to store goods on trailers, which inevitably led to double handling of inventory, as well as more yard activity and costs.

"On any given day, we might need to pick goods off 40 of those trailers to fill orders, and most of the time it was challenging to do that many picks from trailers with all the other order processing goods going on the building. So, if we were going to start developing a backlog, it was usually from picking off those trailers," says Krommes. "Additionally, we would haven't room to bring in everything from a trailer, so say there were a thousand cartons on it, and we'd need 200 to fill an order, we take those 200 off, and leave the 800 on there, and three days later, we might need to go back to the trailer to pick another 200 cartons. Now we are able to handle these orders much more efficiently within the building in this new order processing area, rather than waiting on trailer moves."

Orders picked in OP2 get conveyed and sorted to the correct outbound docks, but the days of constantly dealing with trailers to retrieve stock are gone, save for some larger non-conveyables that might get stored on a trailer. "We've been able to eliminate those secondary and third touches, which had been costing us," says Goonan.

The software for order picking is DLN's WES software. It manages the inventory in OP2, directs pick activity, and provides labor management and productivity metrics.

Boscov's legacy warehouse management system (WMS), a customized WMS used for decades by the company, still exists and handles some functions, but the WES software provides more fine-grained order picking based on what stores need.

The DC's new order picking area also sets up the DC to start doing e-commerce fulfillment for single case-pack items that ship in the product carton, such as microwave ovens or vacuum cleaners. Later this year, the plan is to start fulfilling online orders for these single case-pack item from the DC. The Reading DC isn't morphing into an e-commerce pick/pack operation, but the experiment is expected to help lessen the burden on stores and should help attain better shipping rates for bigger items.

"By fulfilling the single case pack items here and doing it very efficiently, we are freeing up time for a salesperson to be assisting customers or filling other e-commerce orders," says Krommes.

Efficiency and service outcomes

With the new systems in place, the DC has regained the level of efficiency it enjoyed in the past, while still able to adapt to changes in the business like the need to hold more goods at the DC level, enable more frequent replenishments to stores, and better support e-commerce efforts, beginning with fulfilling single case-pack items.

Due to seasonality, the DC has not measured the throughput improvements across a whole year of production with the new systems but tracking of units per hour (UPH) from August through January shows a gain of more than 15% in UPH, says Goonan, and a reduction in cost per unit (CPU) of more than 10%.

LEADERS

Q&A WITH ROBERT KRIEWALDT
SENIOR VICE PRESIDENT, PHOENIX LOGISTICS

Q: ***Should I have a diverse mix of carriers or split my volume between as few carriers as possible?***

A: The further away we get from the challenges we faced during the pandemic, the easier it is to slip back into pre-pandemic models and processes that weren't necessarily working. Yes, giving a carrier more volume can help you negotiate lower rates. In this time of economic uncertainty, cost-cutting shortcuts like volume discounts may seem extra appealing.

But that's very surface-level thinking. Think about what happened last year to the shippers who put all their eggs in Yellow Freight's basket. Or consider the frantic pivots by all the mid-sized shippers who had had their shipments rejected by parcel carriers due to peak season capacity constraints a few years ago.

That's not to say volume discounts aren't a good thing sometimes, but you must carefully weigh the short-term cost benefits against the long-term risks before doubling down on one or a few partners.

Q: ***What are the benefits of maintaining a diverse carrier base?***

A: Carrier diversification builds resilience into the transportation elements of your supply chain. There are a lot of disruption threats out there, such as severe weather, labor strikes, carrier bankruptcies, capacity crunches, and numerous other factors that can create unexpected disruptions. Carrier diversification ensures you have the relationships in place to shift volume to another carrier quickly when something goes wrong instead of rolling the dice on the spot market.

Diversifying your carrier base lets you provide the optionality and flexibility your customers want. Some customers might want an order delivered the next day at a specific point on their property. Others may not need their order for weeks but need it at the loading dock within an assigned two-hour delivery window.

Providing a good customer experience these days means providing options. When you have an array of carriers, you're much more likely to find one that can adapt to unique shipping requirements.

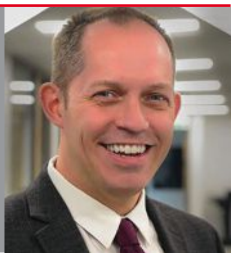
Q: ***Doesn't carrier diversification add complexity to your supply chain?***

A: Let's face it. We live in a complex world, and the supply chain isn't getting any less complicated. Using more carriers does add a layer of complexity, but with the right logistics technology in place, managing more partners shouldn't create extra work.

If you haven't made those investments yet, you can work with a 3PL like Phoenix Logistics to leverage the benefits of an advanced transportation management system and other logistics technology solutions. We also offer transportation management solutions so that we can handle any additional complexity for you.

ROBERT KRIEWALDT

Senior Vice President
Phoenix Logistics
robert@phoenix3pl.com
(920) 915-9746



Q: ***What is the key takeaway for shippers regarding carrier diversity?***

A: Cost considerations are important, but don't let them overshadow the need for a reliable and flexible carrier network. Sacrificing resilience for short-term savings can jeopardize long-term business health. By maintaining a diverse carrier network, shippers can safeguard transportation operations against disruptions and better meet customer demands, ultimately supporting sustainable growth.

"Overall, the performance is slightly higher than projected," Goonan says. "We will continue to see improvements in the spring of 2024 as we reach the anniversary of the project."

Before the project, the DC was running two eight-hour shifts, and using considerable overtime to meet its volumes that during peaks sees the DC receive about 240,000 cases per week and ship about 270,000 cases per week.

Now with the modernized automation, and the new order fulfillment zone, rack and software, the DC reduced its shifts from two per day down to one shift running 7 a.m. to 7 p.m. five days a week.

Current staffing averages around 225 people, but during peak may rise to near 260. "We are now able to do more work in a tighter timeframe," says Goonan. "To simplify it, the big gain is that a volume of work that used to take us 6.5 to 7 days with two shifts, we can do with one shift Monday through Friday. That efficiency also allows us to get shipments to our stores faster."

The more frequent deliveries did take some getting used to for the stores, says Goonan, but they've adjusted their staffing to the more frequent deliveries, which in the long run helps stores because there are smaller batches of stock to put away, geared toward replenishing what is being sold from either in-store sales or e-commerce fulfillment.

For Boscov's as a whole, the more efficient DC sets the chain up for cost efficient replenishment that can handle peak season volumes without a leap in labor costs, while accommodating efficient order picking. "We're able to be a lot more effective with less time and resources in getting shipments to our stores," says Goonan.

The strategic carryover of these internal efficiencies is more timely replenishments to stores to support sales growth and stock availability. "That [ability replenish more frequently] is also part of the aim of this project—to not overwhelm the stores with big shipments and be able to replenish them on more of a just-in-time basis with the DC acting as the fulfillment agent," Goonan says. "We can now replenish them more frequently and do it very efficiently."

Modernization at Boscov's

Boscov's Department Stores DC makes gains from new sortation, controls and software, plus racked order processing area.

Boscov's Department Stores
Reading, Pa.

SIZE: 395,000 square feet, plus attached 85,000 square feet building for stock replenishment.
PRODUCTS HANDLED: apparel, home goods, furniture, bedding, luggage, seasonal items.
THROUGHPUT: 270,000 cases per week outbound, in peak seasons.
EMPLOYEES: 225, on average.
Shifts: One 12-hour shift, five days a week.

Boscov's DC in Reading, Pa., has long made heavy use of advance ship notices (ASNs) to support crossdocking of goods for specific stores, with 86% of cartons having an ASN. Between store-specific labeling and the ASNs, many cartons, especially during peak seasons, flow right through the facility. During non-peak times, there is relatively less flow-through and more order processing activity.

Inbound shipments arrive at one of 35 receiving doors (**1**), mainly as floor-loaded cartons, though a small percentage of cartons arrive in containers, and a small volume of palletized goods are also received. The operation uses extendable conveyors that reach into the floor-loaded trailers to make unloading easier. These extendable conveyors flow into multiple inbound conveyors that move cartons to a pre-sorter system (**2**) toward the center of the facility, or to sorter C. Each have a scan tunnel immediately upstream from it to read labels and route goods accordingly.

These two sorters will either route cartons to one of the outbound shipping sorters (**3**), or to one of the DC's order processing areas it services, if order picking from stock, repacking or quality control steps are needed. The latest project upgraded one shoe sorter (sorter C) that can either route goods toward another shipping sorter route, or around to one of the value-added processing areas in the DC. This upgraded sorter, with additional diverts and conveyor path re-routing, added redundancy to outbound sortation, as well more flexibility for circulating cartons to order processing areas. The DC currently has 62 outbound shipping docks (**4**) along two sides of the main building.

The processing areas execute value-added services like taking goods out of cartons and repacking items as ready-to-wear products. They also handle quality control checks. Two of these essential processing areas are located at the center of the main building, close to receiving, on two levels, one right over the other. On the ground level is Conventional Flat (**6**) where various services like repacking or labeling take place. A Ready-to-Wear processing area (**5**), located upstairs, provides item preparation, check-in, and processing onto the GOH system (garment on hanger).

The project added, using existing space, a new order processing area with racked storage, known as OP2 (**7**). This area provides easy access to goods that need to be held over the short to mid-term, using software to drive the order picking, as well as manually operated, narrow-aisle orderpickers for larger items or for pallet moves, and pick-to-cart for smaller items. Compared to dealing with goods stored in trailers, the reduced touches have significantly improved efficiencies in the DC. A pre-existing reserve storage area known as OP1 (**8**), remains in use and connected by conveyor to the other processes.

Nearly all the existing conveyor and sortation hardware, and all the five-sided scan tunnels, were replaced with new equipment, including programmable logic controllers (PLCs) and other key parts of the controls layer. A key addition was a new sawtooth merge (**9**) that brings together six lanes of goods coming from receiving and processing areas, to feed the new sorter C at a higher rate. The merge provides a pull system that allows upstream accumulation conveyor, feeding from the various areas, to operate without backing up the processing areas. The induct and sortation on sorter C operate with minimal gaps and are designed to handle a rate planned for several years in the future. •

—*Roberto Michel is a contributing editor for* Logistics Management

System suppliers

SYSTEMS INTEGRATION: DLN Integrated Systems
SAWTOOTH SORTER: Honeywell Intelligrated
CONTROLS/PLCs: Rockwell Automation
WCS/WES: DLN Integrated Systems
SCAN TUNNEL TECHNOLOGY: DataLogic
HANDHELD SCANNERS: Zebra Technologies
RACK DESIGN AND INSTALL: Lift, Inc.
LIFT TRUCKS/ORDERPICKERS: Crown

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Beyond the horizon: What's next for SCM software?

Supply chain management applications have helped transform how companies operate and promise to be even more transformative in the coming years.

By Bridget McCrea, Contributing Editor

As the linchpin that binds together fulfillment, warehousing and DC operations, supply chain management (SCM) software helps companies operate more efficiently, control their physical inventory, and manage transportation with precision.

Enterprise resource planning (ERP) systems automate functions like finance and human resources; warehouse management systems (WMS) optimize fulfillment operations; while transportation management systems (TMS) oversee the planning,


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execution, and optimization of carrier selection and route planning.

Beyond these "big three" SCM applications lies a host of other solutions that manage everything from demand planning and inventory control to procurement and supply chain planning, just to name a few. Some are integrated directly into larger software suites, while others operate as standalone systems, but they all focus on one core mission: orchestrating a seamless flow of goods across the supply chain.

Thanks to all of the attention being paid to supply chains these days, the advent of artificial intelligence (AI) and a steady push to digitalize their operations, companies are investing in and implementing more SCM software right now. The cloud has made the transition easier—both for new users of SCM and for those that want to replace their aging legacy systems with new, modernized options.

Responding to this demand, software vendors are infusing more AI and machine learning into their applications; adding new functionalities and capabilities to their solutions; and finding innovative ways to improve the user experience (UX).

The latter has become a key focus in an era where warehouse and DC labor is notoriously hard to find and even more difficult to retain. By prioritizing UX, businesses can create more positive work environments, enhance overall business performance, and reduce employee turnover.

Heading in new directions

From a functional perspective, Amarendra Phadke, CTO, North American consumer products and retail engineering practice at Capgemini, says that SCM continues to evolve right along with the supply chains that the software supports.

"Over the last few years there's been a proliferation of AI in the SCM space, along with the integration of the Internet of Things (IoT) and real-time track-and-trace capabilities," says Phadke. "The ultimate goal is to be able to provide end-to-end visibility via a control tower setup, and that's the direction we've seen SCM heading in."

Phadke expects that momentum to continue over the next few years as SCM developers tweak and hone their solutions to meet their shippers' needs. For example, we will begin to see more native integration of machine learning—when computers learn from data without being explicitly programmed to do so—into most SCM applications.

Phadke adds that more AI and generative AI are also in the cards, as vendors find ways to integrate both into their applications—versus "bolting on" those advanced technologies to existing software.

Blockchain is another area that could make a comeback in the supply chain within the next few years. And while "Blockchain 1.0" may not necessarily have lived up to the hype around it, the core technology still holds promise for the supply chain as a whole and the applications that support it.

By creating a shared, immutable record for supply chain activities, blockchain streamlines real-time tracking, saves companies money and improves collaboration across partners. "There have been past attempts to integrate blockchain," says Phadke, "but as the technology becomes more mainstream, we may see more companies using it to certify that their end-to-end supply chains are protected."

Orchestrating the supply chain

In this period of rapid technological investment, companies can't afford to stagnate on the digitalization front. Specific to SCM, Balaji Abbabatulla, VP and analyst at Gartner, says that many companies have committed to spending on the SCM software they need to modernize their operations. Others are taking the "incremental modernization" approach, which centers on making smaller, more targeted investments over time—all in the name of modernizing their supply chain operations.

Abbabatulla expects to see more of the same for the 2023-2028 forecast period, during which time companies will use committed spend to support the clear roadmaps that they've laid out, and that are focused on spending on certain capabilities.

As long as the budgets are approved and the right vendors identified, he says, the supply chain modernization momentum will continue over the next four years. Companies are also allocating discretionary spend to the cause and investing in "net new" capabilities for their supply chain software stacks.

For example, Abbabatulla says companies will invest in SCM applications that help them "shift from the traditional view of supply chain convergence and over to orchestration"—a pivot that requires software capabilities that the company may not currently have.

"Convergence is about providing a consistent way of doing things across end-to-end supply chain," he explains. "But even if a company has a consistent way of doing things across the supply chain, it still needs to improve efficiency."

Expect to see more supply chain orchestration platforms rising up to meet these requirements over the next few

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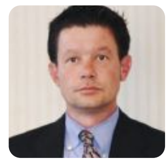
Hatfield & Associates' comprehensive Transportation Management Software (TMS) drives complex, global supply chains across many different industry sectors.

Jack Hatfield
Founder and President
Hatfield & Associates



Jason Hatfield
Vice President
Hatfield & Associates

Located in Memphis, Tenn., Hatfield & Associates was founded in 2002 by Jack Hatfield, president. The company specializes in logistics and supply chain management, for which it offers a comprehensive suite of services focused on optimizing transportation, streamlining processes and reducing costs for its customers.

In this Competitive Edge Q&A, Jack Hatfield and Jason Hatfield, VP, discuss the role that their TMS and Freight Bill Audit Service plays in helping companies efficiently manage and optimize their transportation operations in today's unpredictable freight environment.

Q: ***What makes Hatfield & A ssociates' TMS different from other solutions on the market?***

A: Our company's competitive edge lies in the additional modules that you can add to our TMS, which include a vendor portal, a spot/e-quote module and a business intelligence (BI) platform that feeds data to those other platforms in real-time. Unlike third-party software, our platform is fully owned, maintained, and controlled in-house, ensuring seamless integration and support.

Q: ***Tell us about the vendor portal and how it works.***

A: Our vendor portal allows a company's manufacturing department to control inbound raw material freight costs, compliance and routing of the freight in real-time. The vendor logs into the portal to set up the shipment, and based on their shipment's details, the vendor is then provided with the company's compliance or least-cost carrier.

Q: ***How does Hatfield & Associates' BI platform work and what benefits will it provide?***

A: Our BI analytics platform allows manufacturing departments to view real-time data, whether that data relates to inbound vendor portal shipment and/or vendor compliance. The BI platform also allows companies to review analytics for historical shipments, how they're trending in the market and transportation costs all in real-time.

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Q: ***Tell us about the TMS' spot/e-quote module and how companies are using it.***

A: The spot/e-quote module streamlines the freight quoting process for manufacturers by allowing them to electronically distribute quotes to their approved carriers. Once a carrier's quote is selected, the system notifies the carrier, and a truck is dispatched to the manufacturer on the specified ship date.

Q: ***What are some of the top benefits that companies can expect from using Hatfield & Associates' TMS?***

A: The primary advantage of our TMS is the significant cost savings on transportation. Companies utilizing our platform benefit from optimal transit times, ensuring efficiency and reliability. The platform's electronic dispatch capabilities eliminate the need for manual carrier contact, providing seamless communication. Additionally, it offers comprehensive visibility from pickup to delivery, enhancing transparency and control over the entire shipment process.

Q: ***What role does Hatfield & Associates' seasoned team play in its success?***

A: With over 50 years of combined experience in the industry, our team brings a wealth of supply chain knowledge to the table. Many of our staff have over a decade of experience, making us a reliable resource for our customers. They often turn to us not just for our tools, but for advice on freight movement, market trends, and industry insights. Our clients know they can reach out to us anytime for help, advice, or support, and we stay closely connected to serve as an extension of their transportation team.

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years. According to Capgemini, these platforms help reorganize supply chain roles, processes and technologies. They also break down silos between disciplines, remove friction and establish an operational and financial flow from planning through to delivery.

Abbabatulla says supply chain orchestration takes automation to the next level by making processes even more efficient, effective and streamlined. For example, a current yard management system (YMS) may not be designed to fulfill certain decisions. Because of this, those decisions can't integrate into existing execution workflows.

When orchestration is layered into existing automation pathways, however, it gives companies access to real-time insights into inventory levels, supports data-driven decision making, reduces inventory holding costs and prevents stockouts.

"Over the last few years there has been a proliferation of AI in the SCM space, along with the integration of the Internet of Things (IoT) and real-time track-and-trace capabilities…The ultimate goal is to be able to provide end-to-end visibility via a control tower setup, and that's the direction we've seen SCM heading in."

—Amarendra Phadke, Capgemini

Minimizing the pendulum swings

As nearly all companies learned during the global pandemic, the pendulum can swing pretty quickly in the supply chain. In some cases, companies were left scrambling to fulfill orders for products whose demand spiked for the first time ever (think face masks and hand sanitizer, for example).

Kira Bilecky, senior supply chain consultant at St. Onge Company, says as SCM software incorporates more AI, machine learning and other advanced technologies, it may help keep the pendulum swinging at a more predictable rhythm.

Bilecky tells companies to keep a close eye on the "scope creep" that can surface on SCM projects that incorporate advanced technologies like AI and machine learning. The sector of the market is still in its early stages, which means that an off-the-shelf WMS, TMS or other system that incorporates AI and GenAI may add some anticipated costs to the project.

"A lot of software vendors are offering AI and using it as a buzzword to attract customers," Bilecky cautions. "The key is to find a solution that works for your company without the need for too much over-customization. Right now, we're seeing some scope creep and added costs that buyers don't always anticipate or expect upfront." She adds that this isn't a new problem for software buyers, but is something that companies should keep an eye on as they modernize their tech stacks with new SCM applications.

"Companies should think beyond 'we're getting these three modules to handle these three things for X dollars,'" says Bilecky, "and look at it more from the perspective of building out adaptive, responsive tools that provide real-time information and high levels of supply chain visibility. If you don't do this, from an investment perspective you may wind up blowing your budget pretty quickly."

Taking a holistic approach

As a former global logistics manager herself, Bilecky also tells shippers to take a thoughtful, holistic approach to SCM and the emerging technologies that are being threaded into these systems.

In this role, she would sometimes assess new solutions from the standpoint of how her team members would use the tools for specific functions. Those visions didn't always translate to the warehouse or factory, where the tools would be used for functions that Bilecky didn't consider upfront.

"I had one vision that was very different than what the solution actually would and could do," Bilecky says. "Managers can avoid this issue by being open-minded when they talk to solution providers. Just know that when you ask for X, you'll may wind up getting X+Y+Z."

Looking ahead, the analysts and experts we interviewed for this article all expect to see more innovation on the part of SCM software vendors and more requests for additional functionalities from the shippers that rely on these applications to run their global supply chains.

To shippers that are investing in SCM in the next 12 months to 24 months, Phadke says the best starting point is to conduct thorough internal assessment of current processes, challenge areas, and future needs. "When evaluating software options, be sure to factor in the vendors' AI and machine learning integration roadmaps," he adds, "knowing that these types of technologies may radically change how you operate your business going forward." •

Bridget McCrea is a contributing editor for Logistics Management

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Top Freight Forwarders: PREPARING for the upturn

The world's top freight forwarders apply technology at break-neck speed to help navigate through continued global economic bumps—and get ready for a likely return to growth

BY **KAREN E. THUERMER**, CONTRIBUTING EDITOR

To say business has been challenging for the freight forwarding sector just may be the understatement of the year. In 2023, forwarding markets slowed considerably due to a worldwide economic downturn and rising inflation, weakened consumer demand, continuing environmental concerns, and deepening geopolitical conflicts that created havoc on supply chains. Consequently, forwarders saw their gross logistics revenues decrease significantly, particularly when compared to 2022.

"The exceptional market conditions of 2022 and 2021 are long gone, and the markets are on a new trajectory, leading to significant downturn in revenue and profits among most of the freight forwarders in 2023," comments Viki Keckarovska, research manager at Transport Intelligence Ltd (Ti).

Armstrong & Armstrong (A&A) reports that in 2023, the international transportation management (ITM) 3PL market segment continued to be the most underwhelming sector—down 34.2% in net revenue to $28 billion. Its data indicates that gross revenue was nearly cut in half (-49.3%) to $74 billion.

"It's hard to believe when, just two years ago, the ITM 3PL Market segment realized an unheard of 74.9% gross revenue gain and 44.6% net revenue jump from pandemic-driven demand from shippers focused on replenishing inventories to meet strong consumer demand," says Evan Armstrong, president, A&A. "The ITM environment has dramatically changed since mid-2022, with ocean freight rates from Asia to the U.S. trending down to pre-pandemic levels."

A&A defines ITM as including ocean and airfreight forwarding; associated inland transportation; shipment consolidation and deconsolidation; customs house brokerage, and related warehousing services.

Ti's most recent report, "The Global Freight Forwarding 2024 Report," sees the global freight forwarding market normalizing, with demand for sea and airfreight forwarding services remaining soft and expanding by only 1.7% in 2024.

"Challenges arising from a global economic downturn,

shifts in consumer behavior, and an oversupply surpassing demand have led the global freight forwarding market to contract by 1.3% in real terms (holding prices and exchange rates constant) in 2023," writes Thomas Cullen, chief analyst at Transport Intelligence Ltd (Ti), in the report.

Impact on modes

Ti findings indicate airfreight forwarding shrank by 2.1% in 2023. However, sea freight forwarding experienced a less than desirable performance, contracting by 0.6%.

A&A reports that in third quarter of 2022, ocean shipping rates and domestic transportation rates began disinflation in the U.S. as consumer demand moderated and supply chain operations stabilized. China to U.S. and European ocean shipping rates have declined as much as 90% since the peak in early 2022.

"ITM 3PLs saw rapid declines in air and ocean demand and rates," says Armstrong. A&A data indicates that global air cargo freight rates decreased as much as 41% in the second quarter of 2023 compared to the prior year. International freight forwarding year-over-year volume declines reported in the United States, Europe, and Asia

A&A's 2023 Top 25 Global Freight Forwarders (ITM) 3PLs

Largest providers ranked by 2023 gross logistics revenue/turnover and freight forwarding volumes*

A&A Rank	Provider	Gross Revenue (US$ Million)	Ocean TEUs	Air Metric Tons
1	Kuehne + Nagel	31,659	4,338,000	1,983,000
2	DHL Supply Chain & Global Forwarding	33,869	3,089,000	1,672,000
3	DSV	22,316	2,519,295	1,305,827
4	DB Schenker	21,116	1,783,000	1,148,000
5	Sinotrans	14,340	4,309,636	902,000
6	Nippon Express	15,929	1,698,161	693,546
7	CEVA Logistics	15,100	1,150,000**	450,000
8	C.H. Robinson	16,746	1,353,750	266,475
9	Expeditors	9,300	791,700	782,000
10	Kerry Logistics	6,073	1,261,775	556,823
10	GEODIS	12,500	961,084	308,498
11	UPS Supply Chain Solutions	11,461	525,000	783,000
12	Hellman Worldwide Logistics	3,580	920,000	575,000
12	Maersk Logistics	13,916	635,000	295,000
13	Kintetsu World Express	5,442	724,129	504,080
14	Bolloré Logistics ***	5,223	610,000	350,000
15	LX Pantos	5,267	1,537,000	110,000
16	CTS International Logistics	2,060	837,548	319,921
17	Yusen Logistics	4,986	615,000	264,000
18	LOGISTEED	5,782	424,000	142,000
19	CIMC Wetrans Logistics	2,848	884,734	94,000
20	DACHSER	7,659	286,000	205,205
21	AWOT Global Logistics Group	2,646	260,000	590,000
22	Savino Del Bene	2,980	735,000	87,000
23	Toll Group	4,820	494,200	96,900

* Revenue and volumes are company reported or Armstrong & Associates, Inc. estimates. Revenues cover all four 3PL Segments (DTM, ITM, DCC, and VAWD) and have been converted to U.S. $ using the annual average exchange rate. Freight forwarders are ranked using a combined overall average based on their individual rankings for gross revenue, ocean TEUs, and air metric tons.

** Includes LCL shipments.

*** Bolloré Logistics is now operating under the CEVA Logistics brand.

combined averaged 5.4% for ocean TEUs and 11% for air metric tons.

Air cargo capacity and revenues started to recover in late 2023 after 17 months of consecutive decline. According to A&A, airfreight demand was off approximately 10% from 2022, while overall capacity has expanded with increases in passenger airline capacity globally. Airfreight capacity is generally available at lower rates.

Armstrong notes, however, that ocean carriers indicated an increased willingness in 2023 to provide contracted capacity and good rates for targeted port-to-port pairs as import growth of furniture, consumer, and retail products has waned. "Generally, outside of current labor disputes, ports are less congested, and drayage capacity is readily available," he says.

ITM has moderately bounced back from the first half of 2023 and has seen some rate benefit from shipping uncertainty in the Red Sea and reduced ocean traffic through the Suez Canal.

"ITM demand should start rebounding from China in the second half of the year once shippers need to replenish inventories," says Armstrong. "This should stabilize ocean rates from Asia to North America."

Keckarovska agrees, noting how trade between China and Southeast Asia as well as India and China is increasing. "But the proportion of Chinese exports sold to Western markets is declining as Asian markets increase in size," she says.

Staying competitive

Given the multiple challenges forwarders are facing, analysts maintain that to stay competitive forwarders must is invest in technology (digitalization), make acquisitions, and focus on high-margin

vertical markets such as pharma and semiconductors.

"The two market leaders—Kuehne +Nagel [K+N] and DSV—have successfully integrated acquisitions in recent years. This has helped both to top the list," says Keckarovska.

Armstrong notes that CEVA, GEODIS, and Maersk have heavily invested in mergers and acquisitions (M&A) over the past few years. "With its purchase of Bolloré Logistics—the largest M&A deal in 2024 so far with a purchase price of $5.3 billion—CMA CGM continues to solidify CEVA Logistics' position as a Top 10 global freight forwarder and 3PL, amongst other top rankings," says Armstrong.

Technology is also offering a key advantage in the competitive forwarding landscape. K+N has been particularly active by introducing Roadmap 2026 in April 2024 to improve its operations. Dr. Joerg Wolle, K+N chairman of the board of directors, stresses how the new streamlined organizational structure, which is heavily based on digital technology, will enable K+N to be more responsive in offering comprehensive logistics solutions that will respond faster to ever-changing markets and customer needs.

"Based on our already existing technology prowess, we're putting even more focus on how to harness the full potential of generative artificial intelligence (AI) at an early stage," adds a K+N spokesperson. This includes increasing overall efficiency, pricing, and the quality of its service offerings. "By utilizing the entire digital range from chatbots to robotics, we can create new business models that would benefit our customers' needs," he says.

K+N is also leveraging AI across multiple areas in the areas of predictive analytics (e.g., enhanced Sea Explorer ETA), data optimization and customer support to help customers be more resilient. Some new technologies and platforms are included in its corporate digital twin, which represents an end-to-end digital image of K+N's operations in real time. "It connects all the relevant data," K+N says.

DB Schenker has implemented

AI-powered predictive analytics to analyze historical data and predict future trends to help optimize supply chain operations and anticipate potential bottlenecks. The forwarder is also utilizing IoT sensors to track the condition and location of goods in real-time, ensuring compliance with quality standards and providing insights for proactive maintenance.

In addition, DB Schenker is using cloud-based logistics management platforms that centralize data storage and facilitate collaboration among stakeholders. "This enables real-time access to information and improving decision-making processes," says a DB Schenker spokesperson. "Robotic process automation [RPA] technologies are also used to automate repetitive tasks such as data entry, documentation processing, and invoicing, reducing errors and speeding up workflow processes."

DHL Supply Chain & Global Forwarding offers myDHLi that features a new more user-friendly generative AI-powered virtual assistant. Executives there explain that myDHLi provides users with greater visibility, control, and efficiency across their logistics operations.

"It provides real-time access to quotes, transport modes, carbon emissions, and other key shipment data," says DHL. "Accessing the interface on any device, customers can analyze their logistics activities using a range of filters and customizable views."

DHL Supply Chain & Global Forwarding has also completed a major overhaul to its myDHLi Track platform to improve the user interface by displaying shipment information, including house bill, status, exceptions, timestamps and locations, clearly and concisely on a single screen with less need to scroll.

Technology is also becoming more critical in providing benchmarking, trend forecasting, and emissions data needed to identify more sustainable shipping options. C.H. Robinson recently expanded its CO2e Emissions Tool to help shippers establish a baseline for their emissions and identify opportunities for reduction.

"For large, global organizations using many modes to move goods around the world, calculating emissions data by source would be impossible without technology," says Matt Castle, vice president of global forwarding at C.H. Robinson. "With this visibility, shippers are better equipped to navigate the complex task of assessing cost-to-benefit ratios across various shipping activities to build a more sustainable supply chain."

In addition, C.H. Robinson is helping an increasing number of shippers use its U.S. Customs analytics tool to streamline reporting, stay current on regulations and uncover potential cost savings.

"Using technology to gain visibility into customs spending and risks allows shippers to identify areas to save costs and minimize disruptions at borders," says Castle. "As trade regulations evolve, shippers need to stay on top of changing requirements and technology allows them to do that efficiently while keeping goods moving." •

Karen E. Thuermer is a contributing editor for Logistics Management

Top Freight Forwarders: The A&A Rankings

Despite the notable drop in profits in 2023, Armstrong & Armstrong's (A&A) list of the Top 25 Global Freight Forwarders for 2023 (see chart on page 62) indicates few changes in rankings compared to 2022.

Kuehne + Nagel (K+N) continued to rank No. 1; DHL Global Supply Chain & Forwarding maintained its No. 2 position; DSV its No. 3 ranking; DB Schneker, No. 4; and Sinotrans, No. 5.

Nippon Express jumped to No. 6 from No. 8 in 2022. CEVA Logistics held 7th place. C.H. Robinson rose from No. 9 in 2022 to No. 8 in 2023. Expeditors weighed in at No. 9 down from No. 6 in 2022, and GEODIS tied with Kerry Logistics for the No. 10 spot.

Of note, Maersk joined the list for the first time, placing 12th and tied with Hellmann Worldwide Logistics. Further down A&A's ranking, China's CIMC Wetrans Logistics Technology (Group) Co., Ltd. and AWOT Global Logistics Group landed on its 2023 list ranking 19th and 21st, respectively.

"Tianjin-headquartered CIMC Wetrans Logistics is a leading integrated 3PL in China with ocean freight forwarding as its core business," Armstrong says. "In 2023, CIMC placed 13th on our Top 25 global ocean freight forwarders list. It's also a Top 50 airfreight forwarder."

In 2023, Guangdong-based AWOT, which has an NVOCC license for ocean freight and a Class A license for air freight, placed 9th on A&A's Top 25 global airfreight forwarders list and just missed A&A's Top 25 global ocean freight forwarders list.

Luxembourg's Logwin and Shanghai-based Worldwide Logistics Group, which tied for the No. 21 position in 2022, have since fallen off the list.

—Karen E. Thuermer, contributing editor