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Formulating Solutions for Chemical Shippers

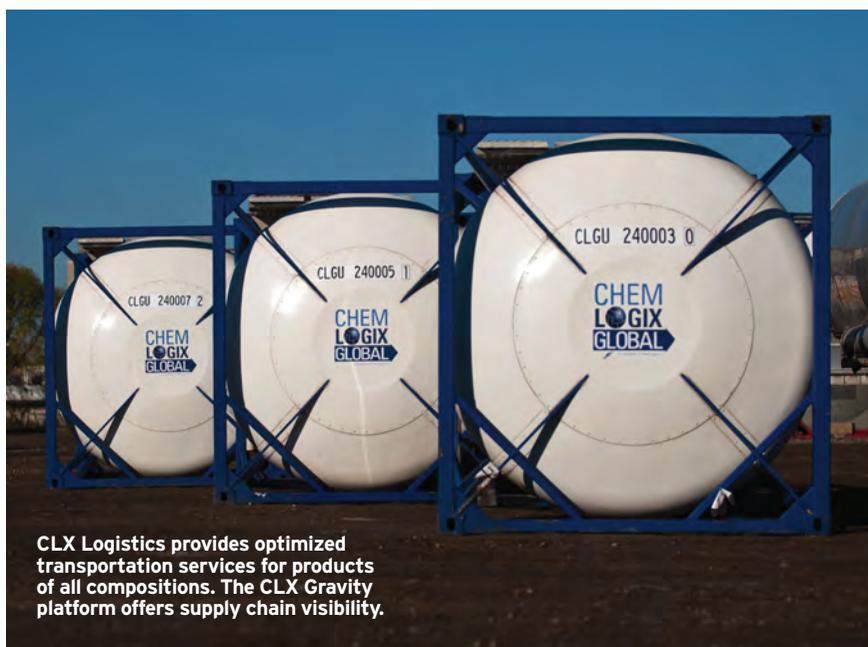




With exacting specifications and transportation challenges heightened by the COVID-19 pandemic, shippers are turning to these partners to move chemicals safely and optimize supply chains.

When much of the world came to a halt in spring 2020 to stop the spread of COVID-19, supply chains had to respond and evolve. That includes many within the chemical sector.

“For a range of companies, COVID-19 is affecting demand, supply, and customer confidence as value chains are being disrupted in unprecedented ways,” says Chris Karney, head of supply chain business process services with consulting firm Accenture Operations.



CLX Logistics provides optimized transportation services for products of all compositions. The CLX Gravity platform offers supply chain visibility.

To navigate the upheaval caused by COVID-19, supply chain organizations need to minimize unknowns and control their shipping processes, essential data, and decision points. “For chemical manufacturers, knowing what you don’t know about your transportation process can be your greatest asset,” says Andrew Hamilton, director of marketing with CLX Logistics, LLC, a global 4PL whose origins lie in the chemical industry.

The impact of the pandemic varies by sub-sector. Operations at many companies whose products are distributed into the automotive sector were upended by plant shutdowns. Similarly, many organizations in the petrochemicals sector saw demand plummet as workers and consumers

holed up at home. In contrast, sales of chemicals used for cleaning and sanitizing have been going strong, says Rob Handfield, Ph.D., professor of supply chain management and director of the Supply Chain Resource Cooperative with North Carolina State University.

COVID-19 also intensified challenges resulting from an aging driver population. As the pandemic spread, some drivers opted either not to work or cut their hours out of concern for

more companies implement electronic signature applications.

To enhance safety in the meantime, some shippers place bills of lading and other paper documents in plastic bags they set outside their facilities, reducing the need for drivers to go into their offices and coming into contact with others. “It’s all done at a distance,” he adds.

The U.S. Department of Transportation has tried to address the challenges heightened by the pandemic with updated rules around truckers’ hours of service. Among other changes, updated regulations announced in May 2020 allow drivers more flexibility in choosing when to take breaks.

Shippers also can act to mitigate the impact of these challenges on their shipments. One step is reducing dependence on the spot freight market. While it can be tempting to flock to this market when prices drop, shippers tend to gain more consistent access to capacity if they assemble a solid slate of contract carriers, and then add a few spot market providers for flexibility.

“When capacity tightens, carriers are going to give preference to those who have contracts with them,” Midkiff says.

Another step, albeit a difficult one in the current unsettled environment, is to provide carriers a forecast of estimated

Many chemical distributors are addressing the challenges facing their sector through technology, such as solutions that enhance shipment tracking and tracing.

their health. “You had equal or more work, but fewer people,” says Charlie Midkiff, senior vice president, global MLS and client services with Odyssey Logistics & Technology, based in Danbury, Connecticut. “It became a double whammy.”

Another challenge comes—as mundane as it might sound—from shippers’ bills of lading, many of which still come in paper form and thus require drivers to obtain handwritten signatures. Midkiff predicts this practice will phase out over the next few years, as

shipment volume. “Even if you have to revise, a forecast helps carriers plan their equipment use,” Midkiff says. Odyssey also is encouraging its clients to ship earlier to compensate for any slowdowns or lack of capacity, he adds.

REGULATORY CHALLENGES IN THE MIX

Surveys of chemical distributors show that maintaining compliance within an ever-intensifying regulatory environment remains an ongoing concern, says Eric Byer, president and chief executive officer with the National Association

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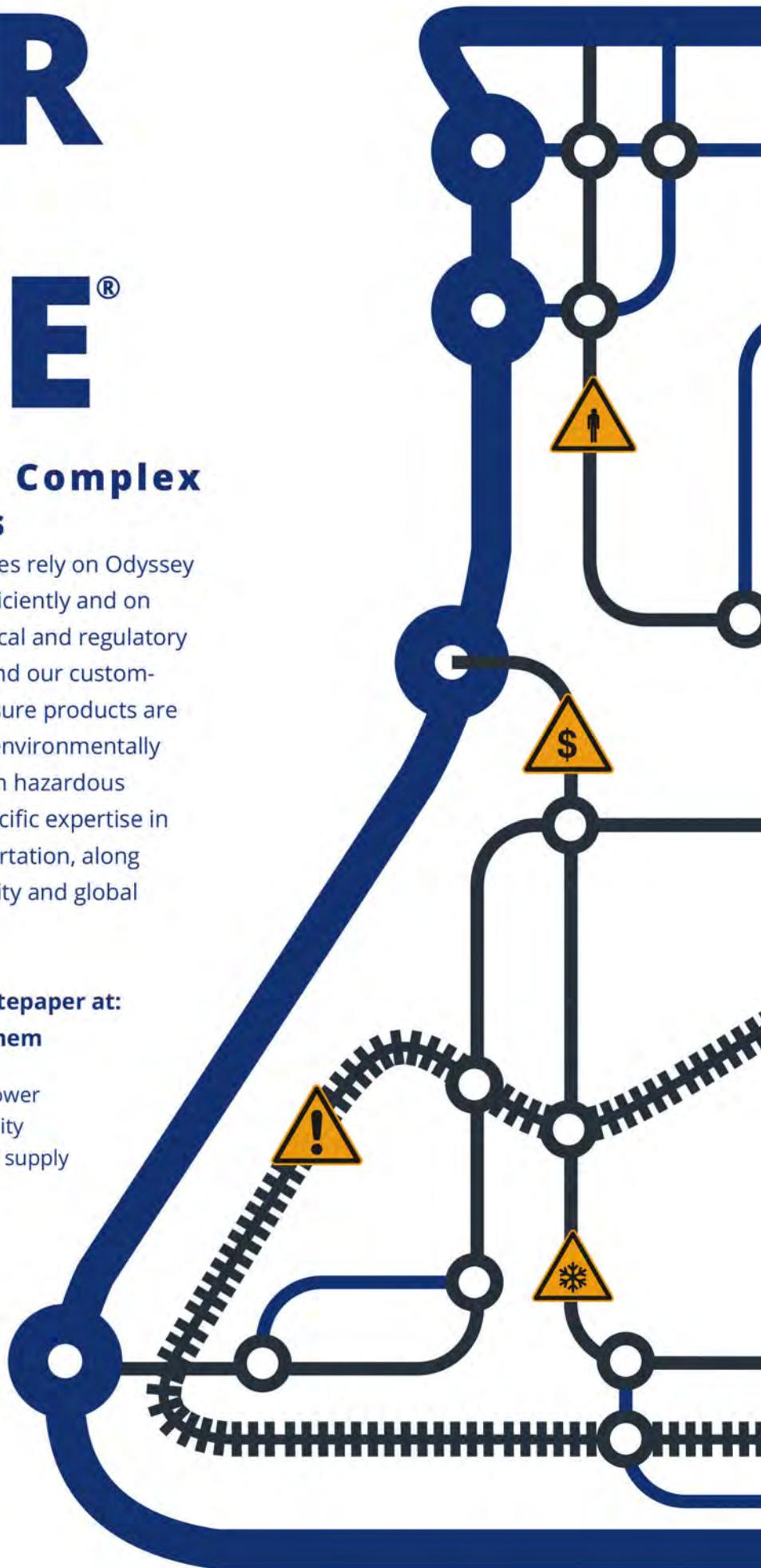
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A growing number of chemical manufacturers outsource distribution and transportation functions to third-party logistics providers (3PLs).



Chemical companies and their supply chain partners comprise the National Association of Chemical Distributors (NACD), an industry group that aims to improve safety.

of Chemical Distributors (NACD), an industry group. He adds that many chemical distributors must comply with a regulatory checklist that's several dozen pages in length. "It's a daunting process and it doesn't matter how big you are," he says.

As the number of regulations in the United States has increased, more chemical production has moved to Asia and some areas of the Middle East, contributing to the shortage of disinfectants and other cleaning supplies when the pandemic hit, Handfield says. If the pandemic lingers or spikes again, some capacity may return to the United States, he adds.

Similarly, the production of some specialty medical chemicals—such as Propofol, which is used to sedate patients, including those who require mechanical ventilators—may also return, he adds. While fairly low volume, these are critical therapeutics.

A similar shift may occur with chemicals used in kits that test for COVID-19, many of which currently also are produced outside the United States. In May 2020, the U.S. Department of Health and Human

Services announced an expansion of U.S.-based pharmaceutical manufacturing as part of its pandemic response. Even so, boosting domestic manufacturing to any degree likely will occur over the longer-term, given the cost and time required to build chemical plants, Handfield says.

No matter where supply chain operations are located, interest in "the greening of the supply chain," is growing, Hamilton says. Green supply chains go beyond standard responsible business practices and require all participants to consider how their processes and actions can be supported by nature and society.

THE TECHNOLOGY FORMULA

Many chemical distribution organizations are taking steps to address the challenges facing their sector through their use of technology, such as solutions that enhance shipment tracking and tracing.

"In the past, it was difficult to track shipments when they were in ports, in customs, even in railcars," Handfield says. Sensors and analytics help shippers and third-party logistics (3PL) providers better monitor shipment location.

Many 3PLs and carriers are deploying more technologies within their trucks, including forward-, inward- and rear-facing cameras that can track incidents that occur on the road, says Greg Rhoads, CSP, chemical transportation consultant and senior advisor to the Responsible Care® program with the American Chemistry Council. These can help in assessing responsibility for any incidents.

In addition, a growing number of chemical manufacturers have decided that rather than assemble internal distribution or transportation departments, they'll outsource these functions to 3PLs. "Outsourcing these activities can help streamline their operations," Rhoads says.

Chemical logistics companies currently employ more than 80,000 people and generate about \$7.5 billion in tax revenue, according to NACD. The chemical logistics companies profiled here are part of this industry.

ODYSSEY LOGISTICS & TECHNOLOGY: OPTIMIZING OPERATIONS

Chemical shippers can leverage the expertise of the management team at Odyssey Logistics & Technology Corporation to generate sustained cost savings and optimize their operations. On average, each member of Odyssey's management team possesses more than 25 years of experience in the chemical distribution sector.

Each year, Odyssey transports more than \$60 billion in cargo around the globe, continually enhancing its knowledge of intermodal and bulk chemical transportation, as well as the regulations that govern the transport of hazardous and non-hazardous products. Odyssey's knowledge and market intelligence can help shippers inform their decision-making.

As important, Odyssey's global TMS platform helps clients optimize costs, identify the most efficient routing options, and control all modes of transportation. To that end, the platform assembles information impacting transportation from a range of sources.

NACD Program Ensures Seamless Partnerships

Warehouses and carriers are critical elements of the supply chain for the U.S. chemical distribution industry, which has a total economic impact of nearly \$20 billion and provides more than 80,000 jobs across all 50 states. Chemical products are used in nearly every industry sector in the U.S. economy, and chemical distributors play an important role in providing those goods to more than 750,000 end users in industries as diverse and essential as building and construction, medical technology, electronics, cleaning and sanitation, and more.

Many of the nearly 430 member companies of the National Association of Chemical Distributors (NACD) outsource some of their operations to a third-party logistics (3PL) provider. However, the chemical distribution industry poses a unique challenge for warehouses and carriers due to the wide range of goods that fall under strict regulatory requirements for the handling, storage, and shipping of those products.

Finding a 3PL partner who meets the needs and expectations of the organization is critical for chemical distributors, and often requires considerable research and evaluation.

NACD Program Focused on Safety

For more than 25 years, NACD and its members have been focused on finding new ways to enhance security, improve safety, reduce environmental impact, and strengthen efforts to have the highest health standards in the industry through participation in the association's environmental, health, safety, and security program, NACD Responsible Distribution®. In keeping with the tenets of Responsible Distribution, chemical distributors must perform exhaustive audits when selecting warehousing or carrier partners to ensure they are adhering to industry best practices on safety, U.S. Occupational Safety and Health Administration regulations, and all other requirements for storing or transporting potentially hazardous chemicals responsibly.

To help take the guessing game out of finding a warehousing partner and to reduce the time spent by warehouses and carriers undergoing exhaustive audits, NACD established the Chemical Handler Affiliate program. NACD

Chemical Handler Affiliates follow Responsible Distribution practices, ensuring contracted warehouses and carriers are adhering to best-in-class industry practices. While Responsible Distribution is mandatory, NACD offers a special exemption for any chemical handler who has already implemented and actively participates in the American Chemistry Council's Responsible Care® or Responsible Distribution Canada's program.



By: Eric R. Byer
President and CEO
NACD
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Becoming verified under Responsible Distribution not only helps 3PLs more safely and properly handle the materials they are storing or shipping, but it also helps them stand out from their peers, potentially increasing their customer base by eliminating the need for distributors to perform their own audits. Being able to provide a Responsible Distribution certificate rather than going through a new client audit also saves considerable time for warehouses and carriers.

Reducing risk in their supply chain is of utmost importance to chemical distributors. Having a warehousing and logistics partner that can store and transport potentially hazardous chemicals responsibly is imperative. By becoming Responsible Distribution verified, warehouses and carriers can reduce audit costs and times and ensure safe and proper handling of the materials they are storing or shipping, while increasing their visibility as a preferred provider for the chemical distribution industry.

Warehouses and carriers interested in learning more about expanding their business and their business connections, while better managing their facility and excelling in compliance, should contact NACD to learn more about our membership options.

For instance, the platform accesses historical shipment volumes from Odyssey's internal data warehouse and uses it as a starting point for future forecasts.

Odyssey's global TMS platform also pulls external data, such as weather changes, road construction, and the locations of COVID-19 outbreaks, so shippers can adjust to them. "We have seen shipping patterns change to move production away from COVID hotspots," Midkiff says. If a region faces driver capacity constraints, Odyssey can identify additional carriers and/or help shippers assess the costs and benefits of changing carriers or shipping from a secondary location.



With expertise in intermodal and bulk chemical transport, Odyssey Logistics & Technology transports more than \$60 billion in cargo around the world each year.

To minimize the manual steps often found in supply chain processes, the platform can integrate with the ERP systems of Odyssey customers, as well as Odyssey's own transportation management system. Data flows securely and electronically between Odyssey, its carriers, and its clients. "You remove as much paper and manual processing as possible," Midkiff says.

Once shipments are on the road, the visibility afforded by the Odyssey TMS platform enables Odyssey and its clients to track shipments in real time and mitigate potential delays. "The technology allows us to quickly identify

any problems with a shipment and jump on the solution," Midkiff says.

Odyssey is certified by the American Chemistry Council as a Responsible Care® partner company.

NACD: IMPROVING SAFETY AND BEST PRACTICES

The NACD, established in 1971, is made up of about 430 chemical distributors and their supply chain partners, which together represent about 90% of the industry's gross revenue.

One is Brook Warehousing Corporation, which has been an NACD Affiliate for about 10 years, says John Auger, vice president with the Bridgewater, New Jersey-based company.

For instance, as the FDA was crafting the Food Safety Modernization Act, one proposal would have had warehouse operators handle recalls and inspection.

"We have no right to do that, as we don't own the products," Auger says. Through NACD, Auger and others provided insight that helped in the development of regulations that would improve safety, without imposing requirements that couldn't be met.

The educational opportunities offered through NACD also are key, Auger says. Throughout the COVID-19 pandemic, NACD has hosted webinars and provided materials to help its members navigate both health and business concerns, such as primers on the Paycheck Protection Program. "As a small organization, we'd be stressed to assemble the various sources of information and make them coherent," Auger says.

In addition to formal learning opportunities, NACD members strive to continually improve and implement best practices. Member-to-member discussions help everyone learn from others' successes, mistakes, and growing pains, Auger says.

By getting to know other NACD members, Auger has developed a list of reputable companies to which he can refer customers when they need assistance outside Brook's geographic range of operations. "I know other NACD members will provide the same

Chemical distributors must comply with a lengthy regulatory checklist in the United States. Leveraging the expertise of supply chain partners helps with compliance.

"We recognized a growing number of our customers were NACD members and it made sense for us to join, share insights, and identify common interests," he says.

Through NACD, Auger and his company also have a voice in Washington. "We get a seat at the table and can offer commentary to help regulators understand how proposals might impact us," Auger says.

level of service and compliance that I would," he says.

Similarly, when talking with an NACD member who's a potential customer, "I'm talking to someone who wants to do it right," Auger says. "I'm not worried they're going to ask me to cut corners."

Indeed, NACD's Responsible Distribution program provides a "higher level of safety within the chemical

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Since 1974, the U.S. chemical industry has improved its energy efficiency by 38%.

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The chemistry industry is a leader in the use of combined heat and power (CHP), also known as cogeneration—the simultaneous production of electricity and heat from the same source. CHP facilities are often twice as efficient as older coal-burning electric utilities.

Energy Recovery

Plastics have a high energy content that can be converted to electricity, synthetic gas, fuels, and feedstocks. Recovering this abundant energy reduces waste sent to landfills and complements plastics recycling.

distribution sector,” Byer says. All NACD chemical distributors regularly complete the comprehensive environmental, health, safety, and security verification, which is conducted by an impartial third-party organization. While a rigorous program, NACD offers resources and mentors to help companies complete it.

The Responsible Distribution program offers several benefits. To start, it builds consistency, Auger says. Without an industry-recognized standard, it’s likely chemical distribution companies would need to comply with multiple standards.

The Responsible Distribution program also helps to level the playing field, as every company that completes it has made a substantial investment in safety training, technology, and processes.

Through NACD, companies can help to move the chemical distribution industry forward in a way that isn’t

possible individually. “You won’t have the leverage or reach,” Auger says.

CLX: ENABLING VISIBILITY AND DATA INSIGHTS

CLX Logistics, a global provider of transportation management systems, supply chain consulting, and other services, had long been recognized for its expertise in chemical logistics. ChemLogix, CLX’s industry-recognized chemical 4PL division, has gained the trust of leading chemical manufacturers and shippers around the globe, Hamilton says.

In contrast to some international logistics companies, CLX leverages its global fluency, international presence, and dedicated chemical supply chain management specialists to provide optimized transportation services for products of all compositions, no matter

where they’re heading. In doing so, it simplifies its partners’ transportation management and international logistics.

The CLX Gravity™ platform allows shippers to build a next-generation, responsive supply chain that can respond to all challenges. It also optimizes the visibility and speed of its customers’ chemical supply chains. CLX deployed the CLX Gravity™ in its partnership with a global chemistry company, improving transportation visibility by combining data from multiple sources. This is helping the company set transportation performance targets and prioritize transportation spend.

Alone in the industry, CLX’s on-demand SAAS-TMS covers all modes of transportation and all regions of the globe. “The TMS and carrier network provide real-time visibility into shippers’ global and domestic supply chains, and deliver planning and execution capabilities across road, rail, ocean, and intermodal networks,” Hamilton says.

CLX Logistics advocates for green logistics and sustainable supply chain management practices that reduce the environmental impact of shippers’ transportation operations. To this end, CLX follows international standards, like the GHG Protocol, to minimize damage to the environment by reducing emissions and energy consumption.

Moving forward, chemical companies will need to continue building agile and responsive supply chains. To accomplish this, they’ll need effective information management, Hamilton says. While a robust reporting system will be essential, a constant stream of incoming data regarding weather, transportation destinations, origins, timing, and invoices, can be overwhelming. Shippers need a reporting system that provides useful insights and drives innovation.

Chemical companies also will need to take a two-pronged approach in analyzing the market, Hamilton says. That is, they’ll need to stay abreast of the overall transportation market, such as carrier rates and local players. They also need to monitor the chemical-specific market, including current rules

Moving forward, chemical companies will need to continue building agile and responsive supply chains. To accomplish this, they'll need effective information management.

for shipping hazardous materials. An awareness of the current market is key to implementing transportation methods like intermodal that continuously reduce costs and environmental impact and improve overall program efficiency, Hamilton says.

CLX Logistics can help. "CLX offers the expertise and capabilities necessary to move hazardous liquids or solid chemical substances to their destination safely and on time while also protecting the earth," Hamilton says.

CHANGE AS A CONSTANT

The changes underway in the chemical logistics sector show no signs of stopping. If anything, more are coming. For instance, "fast-moving digital players" are eying the industrial distribution market, according to a 2019 McKinsey & Company report, *The Coming Shakeout in Industrial Distribution*. These companies' generally deep pockets and sophisticated systems, such as Amazon Business' integrated procurement system, feature multiuser accounts, flexible payment options, and enhanced invoicing capability, notes the report.

That's why, along with moving more chemical manufacturing and distribution closer to demand and pursuing greater diversity in sourcing, chemical logistics companies also will need to "fully digitize and use artificial intelligence and machine learning," Karney says.

For example, some chemical companies today would struggle to meet an order deadline if an incoming shipment was waylaid by weather or other disruption, Karney says. A fully digital supply network would offer real-time visibility and the ability to maneuver around—or even avoid—potential disruptions from weather or traffic or port congestions, Karney says.

A report from the World Economic Forum and Accenture, *Digital Transformation Initiative: Chemistry*

and *Advanced Materials Industry*, estimates digitization could unlock up to \$550 billion in value for the chemical industry, with digital supply chain initiatives driving \$70 billion of that amount.

On top of that, digitization could cut carbon dioxide emissions by up to 100 million tons and avoid several thousand injuries over the next decade.

Today's supply chains will need to morph to "supply networks," Karney says.

The difference? Rather than the linear flows of information and goods typical of supply chains, supply networks are agile and flexible. They're fully integrated, digitized, and use real-time data, making it possible to derive insights without human intervention, he adds.

Technological innovations in the fuels that power the trucks hauling chemicals continue as well. At least one company is engaging in innovative testing with hydrogen fuel cells for some longer hauls, Rhoads says.

"Fleets across the industry are looking to reduce their fuel usage and carbon footprints to meet their own goals, as well as shipper and societal needs," he adds. ■

CHEMICAL RESOURCE GUIDE

These logistics partners are rolling out solutions of substance, helping shippers meet specialized requirements and comply with chemical supply chain needs.

CLX Logistics clxlogistics.com 800-288-4851

Chemical companies around the world turn to CLX Logistics to build and deliver transportation solutions that meet unique regulatory pressures and safety and security concerns. For chemical companies looking to outsource some or all of their logistics functions, CLX has the expertise and capabilities to get hazardous liquids or solid chemical substances to their destination safely and on time.

National Association of Chemical Distributors nacd.com 703-527-NACD (6223)

The National Association of Chemical Distributors (NACD), established in 1971, is an international association of chemical distributors and their supply chain partners. Member companies process, formulate, blend, re-package, warehouse, transport, and market chemical products for over 750,000 customers. The NACD's mission is to enhance and communicate the professionalism and stewardship of the chemical distribution industry.

Odyssey Logistics & Technology Corporation odysseylogistics.com 855-875-0681

With origins in chemical logistics, Odyssey Logistics & Technology Corporation offers solutions for every aspect of the chemical supply chain, including bulk transportation, sample fulfillment, and managed services/consulting. Leading chemical companies rely on Odyssey Logistics & Technology to move their products around the world safely, cost efficiently, and on time. Odyssey's experts have experience navigating the particular challenges that chemical logistics can create.