2023

NTT DATA PENSKE

Third-Party Logistics Study

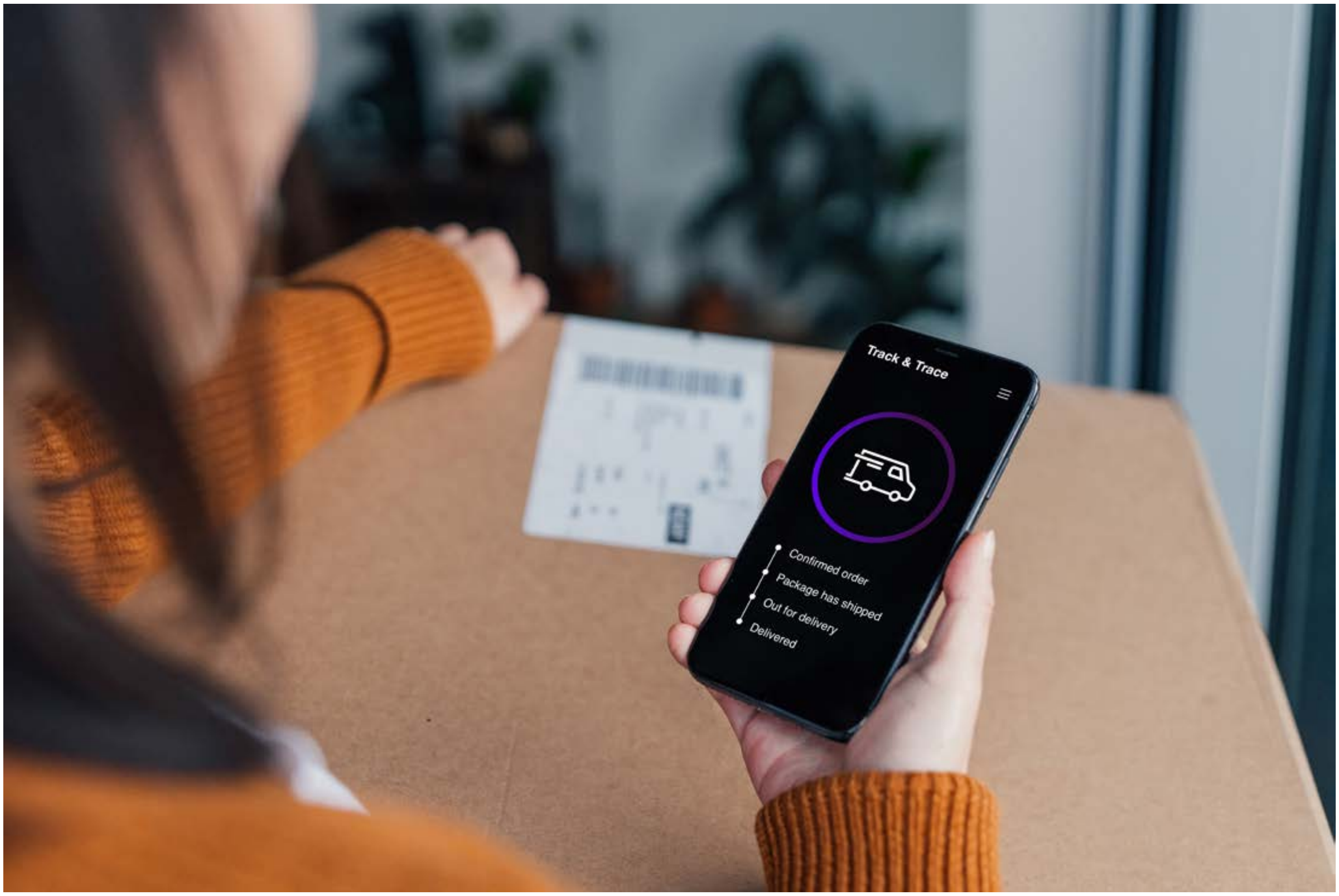
Back -to- Basics

Results and Findings
of the 27th Annual Study

What You Will Find Inside This Report

Supporting Advisors

Executive Summary



Current State of the 3PL Market

Volatility within the supply chain continued throughout the past year, and shippers and 3PLs must now consider and plan for disruptions on a much more global scale, which can affect entire supply chains.

Ongoing challenges, strategic misalignments or unexpected challenges could be straining 3PL-shipper relationships. This year, 83% of shipper respondents agreed that their relationships are successful. Traditionally, this has hovered around 90% or above. 3PLs typically respond more favorably, with 99% of 3PL respondents agreeing their relationships are successful.

Even still, a majority of shippers—71%—report that using 3PLs has contributed to improving customer service, similar to the 73% reported in last year's study. Additionally, 71% of shippers and 92% of 3PLs agree that 3PLs provide new and innovative ways to improve logistics effectiveness.

Domestic transportation remains the most frequently outsourced activity (at 69% this year, an increase from 67% in the previous study). However, some outsourced services saw significant shifts. There was a year-over-year increase in freight forwarding, up to 60% from 44%, and international transportation also increased to 52% from 44%. Warehousing saw a decrease, dropping to 43% from 63%.

Shippers continue to have high expectations of 3PLs' IT solutions. The percentages of shippers indicating specific technologies as "must haves" increased for 14 of the 19 IT capabilities listed in the study.

The most frequently cited technologies remain those that are execution- and transaction-based, including transportation management-planning (62%), transportation management-scheduling (57%) and warehouse/distribution center management (48%).

Getting Back-to-Basics for Supply Chain Professionals

While new and innovative technologies, globalization and access to data all have impacted the efficiency and effectiveness of supply chains, there are fundamental principles governing supply chains that continue to be relevant. Accordingly, the major theme of the *2023 27th Annual Third-Party Logistics Study* is a focus on back-to-basics, which highlights several principles that will be among the facilitators of current and future supply chain success. A fine-tuned ability to innovate, change and transform supply chains will be a prerequisite to achieving supply chain goals and objectives.

The core principles include customer focus, supply chain relationships, data and analytics, innovation and transformation, survivability and sustainability, talent and end-to-end supply chain. As outlined in this study, these principles may be thought of as the "Seven Immutable Laws of Supply Chain Success."

Study participants were asked to rank the importance and progress against each of the seven back-to-basics principles. Five of the seven principles—data and analytics, customer focus, innovation and transformation, talent and supply chain relationships—received an average score between 6 and 7, marking them as either very important or extremely important. However, shippers do not rank them in the same order of importance as 3PLs.

Shippers and 3PLs also rated their organization on levels of implementation and maturity against the back-to-basics principles. While five of the seven principles received average scores ranging from partial implementation to close to completion, two of the five principles—sustainability and survivability and E2E supply chain—received a score below 3, which indicates planning stage efforts with low maturity.

Complexity within the supply chain is expected to continue, and shippers and 3PLs can leverage back-to-basics principles as they build their relationships and focus on service.

Understanding the Talent Crisis

Labor shortages have plagued a wide variety of industries, including the supply chain. Among respondents, 56% of 3PLs and 78% of shippers said labor shortages impacted their supply chain operations.

Many see the 'talent crisis' as a long-term issue, with 29% of 3PLs and 27% of shippers saying they believe there has been a permanent shift. However, 22% of shippers and 13% of 3PLs either believe there is no talent crisis or, if there is, it will be resolved within the year.

Shippers and 3PLs report that the hardest positions to fill are those for certified, licensed hourly workers, such as truck drivers and equipment operators, as well as hourly workers, such as pickers and packers. Those positions are also among the most difficult to retain.

3PLs have been able to fill hourly worker positions quicker than shippers, with 49% of 3PLs and 32% of shippers saying it takes less than a month, and 41% of 3PLs and 51% of shippers saying it takes two to three months.

It takes longer to hire salaried/professional positions, with 61% of 3PLs reporting it takes two to three months, compared to 49% of shippers. Similarly, 22% of 3PLs and 28% of shippers said it takes four to six months.

Both shippers and 3PLs are investigating labor alternatives. 3PLs (83%) and shippers (70%) both reported that they are either actively implementing or are researching and reviewing augmenting their supply chain operations with new technology and/or automation to offset talent shortage.

Workforce challenges may also create new opportunities, with 73% of 3PLs and 46% of shippers saying companies are seeking out 3PL partners to offset labor shortages.

Tapping into the Potential of Reverse Logistics

Reverse logistics is now an integral component of business-to-business and business-to-consumer operations. In addition to contributing to overall service and satisfaction, they present opportunities to cut costs and increase efficiency.

Within the study, shippers are grouped into two clusters: customer-focused shippers, who accept both consumer and business returns and represent roughly one-third of respondents, and business-exclusive shippers, who only accept business returns and represent roughly two-thirds of the shipper respondents.

Both groups believe the returns experience impacts consumer/customer loyalty, with 75% of consumer-focused shippers and 43% of business-exclusive shippers rating the returns experience as being very or extremely important to consumer loyalty. Additionally, 65% of consumer-focused shippers and 60% of business-exclusive shippers said customers' return expectations are growing.

Among consumer-focused shippers, 61% expect to see increased volumes of returns over the next three years, driven by growth in online purchases and direct-to-consumer shipping. However, just 43% of business-exclusive shippers expect to see increased volumes.

Currently, the majority of shippers have their reverse logistics fully in-house, with roughly one-third expecting to outsource a greater portion of their reverse logistics over the next three years. The low level indicates that 3PLs may have been unable to develop a compelling offering that provides sufficient justification to outsource.

Continuing the Conversation: Maturity of ESG

Interest in companies' environmental, social and governance (ESG) efforts is continuing to increase, and many within the supply chain are adopting initiatives to help achieve ESG goals.

Shippers are slightly ahead of 3PLs in their ESG initiatives, with 22% of shippers rating themselves as a trailblazer and a leader in ESG compared to 17% of 3PLs. Additionally, 45% of shippers said their organization is about average in its ESG practices compared to 41% of 3PLs.

There are several drivers of ESG, including consumer trends and preferences, environment and climate impacts, diversity, equity and inclusion (DEI), and social contribution and responsibility. Additionally, regulatory requirements and mandates are driving sustainability efforts, which are expected to continue to improve.

Continuing the Conversation: Rebalancing Underway

The study team has reviewed the rebalancing of the global supply chain for several years and wanted to continue the conversation in the *2023 Annual Third-Party Logistics Study*, looking at the actions shippers have taken to rebalance inventory levels.

The majority of shippers, 80%, have taken or are planning to take action to rebalance inventory levels, 71% said they have already rebalanced or have kicked off efforts to do so, and 9% said they intend to take action.

Shippers are also rebalancing sources of supply, with 69% of shippers stating they have already executed or are in the process of executing changes; 18% said they intend to take action. Roughly 80% of shippers responding to this year's survey reported they are rebalancing production locations to move towards more regional or domestic production networks.

Continuing the Conversation: Continued Demand for Cold Chain

Demand for cold-chain services continues to increase, which is affecting existing cold chain capacity. Among respondents, 74% of shippers and 91% of 3PLs said they see increased competition in this area, and 82% of shippers and 84% of 3PLs believe that demand for cold chain capacity will increase over the next three years.

Due to increased demand, roughly 60% of shippers and 3PLs stated they expanded their cold chain capabilities over the past year. Additionally, 67% of shippers and 72% of 3PLs said they plan to continue to expand their cold chain capabilities and capacity over the next three years. Both shippers (67%) and 3PLs (75%) expect more outsourcing of cold chain needs over the next three years.

Increased consumer demand, rising competition and advances in technology are all expected to shape the cold chains of the future as 3PLs and shippers meet high expectations for deliveries.

Contemporary Issues

Within the Contemporary Issues section, the study team evaluates critical issues shippers and 3PLs are facing in today's supply chains that will shape the future. This year's study focused on technology as a differentiator as well as the truck driver and maintenance technician shortage.

Today's supply chains focus on moving data and capturing information as much as or more than the movement of physical assets. The right intelligence can optimize operations, improve real-time visibility and enable rapid decision-making. Technology is increasing, and 65% of shippers said that their expectations have been increasing as well. A higher number of 3PLs, 78%, believe that shipper expectations have increased in regard to the technology solutions they offer.

Three-quarters of shippers reported that technology solutions are playing a greater role in their 3PL partnership evaluations and selection process, and 87% of 3PLs said shippers have placed a greater emphasis on technology solutions during their evaluation and selection process.

Critical links in the supply chain are the professional truck drivers that move goods as well as the maintenance technicians that keep equipment up and running, but both face shortages that could lead to further supply chain disruptions.

The truck driver shortage remains a top concern in the trucking industry, reaching an all-time high for the industry of 80,000 drivers. All sectors in the industry have struggled to find enough drivers, but the driver shortage is most acute in the longer-haul, for-hire truckload market.

The trucking industry, particularly in the U.S., also needs to attract more maintenance technicians. The U.S. Bureau of Labor Statistics estimates that there will be over 28,000 openings for diesel service technicians and mechanics in each of the next ten years.

7% Decline in Shippers' Satisfaction with 3PL Relationships

Current State of the 3PL Market

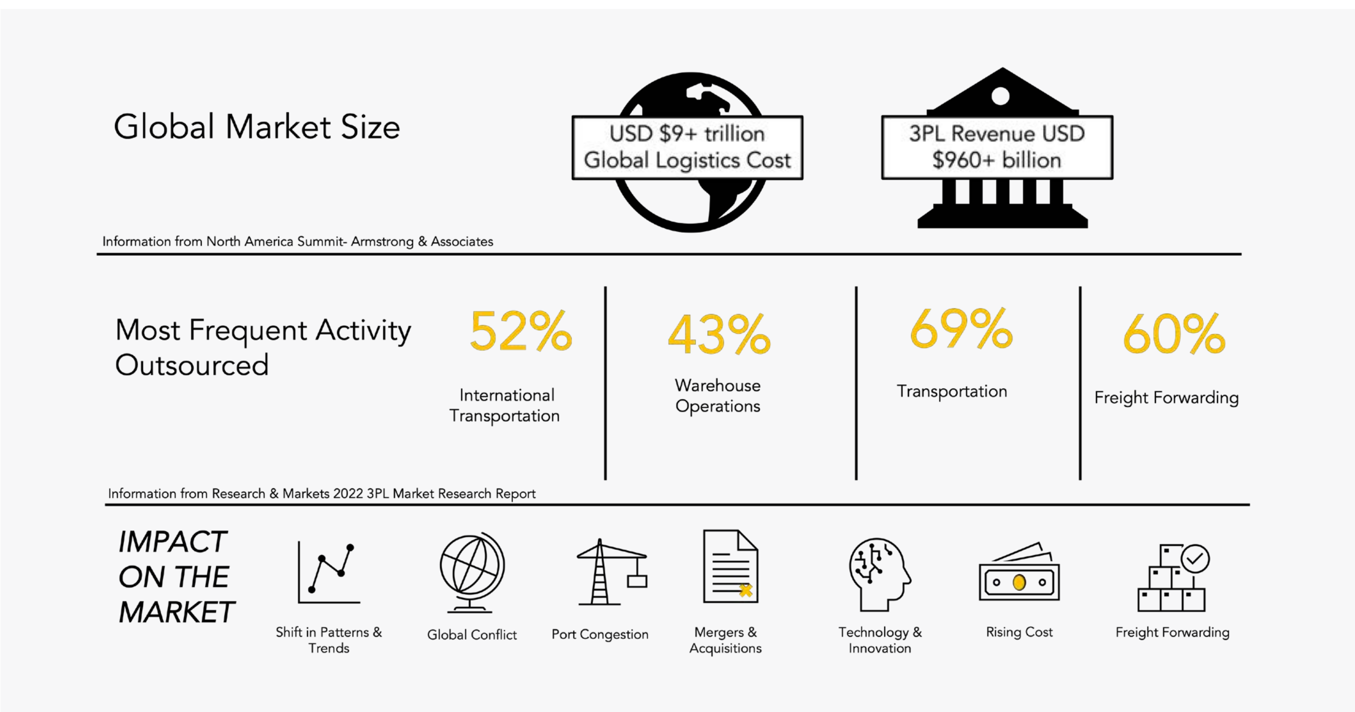
Shippers and 3PLs Deal with Economic Volatility

Three years ago, supply chains professionals would have said that their supply chains were on a positive trajectory. There were ample innovative solutions, tools and techniques to improve efficiency and comprehensive contingencies to implement in the event of disruption. However, these disruptions within the supply chain traditionally only referred to local events, such a labor strike or a natural disaster. Now, businesses must consider and plan for disruptions on a much more global scale, which can affect entire supply chains. Many supply chains, once regarded as beacons of progress and efficiency, have become systems in need of critical care.

Although mid-2022 brought a sense of stability back to selected areas of the supply chain, the volatility and uncertainty that plagued global businesses is still alive and well. Even supply chains that are well-equipped with talent, technologies and financial resources have experienced significant setbacks in meeting their objectives. The recently minted high-inflation environment continues to raise prices for most supplies and products, amplifying the impact as they move through supply chains to reach customers and consumers.

Continuing global conflicts have complicated matters even further, making it difficult to manage prices and the availability of products across all categories. Additionally, variation in the policies of governments around the world reflects significant differences relating to dealing with fiscal and monetary matters, overseeing and facilitating supply and demand of products in general, and the functioning of supply chains and their infrastructure.

The recently published *2022 CSCMP Annual State of Logistics Report* noted: "As logisticians navigated the tumult of 2021, they felt like skiers dashing through an avalanche on a familiar yet transformed slope, avoiding known and new obstacles, each moment urgently amplified by the massive headlong rush surrounding them. Most coped with the onslaught, but few would claim they had mastered it."[1] The newest version of this annually published CSCMP report was appropriately sub-titled "out of sync."



[1] Kearney Inc., *CSCMP's Annual State of Logistics Report*: *Out of Sync*, CSCMP, Penske, Kearney Inc., 2022, page 1.

Trends, Challenges and Opportunities

The *2023 27th Annual Third-Party Logistics Study* examines current trends in the supply chain sector and the critical roles that shippers and 3PLs play in the overall supply chain ecosystem. As the relevance of the end-to-end (E2E) supply concept continues to advance, it has become clear that the quality of relationships between 3PLs and shippers is a valuable component of overall supply chain success.

As shipper organizations reflect on the fundamentals of this success, many are focusing on a back-to-basics approach to better understand their core competencies. Retaining existing talent, creating resilience in the supply chain and forming mutual beneficial partnerships are all key drivers in this approach. Many shippers are also considering the use of 3PLs to bolster or replace internal capabilities. For these reasons, the study team has selected the following special topics for this year's study:

1. Getting Back-to-Basics for Supply Chain Professionals
2. Understanding the Talent Crisis
3. Tapping into the Potential of Reverse Logistics

The objective of the special topic sections is to discover and explore key trends, issues, challenges and opportunities. The study team explores perspectives from diverse companies that use 3PL services, those who chose not to use 3PLs and 3PL providers on these special topics.

While working life for most supply chain professionals is unquestionably stressful, it also provides areas for opportunity and improvement. In fact, one unanticipated impact of the current business environment is a recognition of how important supply chains are to the overall success of the enterprise.

This new environment has helped to document the potential benefits of organizations moving back-to-basics by focusing on their core competencies and forming mutually beneficial partnerships that go beyond transactional relationships. This includes making judicious decisions to outsource a firm's supply chain functions and processes to trusted 3PL partners, allowing shippers to focus on their foundational strengths. Such decisions will also help supply chains evolve from being thought of as cost centers to being key resources for value creation and customer service.

As reported in recent years, shippers continue to have greater expectations of what they need from logistics and supply chain service providers. While these organizations have responded effectively, there continue to be a significant number of areas where both shippers and 3PLs can work collaboratively to create more value for themselves and their supply chains. Areas of opportunity include innovative technologies, alignment and collaboration, and change and transformation.

Alignment and Collaboration

As written by the late Robert V. Delaney founder of *The Annual State of Logistics Report* (now owned by CSCMP), in 2001, "the development of the industry was all about the nurturing of relationships,"[2] predicting that relationships would carry the logistics industry into the future. Focus on this imperative has become inclusive of the need for alignment and collaboration in the supply chain and is highly relevant to the success of 3PL-customer relationships.

Innovative Technologies

There is an abundance of new and innovative technologies to help create significant value for supply chains. Categorically, these may be divided into mobility, automation, digitalization and analytics. Advances in mobility include cloud-based storage and applications, plus wearables and Internet of Things (IoT) devices. Automation includes a wide variety of capabilities such as robotics, drones and autonomously guided vehicles (AVGs). Digitalization and analytics are closely related because the former facilitates the latter. Specifically, the conversion of information into numerical values is a starting point in the use of mathematical and statistical approaches that help to create further value for decision-making through the power of analytics.

Change and Transformation

Great ideas and ample resources are always needed to make progress of any type, but the ability to manage change and transformation is essential as well. Change management is also highly important to the growth and improvement of 3PL-customer relationships, especially when dealing with transformative supply chain strategies. Examples include strategic decisions to outsource elements of supply chain management; significant change and modification to the selection of transport modes; changes from centralized to decentralized supply chain networks; shifts by shippers from 3PLs to 4PLs; etc. Considering the need for agility, resilience and determination in planning and managing today's supply chains, there are significant opportunities for 3PLs and shippers to work together to develop and implement useful strategies.

[2] Delaney, Robert V., *The Annual State of Logistics Report, 2001*. Delaney, a well-known industry executive, speaker, educator, advocate and researcher, developed a system for calculating the cost of logistics as a percentage of national GDP in the U.S. This methodology represented the foundation *The Annual State of Logistics Report*.

Shipper Experiences with 3PLs: Measures of Success

Figure 1 highlights several issues that are included in the current and previous versions of the *Annual Third-Party Logistics Study*, including the percentages of shippers and 3PLs that agree with statements that had been provided. While the results tend to vary somewhat depending on the business environment and overall state of the supply chain sector, they always provide opportunities for meaningful analysis and discussion.

Relationship Success Through Alignment

Survey questions ask both shippers and 3PLs to indicate whether their relationships are generally successful. Uncharacteristically, only 83% of this year's shipper respondents agreed with this statement, which in previous years hovered around 90% or above. This result may suggest there were strategic misalignments or unexpected challenges for shippers that negatively impacted their 3PL relationships. Conversely, 99% of 3PL respondents agreed with the same statement. As acknowledged in previous annual studies, 3PL responses to this question are generally more complimentary than those of shippers.

Benefits of Collaboration

Further detail in **Figure 1** confirms how shippers and 3PLs are collaborating to help improve service to their customers, boost logistics effectiveness and lower costs. The majority of shippers—71%—report that using 3PLs has contributed to improving service to customers, which compares favorably with the 73% recorded in last year's study. Similar results are reflected in how 3PLs have provided innovative solutions to improve logistics effectiveness and lower logistics costs, although 3PL responses are once again more positive than those from shippers.

Outsourcing and Shipper Consolidation Leading to Change

Just over half of shippers—55%—in **Figure 1** reported they were increasing their use of outsourced logistics services, in line with the previous year's figure of 56%. However, when asked whether they were consolidating the number of 3PLs used, 71% of shippers agreed, which is strikingly different from the 57% reported in last year's study. This may indicate an effort by shippers to return back-to-basics and focus their 3PL operations on a smaller number of providers.

Transformation Through Additional Partnerships

There appears to be a continuing interest from both shippers and 3PLs to partner with additional organizations to improve the functioning of their organizations. As seen in **Figure 1**, 52% of shippers and 86% of 3PLs agreed they would collaborate with other companies, even competitors, to achieve logistics cost and service improvements. Both mark increases from the previous year's 49% of shippers and 86% of 3PLs agreeing to the same question.

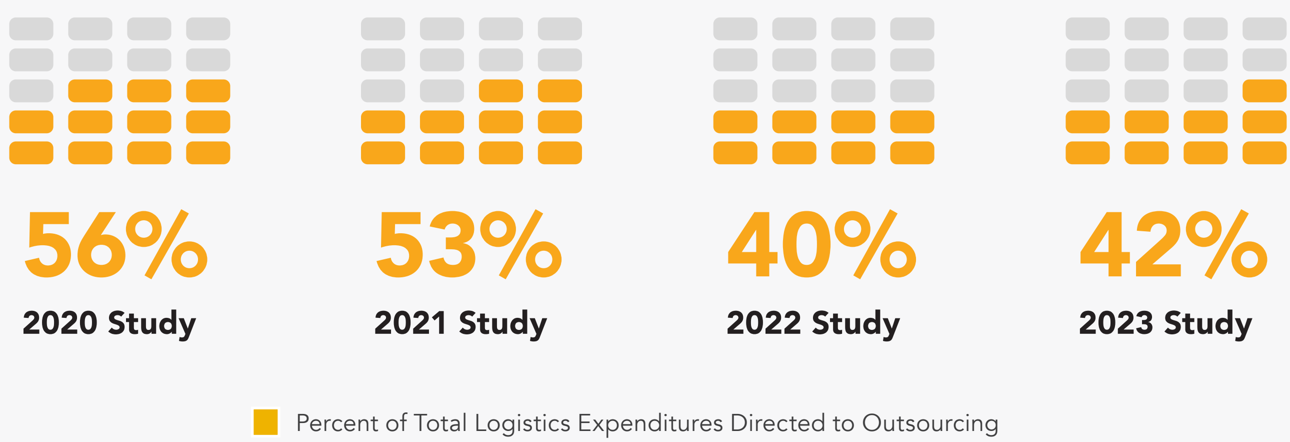
Figure 1: Key Perspectives from 3PL Users and Providers

Users/Shippers in Agreement (%)		Statement	3PL/Providers in Agreement (%)	
2023	% Change from 2022		2023	% Change from 2022
83%	-7%	The relationships between shippers and 3PLs generally have been successful	99%	1%
71%	-2%	The use of 3PLs has contributed to improving service to customers	100%	5%
71%	-2%	3PLs provide new and innovative ways to improve logistics effectiveness	92%	2%
69%	5%	The use of 3PLs has contributed to reducing overall logistics costs	N/A	
54%	-4%	Shippers are satisfied with 3PL information technology capabilities	81%	
55%	-1%	Overall shippers are increasing their use of outsourced logistics services	89%	10%
71%	14%	Shippers are consolidating the number of 3PLs used	75%	-2%
52%	3%	Shippers and providers are collaborating with other companies to achieve logistics cost and service improvements	86%	11%

Survey data relating to recent financial aspects of users' logistics and outsourcing expenditures are shown in **Figure 2**. For the purposes of this study, total logistics expenditures include all transportation, distribution, warehousing and value-added services. The average percent spent on total logistics directed to outsourcing was 42%, up slightly from the 2022 study (40%), but lower than the 2021 (53%) and 2020 (56%) studies.

A likely reason for this drop in total logistics expenditures is a lack of full capacity in the supply chain. Over the past two years, volume has been limited due to a series of supply chain disruptions, shortages and bottlenecks. Therefore, this drop in total logistics expenditures is likely not representative of a true reduction in spend. The study team will track this trend moving forward to see if expenditure percentages return to pre-pandemic levels.

Figure 2: Shipper Logistics Expenditures Directed to Outsourcing



What Shippers Report Outsourcing

Each year, the *Annual Third-Party Logistics Study* asks shippers to indicate which logistics services they currently outsource to a 3PL, as shown in **Figure 3**. For comparison purposes, the percentages from last year's study are also included.

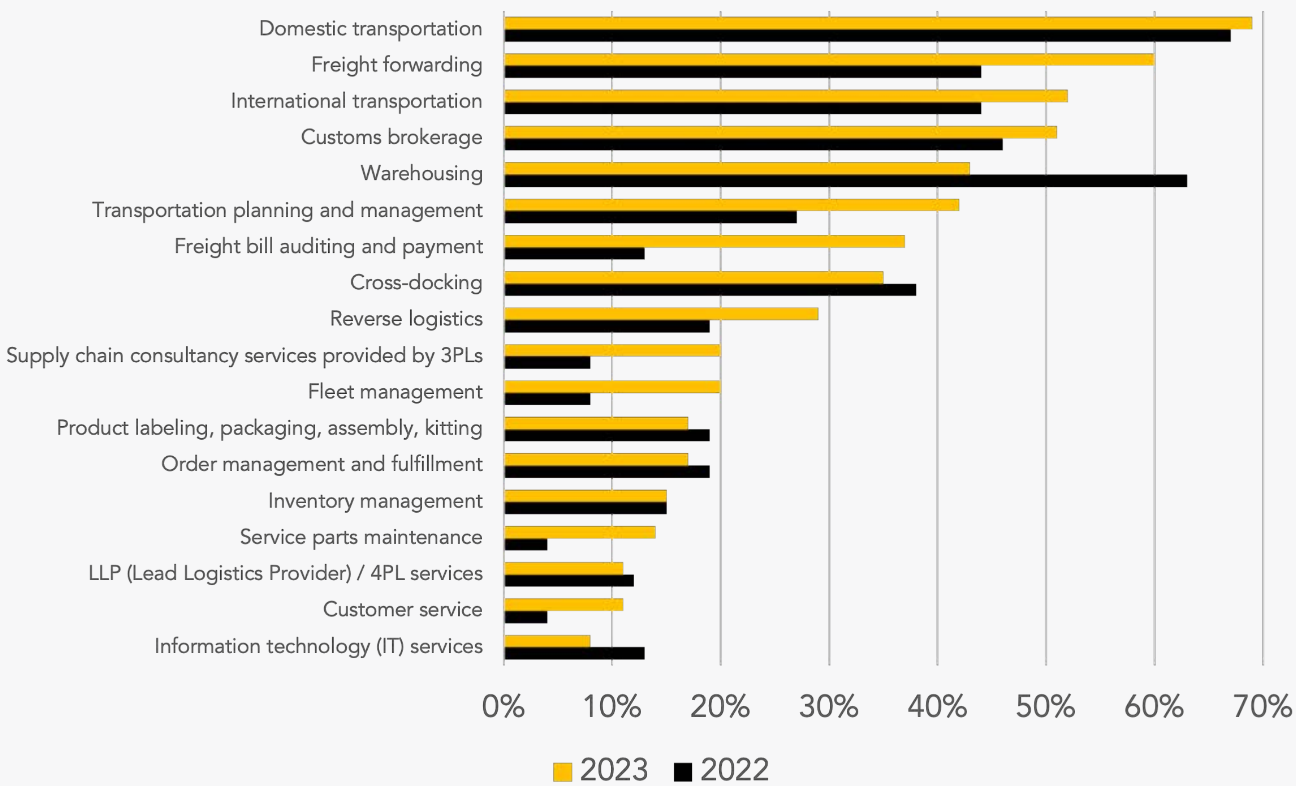
Overall, **Figure 3** shows that many of the current year percentages either increased or decreased significantly from last year's reported results. While this could be attributed to a different group of survey respondents, it may also reflect a short-term shifting of shipper priorities, as the areas seeing a marked increase in outsourcing related more toward operational, day-to-day activities, functions and processes in supply chains.

Another notable data point is the year-over-year increase in freight forwarding, up to 60% from 44%, which may be due to the difficulties of shipping products in a constrained supply chain. Shippers may be looking for additional expertise as well as connected freight forwarders who can make a material difference in getting their goods flowing.

Outsourcing of international transportation also increased (up to 52% from 44%), which likely is attributable to increases in product flow while rates remained historically high in 2021 and into 2022. Lastly, warehousing saw a decrease (dropping to 43% from 63%), which may be explained by declining business volumes coupled with a need to move inventories more quickly to their ultimate destinations.

While there are other increases and decreases included in **Figure 3**, the unusual circumstances and unprecedented volatility in global and domestic supply chains complicate the difficulty of providing logical explanations.

Figure 3: Logistics Services Outsourced by Shippers



3PL's IT Capabilities: Analysis of Shipper Preferences and 3PL Capabilities

The relevance of information technologies to relationships between shippers and 3PLs is always a much-anticipated section of the *Annual Third-Party Logistics Study*, which traditionally begins with an update to the "IT Gap." This year, the study team decided to investigate this topic further (see Technology as a Differentiator in the Contemporary Issues section for more information).

There is a continuing need to better understand the specific types of 3PL-provided or managed information technologies that are credited with creating value for their shipper-customers. **Figure 4** summarizes survey data from two sources. The first are shipper responses to the question: "Which information technologies, systems or tools must a 3PL have to successfully serve a customer in your industry classification?" The second are 3PL responses pertaining to the types of IT technologies, systems and tools used by their company to successfully serve their clients.

Looking at the results in **Figure 4**, the percentages of shippers indicating specific technologies as "must haves" increased for 14 of the 19 IT capabilities listed.

Execution and transaction-based technologies tended to increase over the previous year, including transportation management-planning (62%), transportation management-scheduling (57%) and warehouse/distribution center management (48%). These results may indicate increases in shipper confidence with 3PLs becoming more involved with these types of technology.

Other notable observations from **Figure 4** include increases in the importance of advanced analytics and data-mining tools, transportation sourcing, warehouse automation, global trade management, and network modeling and optimization. The latter may reflect increased interest on behalf of shippers to seek advice from 3PLs on potential network improvements for their supply chains.

Among the technologies that experienced some decline in importance year-over-year were cloud-based solutions (decreasing to 45% from 49%) and control tower visibility (decreasing to 45% from 60%). This does not suggest a lack of importance for these capabilities, but simply a decline in percentages compared to other capabilities.

The data in the last column of **Figure 4** indicates that reported 3PL capabilities are well-aligned with the "must haves" as reported by shippers. Also, higher percentages are reported by 3PLs for customer order management and customer relationship management (CRM). These may reflect internal value created for the 3PLs themselves, rather than utility to individual shipper clients.

Figure 4: Importance of IT Capabilities in Shipper-3PL Relationships

Information Technologies	Shipper "Must Haves"		3PL Reported Capabilities
	2023	% Change from 2022	2023
Transportation management (planning)	62%	11%	66%
Transportation management (scheduling)	57%	6%	70%
Warehouse / distribution center management	48%	10%	64%
Advanced analytics and data mining tools	48%	10%	54%
Cloud-based solutions	45%	-4%	69%
Central tower visibility (visibility, tracking and asset management)	45%	-15%	55%
Transportation sourcing	45%	5%	55%
Warehouse automation	40%	23%	36%
Web portals for booking, order tracking, inventory management and billing	38%	2%	50%
Global trade management tools (including customs processing and import / export document management)	35%	9%	31%
Network modeling and optimization	34%	15%	35%
Customer order management	32%	2%	50%
RFID	28%	15%	16%
Supply chain planning	28%	-2%	45%
CRM (Customer relationship management)	22%	-6%	58%
Distributed order management	20%	-1%	22%
Robotic process automation (RPA)	18%	9%	22%
Blockchain	11%	2%	5%
Wearables (biometrics, health and safety, etc.)	5%	3%	8%

Key Takeaways

1

Users and providers of 3PL/4PL services both have positive evaluations of their relationships. This year, 83% of shippers report their 3PL relationships as generally successful, while 99% of 3PLs agree their shipper relationships are successful.

2

3PL users continue to agree that use of 3PLs has contributed to improving service to their customers and feel that 3PLs have provided new and innovative ways to improve logistics effectiveness and reduce overall supply chain costs.

3

Shipper responses indicate a similar use of outsourced logistics services as last year, but also indicated they were reducing or consolidating the number of 3PLs with which they were involved. Additionally, both shippers and 3PLs reported they are willing to collaborate with other companies, including competitors, to achieve logistics cost and service improvements.

4

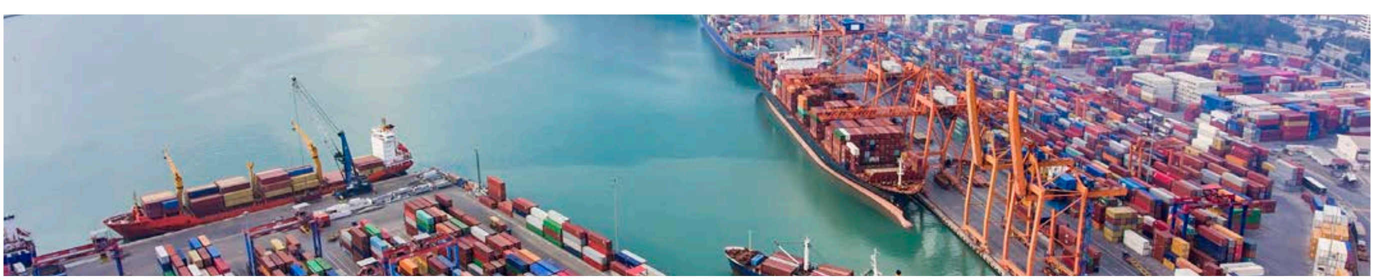
Users of 3PL services report that 42% of their total logistics expenditures are related to outsourcing, in line with the 40% reported last year. However, these data points are much lower than those reported in previous years, which is likely attributable to a decrease in volume and may not be representative of a true decline.

5

Predictably, the more operational and day-to-day activities are among the most frequently outsourced 3PL services by shippers, and there are a number of others that are gaining in frequency of use.

6

54% of shippers indicated they were satisfied with 3PL IT capabilities. In addition to transportation, warehousing and freight forwarding technologies, more contemporary capabilities were also highlighted, including the use of analytics and data mining tools, cloud-based solutions and control tower visibility.



Back-to-Basics Allows Supply Chains to Reset, Rebalance and Grow Stronger

Getting Back-to-Basics for Supply Chain Professionals

While new and innovative technologies, globalization and access to data all have impacted the efficiency and effectiveness of supply chains, there are fundamental principles governing supply chains that continue to be relevant. Accordingly, the major theme of the *2023 27th Annual Third-Party Logistics Study* is a focus on back-to-basics, which highlights several principles that will be among the facilitators of current and future supply chain success. A fine-tuned ability to innovate, change and transform supply chains will be a prerequisite to achieving supply chain goals and objectives.

> *"If the rate of change on the outside exceeds the rate of change on the inside...the end is near."*
>
> **Jack Welch, Former CEO and Chairman**
> **General Electric Company**

Back-to-Basics Principles

As originally developed by Professor C. John Langley and Nistevo Inc., "The Seven Immutable Laws of Collaborative Logistics" outlined the fundamental principles needed to achieve successful supply chain relationships. Among these are the need for all involved parties to have a common understanding of the goals and objectives of their supply chains, and the ability to achieve alignment in their operational and strategic priorities. Further, they need to understand the upstream and downstream components within the supply chain and how they may work together to create value for customers and end-users. These principles apply not only to traditional supply chain organizations, but also to supply chain facilitators such as 3PLs, 4PLs, etc.

While the principles included in the "Seven Immutable Laws for Collaborative Logistics" are generally viewed as back-to-basics supply chain principles, some updating and modification was required. The study team, in cooperation with noted supply chain experts, sought to identify a meaningful and concise set of back-to-basics principles that could be leveraged to govern efforts as those in the industry work to reset, rebalance and strengthen supply chains. For future reference, the principles below may be thought of as the "Seven Immutable Laws for Supply Chain Success."

1. Customer Focus

Shippers and 3PLs must understand the needs of their supply chains from the consumers' or end-users' perspectives. While a retailer may be viewed as a customer in one supply chain, the end-user who derives the value from that supply chain is the consumer. In addition to their responsibilities as supply chain participants, shippers and 3PLs should strive to develop and execute in ways that deliver value not only to their direct customers but also to subsequent customers and consumers. Demand-driven supply chains may be a more contemporary concept but ensuring that the supply chain delivers value for all supply chain participants is a foundational principle and should be considered a high priority.

2. Supply Chain Relationships

All supply chain relationships must be well-aligned to optimize the capabilities of each participant within the network. Supply chain relationships vary from tactical or operational, to strategic, to complex partnerships. No one relationship type is incorrect, but it is vital that those within the supply chain have the right relationship for the type of engagement and the support needed to deliver a successful supply chain based on customer focus. Regardless of relationship type, there are cornerstones:

- Clear, understandable and practical expectations/ service-level agreements
- Agreed-upon objectives with measurable performance outcomes
- Information sharing and trust
- Well-designed approaches to deal with disagreements and misunderstandings

This is a segue into the importance of shipper and 3PL relationships, and how these may contribute to achieving overall success for supply chains. Also, it is important to recognize that shippers and 3PLs may operate in hybrid models. For example, a 3PL serving a customer may have a portion of its responsibility that requires some elements of a strategic relationship and another portion that may be more tactical/operational. Combined they have a mutually beneficial partnership. Overall, relationships rarely fit into a one-size-fits-all methodology and therefore require continuous evaluation of their performance within the network and adjustment as needed to be successful.

3. Data and Analytics

Ideally, all participating supply chain organizations, including 3PLs, understand that demand patterns at the customer/consumer-level drive requirements for the overall supply chain. One way to achieve this is by sharing available forecast and demand planning data along with associated analytics and insights. The best results are achieved when both shippers and 3PLs, along with other supply chain participants, are working with consistent accurate information. Participants must be willing to share information on potential problems and issues, which could range from a shortage of transportation capacity to unexpected volatility in the availability of needed materials and supplies. Supply chains have always been data-driven. However, growing complexity and rapid disruption has driven the need for real-time or close-to-real-time data visibility combined within advanced intelligent data analytics. The study team believes that to deal successfully with future supply chain challenges, 3PLs and their customers will require significant dedication to digitizing data and enhancing analytics. Coupled with wisdom and experience, these analytical tools will facilitate the development of complex solutions to today's problems. As a result, skills related to data analytics and digital technologies will be vital.

> *"You can only manage what you can measure."*
>
> **Dr. W. Edwards Deming, a well-known and accomplished statistician**

4. Innovation and Transformation

The terms innovate and transform are popular contemporary terms. However, the study team purposefully used these terms to recognize that supply chains have always been adopters of technology and have consistently placed a priority on transformation.

Take, for example, the adoption of warehouse management systems (WMS). The now-defunct company Logisticon created the first computer-based WMS. It's initial adoption was by J.C. Penney in 1975, effectively starting the modern era of warehouse management systems.

There are numerous other examples ranging from the introduction of robotics in manufacturing to the utilization of labor management solutions for time and motion analysis. The terms may be modern, but the principle is foundational to supply chains. The back-to-basics principle is to ensure capital investments facilitate meaningful supply chain transformation and leverage applicable innovative solutions. While transformational initiatives vary in complexity, the ability to structure the evaluation, selection and implementation process around a sound set of steps tied to measurable outcomes is crucial.

5. Survivability and Sustainability

The reference to "survivability" serves as a reminder that supply chains must be prepared for the worst-case scenario. Shutdowns, in any form, impact the viability of all participants within a supply chain network. The concept of "sustainability" is a newer addition to this back-to-basics principle, as supply chains can play a significant role in contributing to and achieving environmental sustainability. In fact, supply chains are widely viewed as key contributors to achieving environmental sustainability goals. A few key examples include increases in transportation load factors that relate directly to lessened fuel consumption; carbon-reduction initiatives that contribute to positive environmental improvement; and the use of electric vehicles that have the potential to be more energy efficient, thereby reducing the need for carbon-based energy sources. For more on environmental, social and governance (ESG) within supply chains, please visit the Maturity of ESG section in this study.

6. Talent

Supply chains rely on the availability of talent. There is a broad range of supply chain talent ranging from hourly operational roles to strategic leadership roles with a diversity of levels, skills and classifications between. This back-to-basics principle looks at recruitment and the retention of talent as well as the development of talent. Certification programs, continuous training and skills development are also included in this back-to-basics principle. For an in-depth discussion on the current talent situation, please visit Understanding the Talent Crisis section in this study.

7. End-To-End Supply Chain

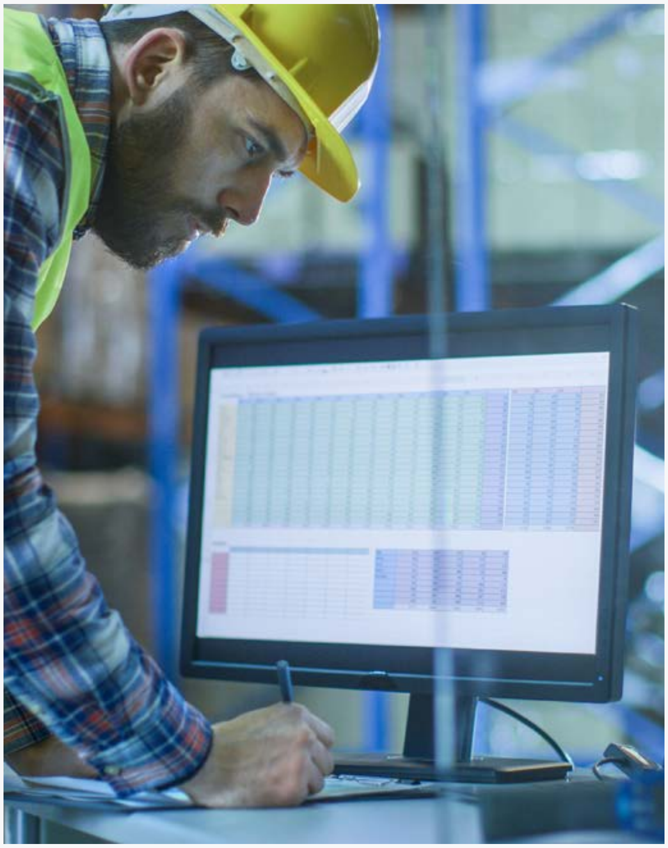
End-to-end (E2E) supply chain involves an integrated network that starts with product design, moves to raw materials sourcing and procurement, continues through the various touch points from planning, scheduling and production, and ends with delivery to the customer, which also includes managing reverse logistics and post-sale support activities, such as spare parts management. The concept of E2E supply chain underscores the importance of achieving coordination, collaboration, integration and alignment among the participating organizations within a supply chain ecosystem. This principle has manifested itself in the further development of visibility solutions, control towers and cloud-based technologies to create a wider range of capabilities throughout the supply chain. However, the study team views this as a back-to-basics principle due to its underlying need for planning capabilities.

Making Data-Driven Decisions

While the back-to-basics principles may seem obvious, in the real-world they are not always followed exactly. As more analysis and real-time information is available, 3PLs and shippers need to embrace a newly defined, customer-focused relationship centered on shared information and analytics that enable data-driven supply chain decisions.

The following is an example provided by Joe Finney, chief operating officer of Dependable Supply Chain Services:

We have a large customer that takes all their containers that come in on the West Coast and ships them to their warehouse in central U.S. There they deconsolidate and then ship them from that warehouse to fulfillment centers across the country. If they would provide us with the forecast information and inventory demands so we understood what needed to be where when, we could do this for them on the West Coast. This would reduce handling ensuring the inventory gets to its right location at the right time in the shape it is supposed to be in and save them time and money.



3PL and Shipper Perspectives on Back-to-Basics

This year's annual survey looked at how shippers and 3PLs view the importance of and progress against each of the seven back-to-basics principles. In addition to completing written surveys, supply chain practitioners took part in one-on-one interviews and discussions designed to share insights.

This year's survey participants had an opportunity to respond to the following two questions:

Question #1 – Importance.

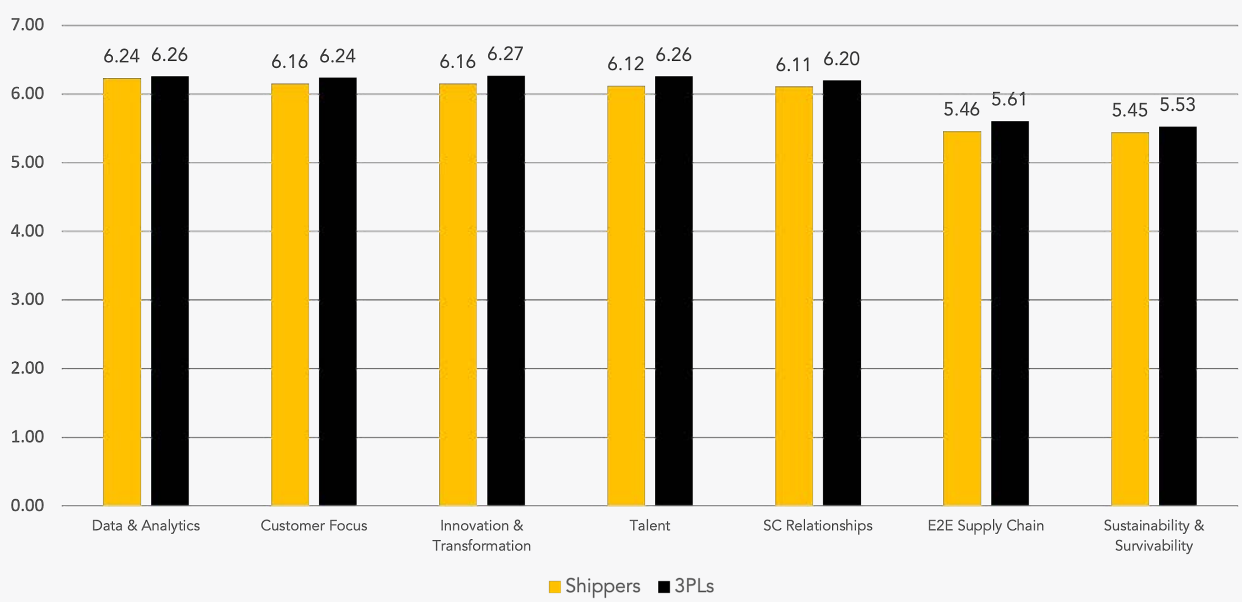
"Assess the importance of each of the following principles to achieving future improvement in your organization's supply chains." Respondents were asked to provide a rating from 1 = Not at All Important to 7 = Extremely Important.

Question #2 – Implementation.

"For each of the principles listed below, please indicate the level of implementation and maturity that best represents the progress your organization has made to date." Respondents were asked to provide a rating from 1 = Not Implemented to 5 = Full Implementation.

Figure 5 summarizes the weighted average importance ratings provided by shippers and 3PLs for each of the back-to-basics principles. Five of the seven principles received an average score between 6 and 7, marking them as either very important or extremely important. Within this cluster of five, shippers do not rank (1 to 7) them in the same order of importance as 3PLs. For example, innovation and transformation is the top principle for 3PLs while data and analytics is top for shippers. The remaining two principles received a score between 5 and 6, which places them between somewhat important and very important.

Figure 5: Importance of the Back-to-Basics Principles (Based on Weighted Average)



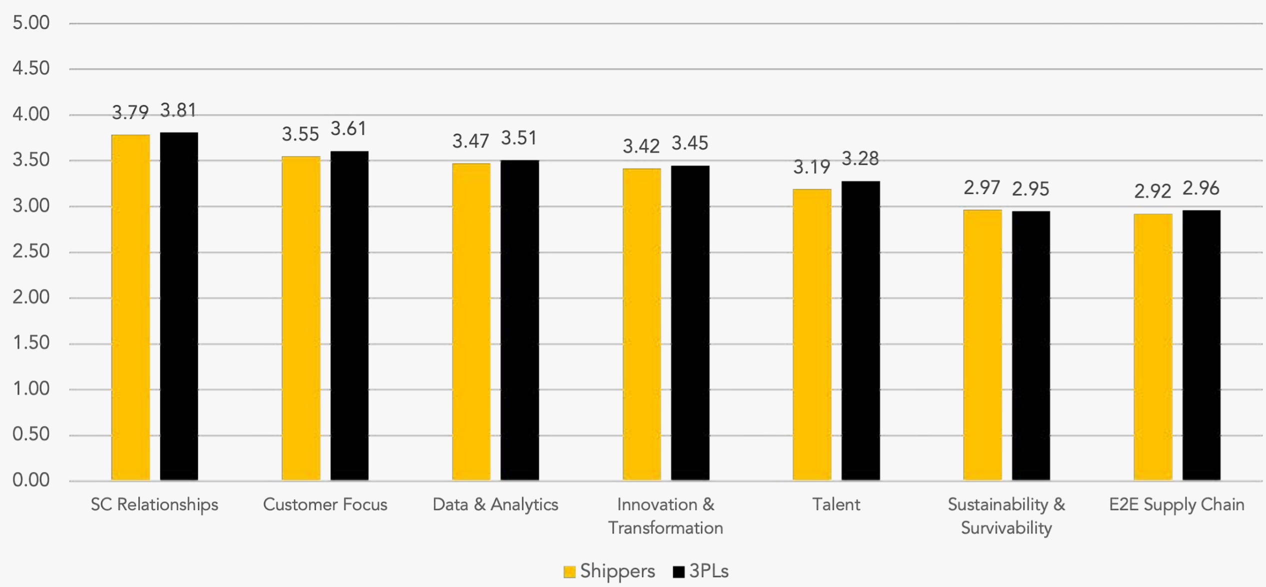
However, all seven of the back-to-basics principles are deemed important by shippers and 3PLs, reflecting the complexity supply chain professionals face in managing modern supply chains. While supply chains are commonly viewed and illustrated as being linear, this can be misleading. In fact, successful supply chains experience a constant juggling of competing priorities, moving parts and simultaneous what-if efforts. The result is that multiple principles are all highly important.

Figure 6 focuses on how shippers and 3PLs rate their organization on levels of implementation and maturity against the back-to-basics principles. For this question, responses were recorded on an importance scale of 1 to 5, not 1 to 7. Five of the seven principles received an average score between 3 and 4, which ranges from partial implementation (3) to close to completion (4).

However, two of the five principles received a score below 3, which indicates planning stage efforts with low maturity.

Overall, the general results indicated in **Figure 6** are remarkably similar directionally to those that discussed for **Figure 5**, with E2E supply chains and sustainability and survivability receiving the lowest scores.

Figure 6: Implementation and Maturity against the Back-to-Basics Principles (Based on Weighted Average)



Unlike the importance scores, the study team noted a more consistent decline in implementation and maturity weight average score across the seven back-to-basics principles. Such discrepancies imply an alignment between importance and implementation efforts. The weighted average was calculated based on frequency of responses and assumed a linear value difference between the lowest possible answer and the highest possible answer. This approach can smooth out responses by reducing the importance of a response at either end of the spectrum. As a result, the study team decided to look at the results based on two other factors:

1) **Frequency of Extremely Important:** The study team ranked the back-to-basics principles based on how many times it received an "Extremely Important" responses.

2) **Frequency of Importance:** The study team ranked the back-to-basics principles based on how many times it received a somewhat important, very important or extremely important response.

As illustrated in **Figure 7** and **Figure 8**, the ranking of data and analytics, E2E supply chains, and survivability and sustainability did not vary based on either ranking method for shippers or 3PLs. However, other principles shifted in importance depending on the analysis method.

Innovation and transformation did not receive a high frequency of extremely important responses, ranking only fifth in comparison to other principles. In the overall score, however, it rises to the top. Talent, on the other hand, is a top-of-mind concern that ranks high in terms of frequency of "extremely important" responses. However, talent also

Figure 7: Shippers' Comparison of Importance

Shippers: Comparison of Importance to Implementation/Maturity Rating				
Principle	Extremely Important Ranking (1)	Overall Importance Ranking (2)	Weighted Average Importance Ranking (3)	Implementation/ Maturity Ranking (4)
Innovation & Transformation	5	1	2	4
Data & Analytics	1	2	1	3
Customer Focus	4	3	2	2
SC Relationships	3	3	5	1
Talent	2	5	4	5
Sustainability & Survivability	7	6	7	6
E2E Supply Chain	6	7	6	7

(1) Ranking based on frequency of responses that selected "Extremely Important"
(2) Ranking based on frequency of responses rating as some level of importance: "Somewhat Important", "Very Important", "Extremely Important"
(3) Ranking based on calculated weighted average score
(4) Ranking based on calculated weighted average score

Figure 8: 3PLs' Comparison of Importance

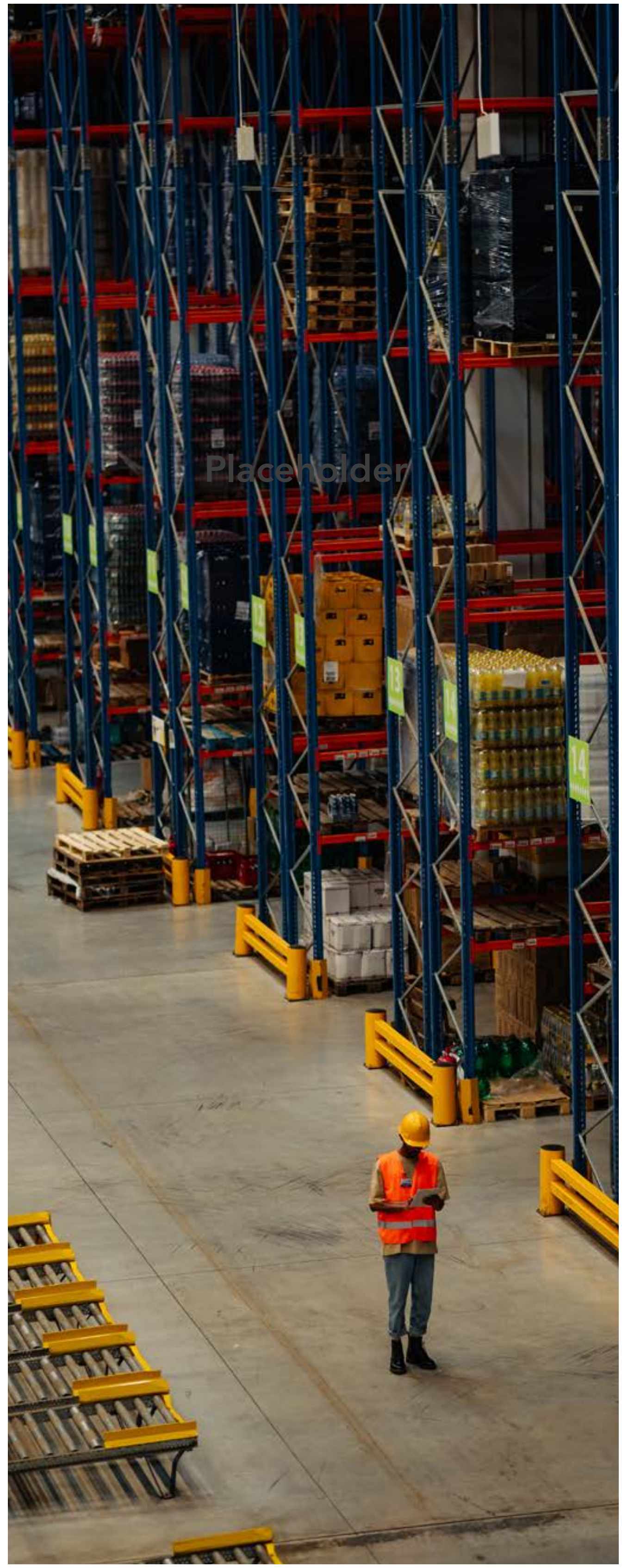
3PLs: Comparison of Importance to Implementation/Maturity Rating				
Principle	Extremely Important Ranking (1)	Overall Importance Ranking (2)	Weighted Average Importance Ranking (3)	Implementation/ Maturity Ranking (4)
Innovation & Transformation	5	1	1	4
Data & Analytics	1	2	2	3
Customer Focus	2	3	4	2
SC Relationships	4	3	5	1
Talent	2	5	2	5
Sustainability & Survivability	7	6	7	6
E2E Supply Chain	6	7	6	7

(1) Ranking based on frequency of responses that selected "Extremely Important"
(2) Ranking based on frequency of responses rating as some level of importance: "Somewhat Important", "Very Important", "Extremely Important"
(3) Ranking based on calculated weighted average score
(4) Ranking based on calculated weighted average score

quickly drops down in overall importance, ranking only fifth overall. This variation is likely due to pressing issues that are currently receiving leadership attention (as well as news headlines) versus those that are consistently positioned as cornerstones to supply chain success.

In terms of implementation and maturity, shipper and 3PL scores resulted in the same ranking with supply chain relationships leading the pack. Unfortunately, these rankings were not fully aligned with level of importance. For example, supply chain relationships ranked highest in terms of implementation and maturity but was only ranked mid-pack (3rd or 4th) for importance. This difference may be due to the levels of complexity to achieving implementation maturity in a given principle.

It is not unheard of to focus on those things one can quickly achieve versus those that require greater effort or higher investment cost. However, failure to achieve a sufficient level of implementation maturity for any of these back-to-basics principles may contribute to supply chain struggles.



Future Growth

As disruption and complexity continue to increase, effectively meeting supply chain needs has become even harder. Leveraging the back-to-basics principles, shippers and 3PLs will need to work together to enhance both their supply chain relationships as well as ensure they are both mutually focused on the end customer.

The effectiveness of shippers and 3PLs has always boiled down to their ability to create value for their customers and their businesses, as well as for the end customer and consumers. Innovation, data and analytics certainly will help supply chain practitioners meet these shifting needs and help to transform supply chain strategies.

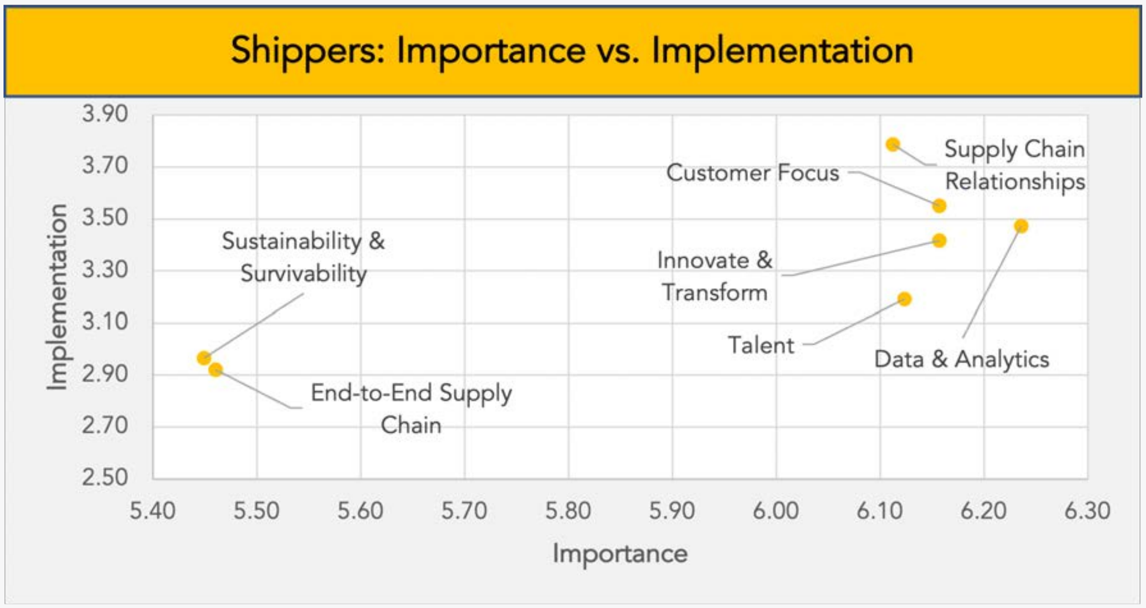
In addition, both shippers and 3PLs will need to ensure that they have the right people with the right skills and talents, working together to establish talent-acquisition strategies that compliment, not compete, with one another.

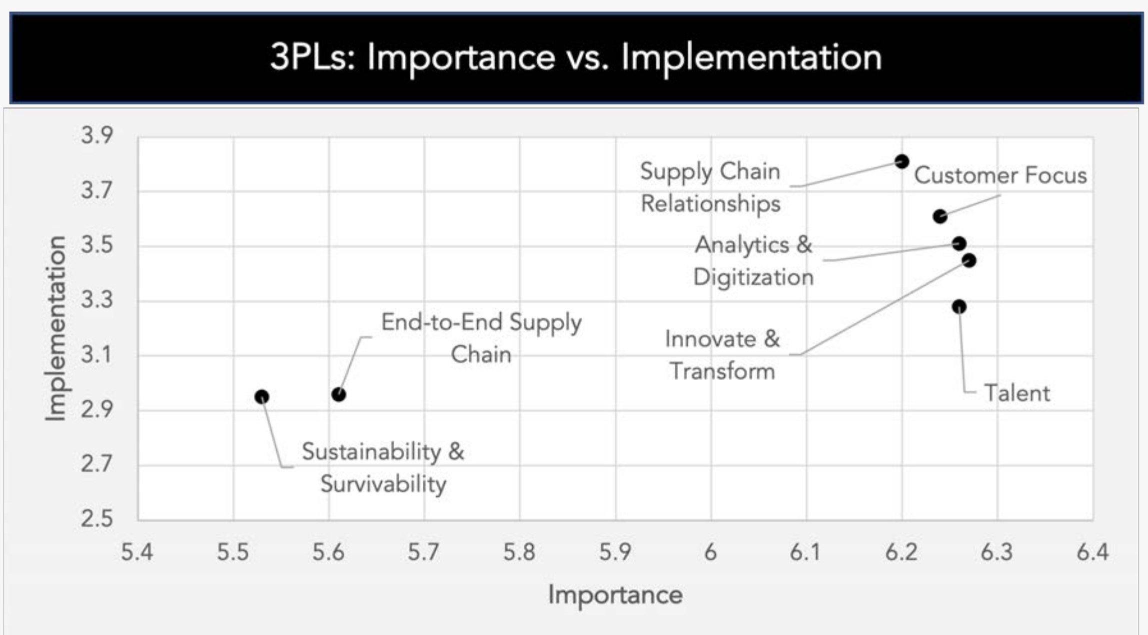
Another Look at the Data

Another interesting way to further analyze the results is to create scatter plots that map the average importance and implementation ratings for the back-to-basics principles.

The scatter plots, shown in **Figure 9**, provide a graphically representation that highlights that the top five principles are those for which implementation seems to be most underway. The two outliers in the lower left portion are also the same two that rank low on implementation and maturity.

Figure 9: Scatter Plots





Key Takeaways

1

All seven of the back-to-basics principles were deemed important to supply chain success by both shippers and 3PLs. Although technology, globalization and access to data have advanced, the fundamental principles that govern supply chains have not. The current challenge is reimaging how to apply these principles amidst increasingly frequent and large-scale supply chain disruptions.

2

Supply chain roles are evolving quickly, which is driving expectations for talent, and talent remains a top concern for both shippers and 3PLs.

3

Data and analytics continue to be of growing importance to shippers and 3PLs. Their combined ability to create value within the supply chain, especially for customers or end-users, will be related to their individual and combined abilities in the areas of digitization and analytics.

4

Innovation and transformation rises to the top for overall importance, and meaningful supply chain planning must include structured and proven approaches to transformation.

5

Supply chains can play a significant role in contributing to and achieving environmental sustainability. They also must be prepared for the worst-case scenarios when disruptions occur. However, these ranked lower in importance than other categories.

6

Implementation and maturity rankings are not fully aligned with their respective importance rankings, which implies inherent risk.

78% of Shippers Report Labor Shortages Have Impacted Their Operations

Understanding the Talent Crisis

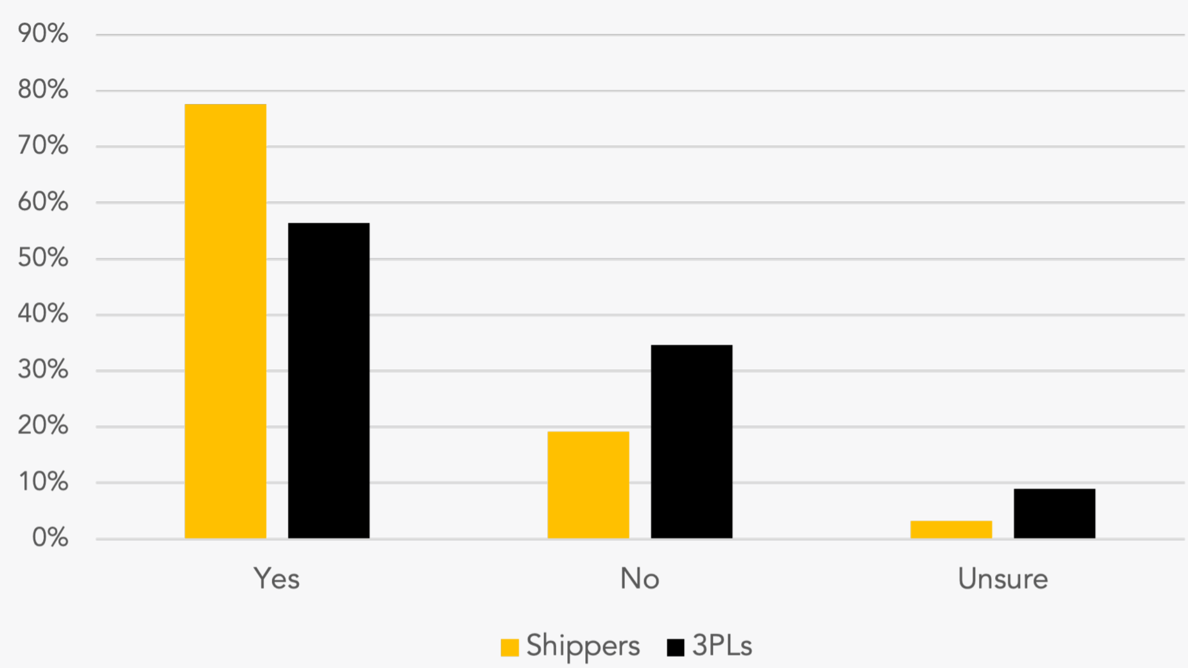
The term 'the Great Resignation' dominated headlines in the post-COVID operating environment. The supply chain industry has been among those affected by labor shortages as many organizations are struggling to fill critical supply chain roles.

The majority of respondents, 56% of 3PLs and 78% of shippers, said labor shortages impacted their supply chain operations, as shown in **Figure 10**.

At the same time, demands on supply chain executives are intense, with executives facing growing pressure to make the right decisions, work through ambiguity and pivot when disruptions occur.

Supply chain managers have been quitting their jobs at the highest rate since 2016.[3] According to data compiled at LinkedIn, the average "separation rate" from 2020-2021 for supply chain managers was 28%.[4] While some managers cite burn-out as their reason for leaving, increased compensation and demand for experienced supply chain professionals in non-traditional supply chain organizations are also cited as a reason for their departure.

FIGURE 10: Labor Shortages are Impacting Supply Chain Operations



[3] Sirtori-Cortina, Daniela, "Stressed-Out Supply Chain Managers Are Throwing in the Towel," www.bloomberg.com, May 23, 2022.

[4] www.linkedin.com. The LinkedIn Separation Rate is calculated by Economic Graph researchers to measure the rate at which employees are leaving their positions. It analyzes LinkedIn member profiles to determine the number of positions that ended each month, removing seasonality and other effects. The metric is indexed to the average for 2016.

While the pandemic exacerbated labor challenges, supply chains have faced labor shortages for years. In the *2016 Annual Third-Party Logistics Study*, 79% of 3PLs reported that they felt unprepared for the labor shortages impacting their operations and had begun to rethink their strategy for attracting and retaining employees.

Supply chain operations have become more complex over the years, and the skills required have changed drastically. The supply chain profession is demanding and requires a worker with more digital acumen who can understand the full end-to-end supply chain cycle.

"We are seeking supply chain leaders with strong communication skills, good technical aptitude and who are strategic thinkers. They are also passionate about servicing our customers and being servant leaders to our teams," said Jeff Jackson, executive vice president operations, dedicated contract carriage, Penske Logistics. "Today's leaders need to be more technically savvy. Also, in order to deliver visibility with data integrity, our leaders need very strong discipline around ensuring that our data is timely and accurate."

While supply chain positions are demanding, they can also be rewarding. The supply chain is full of opportunities to improve environmental, social and governance (ESG) efforts, and the COVID-19 pandemic highlighted the importance of the supply chain across all industries, including healthcare and grocery.

In the *CSCMP 2021 Young Professionals in Supply Chain Study*, 58% of respondents reported that they chose to pursue a supply chain career due to the impact supply chain roles/the supply chain have in business and tangible impact on outcomes. Just 13% of respondents cited this reason in 2019 and only 10% cited it in 2017.

"There is never a dull moment and that these jobs can be very exciting. We are highly engaged in our customer's businesses. Delivering exceptional service can be very gratifying," Jackson said.

Supply chain complexity has driven the need for more collaboration not only across supply chain functions, but also across functional areas such as finance, human resources, risk and compliance, marketing and brand/product management. Practitioners need to be more collaborative, making effective communication skills critical. Melissa Hadhazy, a senior client partner for Korn Ferry, said a significant shift in talent demands has occurred at the mid-management level within the supply chain, as operations have broken down silos that traditionally existed within the operations.

> *"Today's leaders need to be more technically savvy. Also, in order to deliver visibility with data integrity, our leaders need very strong discipline around ensuring that our data is timely and accurate."*
>
> **Jeff Jackson, Executive Vice President of Operations, DCC, Penske Logistics**

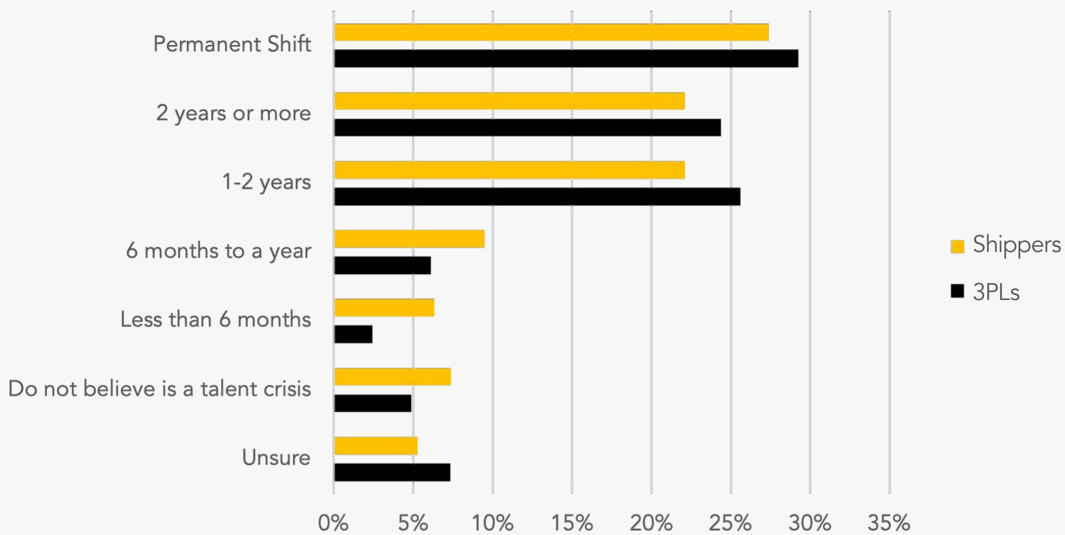
"You're seeing those siloed mid- and senior-level management roles disappear because people are expected to know more about the organization and are redefining roles," Hadhazy said, adding that a team approach is critical as the supply chain moves toward end-to-end solutions and digital integration.

Additionally, employees at all levels need to be agile, especially given the vast number of disruptions that can occur at any point in the production and distribution process. Data and analytics, rather than past experiences or performance, are increasingly being used by talent to meet shipper and end-consumer demands, which continue to increase. Senior management is expected to interpret data, utilize that information, and ask the right questions to make decisions that benefit the entire company.

Previously, supply chain talent may have operated behind the scenes. Now supply chains have been elevated, making supply chain talent highly visible. Successful companies are investing in their supply chain professionals to attract, retain and develop future company leaders.

Overall, the talent shortage is changing the way businesses operate, but shippers and 3PLs differ on how long they think this shortage may last. Roughly one-fourth of shippers (22%) either believe there is no talent crisis or if there is it will be resolved within the year, while only 13% of 3PLs share the same belief. Many see the 'talent crisis' as a long-term issue with 29% of 3PLs and 27% of shippers saying they believe there has been a permanent shift (see **Figure 11**).

FIGURE 11: Expected Duration of the Labor Shortage



The study team believes this difference in the short-term vs. long-term perspective impacts the way shippers and 3PLs are adjusting as discussed in the remaining portions of this section.

Recruiting, Hiring and Retaining Talent

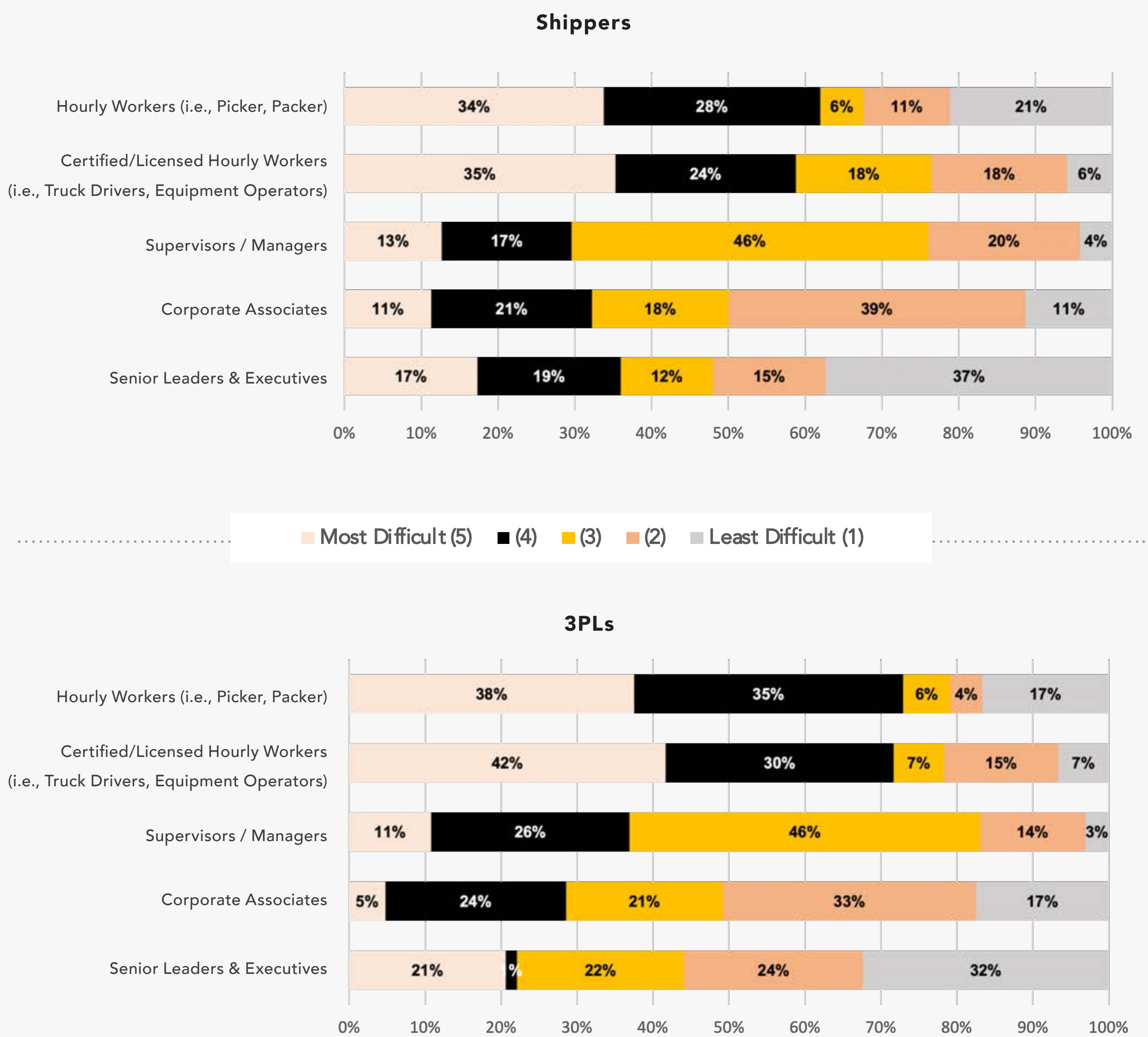
As the supply chain has become more integrated and collaborative, demand for supply chain talent has increased at all levels. Companies understand the direct effect the supply chain has on their overall success, but shippers and 3PLs are having a hard time recruiting and retaining various positions.

"The challenge in attracting skilled labor starts with filling the pool in the first place," said Leah Shaver, CEO of the National Transportation Institute. "In schools, we don't encourage young people to seek out skilled labor positions like we encourage general studies or the need for a college degree. Many young people simply aren't exposed to career paths and opportunities available in trades and with skilled labor positions, and that's especially true for careers in trucking and logistics."

Among both shippers and 3PLs, the hardest positions to fill are those for certified, licensed hourly workers, such as truck drivers and equipment operators, as detailed in **Figure 12**, followed by hourly workers, such as pickers and packers.

> *"The challenge in attracting skilled labor starts with filling the pool in the first place. In schools, we don't encourage young people to seek out skilled labor positions like we encourage general studies or the need for a college degree."*
>
> **Leah Shaver, CEO of the National Transportation Institute**

Figure 12: Where Organizations Have Difficulty Recruiting and Filling Open Positions



The same positions that are hard to fill (hourly workers, certified/licensed hourly workers) also struggle with retention, as shown in **Figure 13**. This correlation implies that companies are 'stealing' talent from each other, driving overall compensation up because the pool of talent is either not growing or not growing at a level that matches demand.

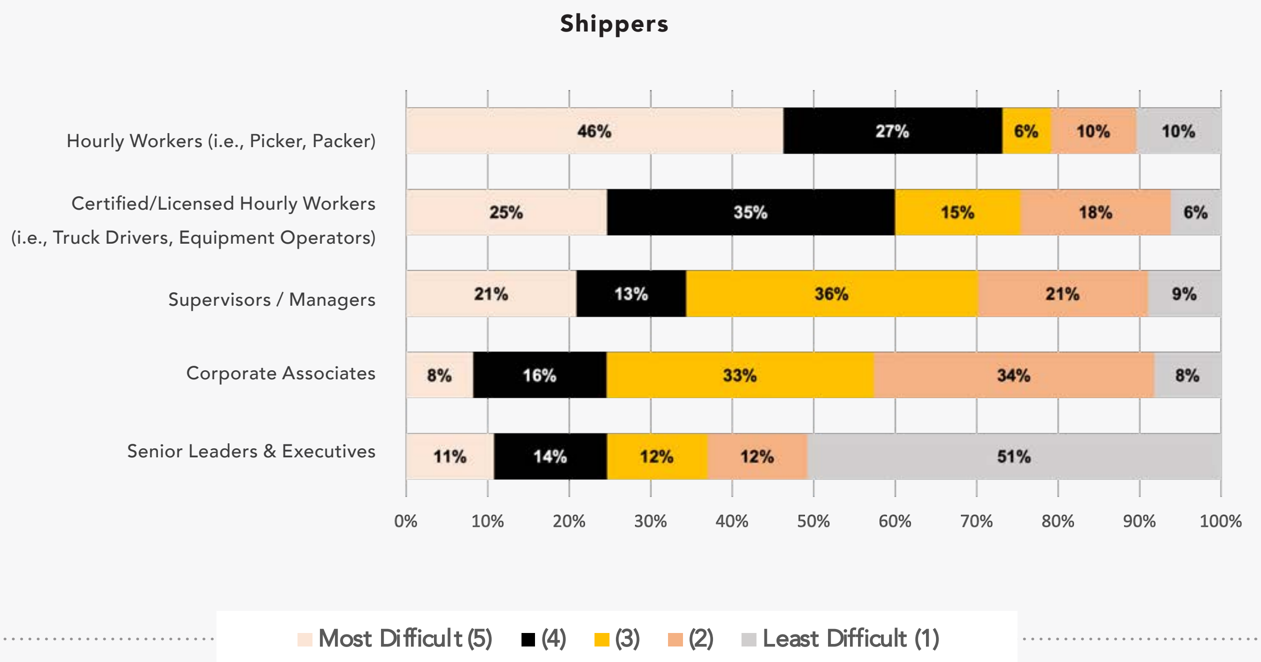
"I believe we are facing a talent pool crisis and until we can attract new talent into the profession—at all ages and levels—our 'talent crisis' will continue," said Sylvie Thompson, NTT Data Consulting Leader. "Further, we are all aware of the lack of women in senior levels within supply chains, but diversity is more than gender. Our talent pool is not representative of the communities we work in nor where our teams live. We need to not only expand our pool from a number's perspective but also from a diversity perceptive."

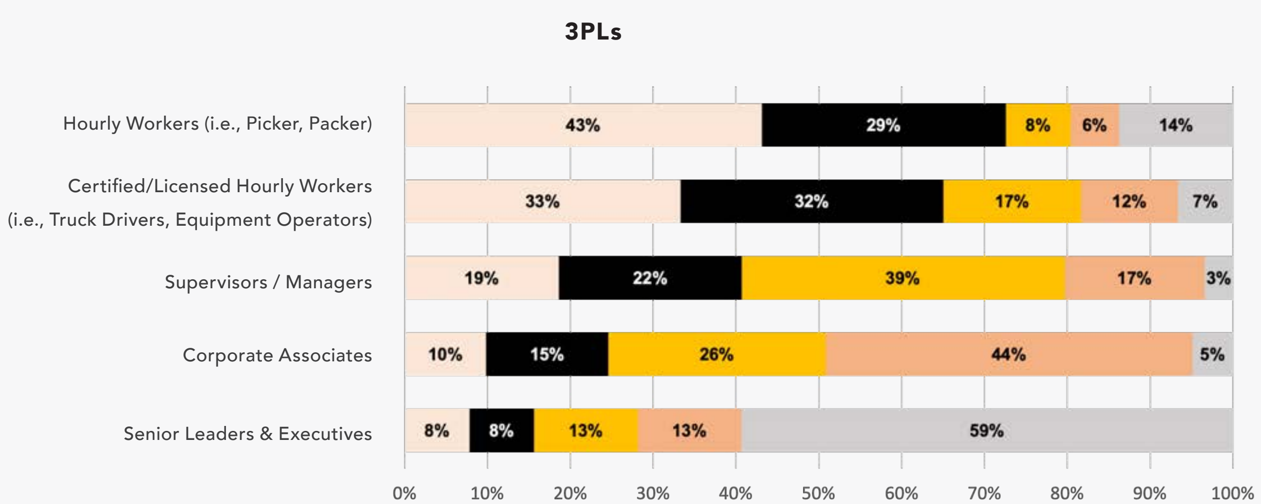
> *I believe we are facing a talent pool crisis and until we can attract new talent into the profession—at all ages and levels—our 'talent crisis' will continue."*

Sylvie Thompson, NTT Data Consulting Leader

Ellen Voie, president of the Women In Trucking Association, said sharing examples of women in transportation and logistics can increase awareness of the many positions and opportunities that exist. "In order to attract more women to careers in supply chain, we need to tell stories and feature the women in our industry, so other women will look at them and think, 'If she can do that, maybe I can as well,'" she said.

Figure 13: Where Organizations Have Difficulty Retaining Talent





Distribution Center Labor Challenges

The economy and inflation are changing consumers' buying habits, which is slowing the amount of goods flowing through distribution centers, but it is not easing labor challenges.

According to a survey of more than 80 big box, grocery, drug store and apparel chains conducted on August 3 by Korn Ferry, 91% of respondents said they are having trouble hiring permanent hourly associates within their distribution centers. Among those, 8% reported having significant trouble, while 45% reported moderate trouble.

Respondents report utilizing a fixed-wage progression and scale with 48% using time-based progression and 32% using regular salary structures with raises varying based on merit. Of those using wage progression, 20% require three to four steps and the same amount (20%) require five to six steps. The most frequently reported step increase is $0.50 to $0.74 an hour (24%), followed by $0.75 to $0.99 an hour (12%).

Among the Korn Ferry respondents, 36% measure the performance of order selectors/pickers using an individual hourly pick rate based on an engineered standard, while 29% said they don't use metrics for performance management.

Companies are improving their ability to attract and retain talent by focusing on culture. An environment focused on diversity, equity and inclusion, as well as employee-led and -driven campaigns can help attract and retain talent.

"A company's reputation and brand are key. Associate posts highlighting the work they're doing and the career successes they are experiencing helps build candidate pipelines," said Jeff Stoicheff, senior vice president, human resources, Penske Logistics.

In the current operating environment, shippers and 3PLs will only attract the best candidates if they offer potential talent their preferred types of engagement and inclusion. "People seek out companies that align with their own personal beliefs and preferred working culture. They want to feel valued and like they're part of a bigger purpose," Hadhazy said.

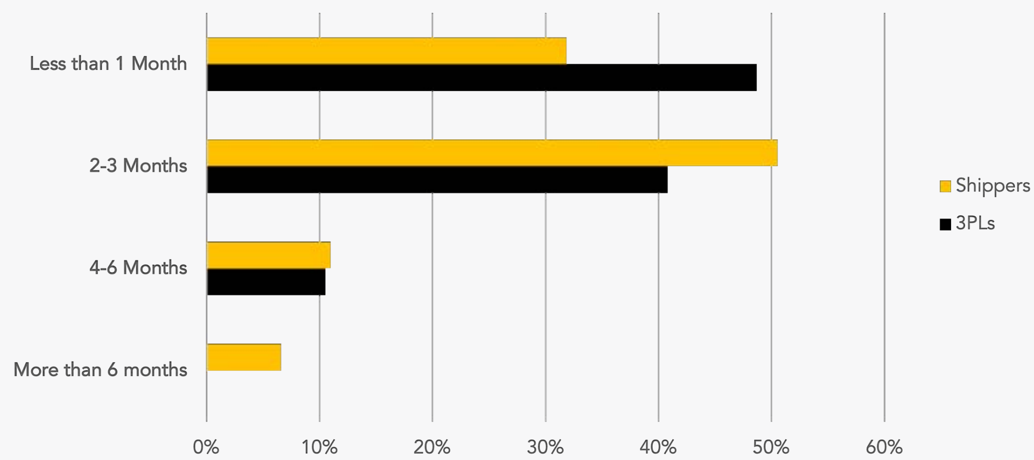
When hiring hourly employees, 3PLs report being able to fill hourly worker positions quicker than shippers despite feeling that they are operating in a constrained talent environment.

As shown in **Figure 14**, 49% of 3PLs compared to 32% of shippers said it takes less than a month, while 41% of 3PLs compared to 51% of shippers said it takes two to three months.

> *"A company's reputation and brand are key. Associate posts highlighting the work they're doing and the career successes they are experiencing helps build candidate pipelines."*

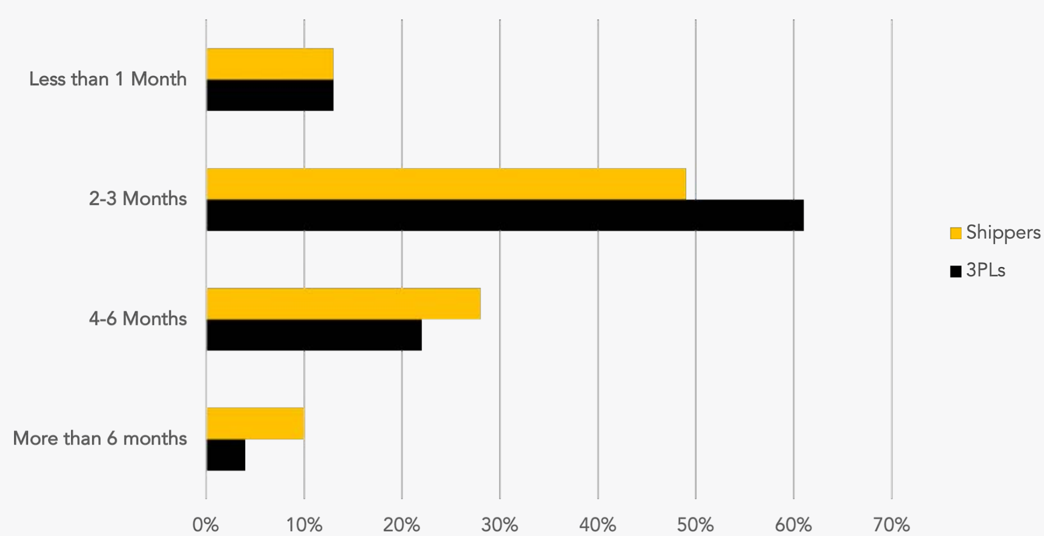
Jeff Stoicheff, Senior Vice President, Human Resources, Penske Logistics

Figure 14: The Average Length of Time it Takes to Fill an Hourly Position



The time to hire increases significantly for those filling an open salaried/professional position. 3PLs once again report being able to fill professional positions quicker than shippers. Among respondents, 61% of 3PLs compared to 49% of shippers reported that it takes two to three months, while 22% of 3PLs compared to 28% of shippers said it takes four to six months to fill a salaried/professional position, see **Figure 15**.

Figure 15: The Average Length of Time it Takes to Fill a Salaried/Professional Position



Korn Ferry's Hadhazy said most executive searches take at least 100 days. "We've noticed there is a lot more senior level management moving around, and those decisions are being made quickly. Things are happening faster now because people have options, and they want to take advantage of those opportunities quickly," she said.

Employee Compensation

One possible reason why 3PLs have been able to fill open positions and maintain higher retention rates than shippers is their approach to compensation. 3PLs are offering higher compensation adjustments and more diverse benefits to hourly and salaried personnel, seemingly recognizing the need to offer more diverse packages to recruit and retain workers.

"Prospective new drivers often mention benefits, and Penske offers a very competitive package. However, the most important component to a driver's compensation package typically boils down to the wages. We do offer a very lucrative associate referral bonus where a driver can make as much as $5,000 when referring a new driver," Penske's Jackson said.

Among hourly workers, significantly more 3PLs than shippers report offering flexible scheduling, remote work, college tuition assistance programs and certification programs. 3PLs also provide cell phone stipends and pre-paid gas cards at a higher rate, as detailed in **Figure 16**.

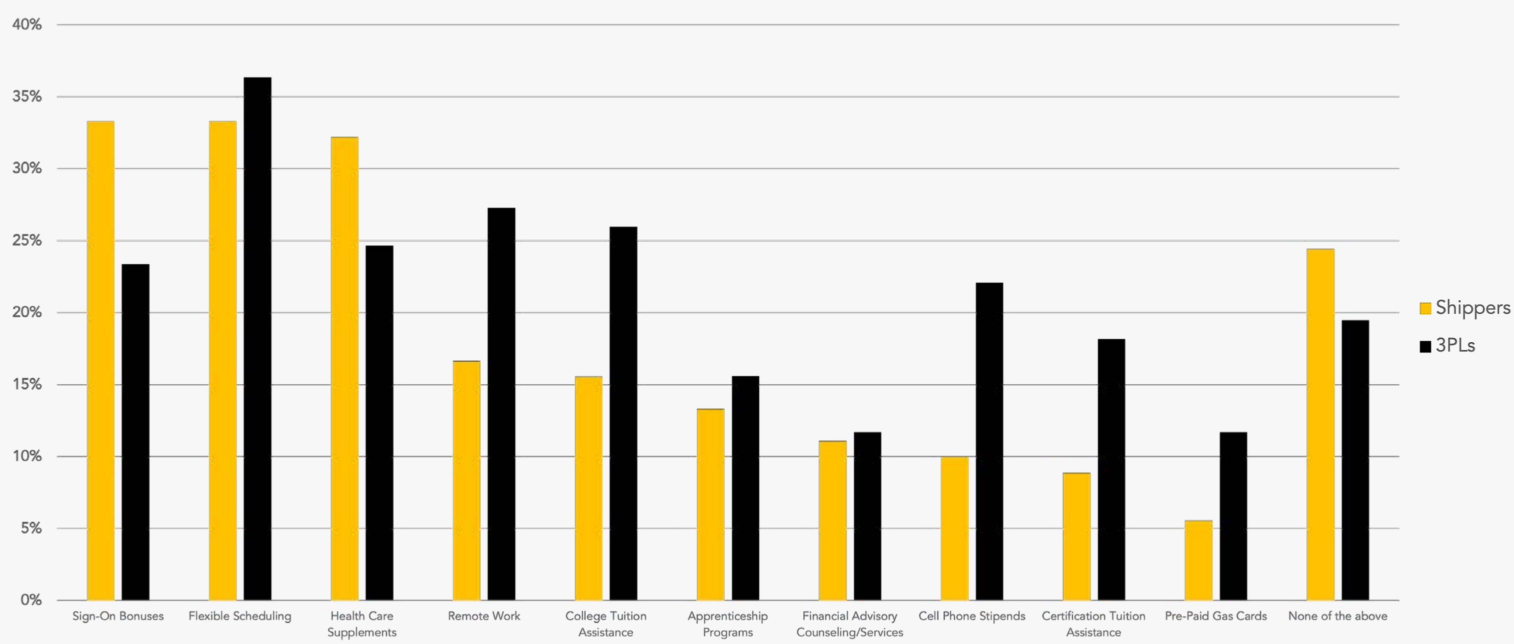
"We provide more flexibility wherever possible, and where we can't, we implement incentive programs," Jackson said.

Cell phone stipends are important to professional drivers given that drivers are often away from their home and families for extended periods of time. They also tend to appeal more to younger generations, including Gen Z, who have grown up connected and have never functioned without their phone. Most Gen Z workers join the workforce while still on their parent's plan and need an option to offset cell phone costs as they transition away from their parents.

Recent record-setting gas prices make pre-paid gas cards more valuable than just a year ago, which is an excellent example of why it is essential to review benefits consistently as conditions change, impacting both recruitment and retention over time. In addition (or as an alternative) to providing pre-paid gas cards, some companies offer a fuel stipend.

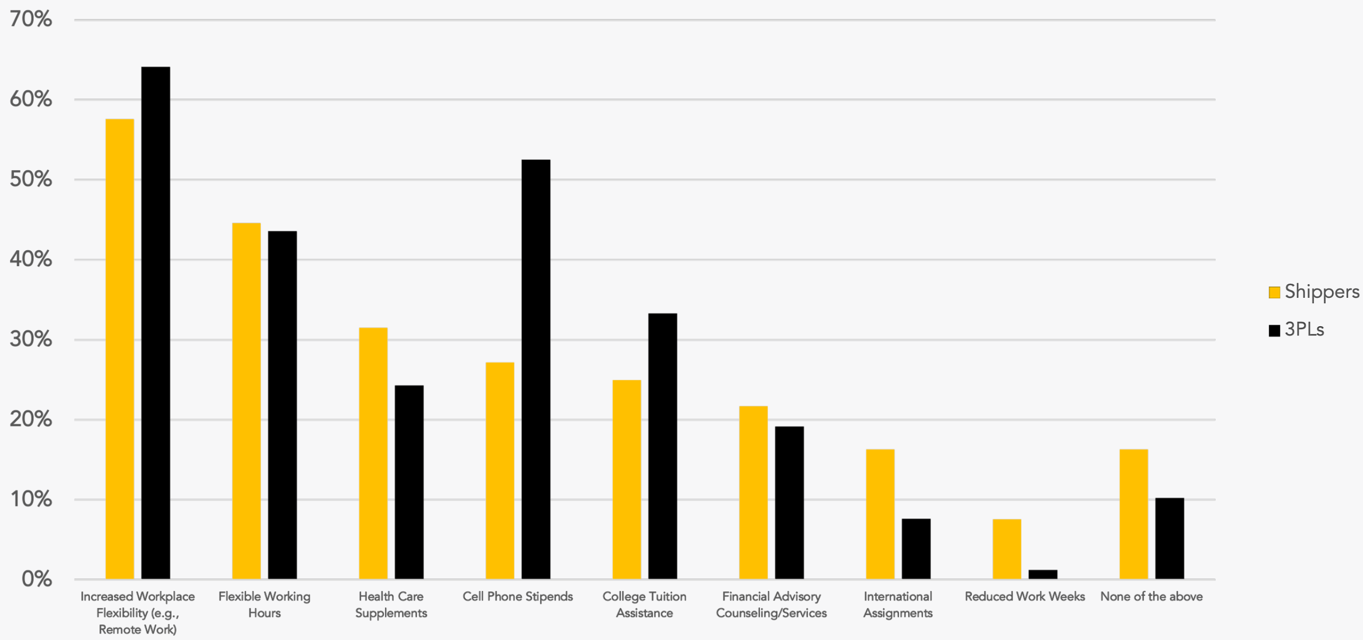
Both shippers and 3PLs report offering more non-traditional benefits to their salaried and professional workers than hourly workers, with 24% of shippers and 19% of 3PLs reporting they aren't offering the benefits listed to hourly workers, as opposed to just 16% of shippers and 10% of 3PLs offering the same benefits to salaried and professional workers.

Figure 16: Non-traditional and Alternative Benefits for Hourly Workers



Among benefits presented to salaried and professional workers, slightly more 3PLs (64%) offer increased workplace flexibility compared to shippers (58%). 3PLs are also reporting greater cell phone stipends and college tuition assistance rates, while shippers offer higher rates of flexible working hours, financial advisory counseling/services, international assignments and reduced work weeks, as noted in **Figure 17**.

Figure 17: Non-Traditional and Alternative Benefits for Salaried and Professional Workers

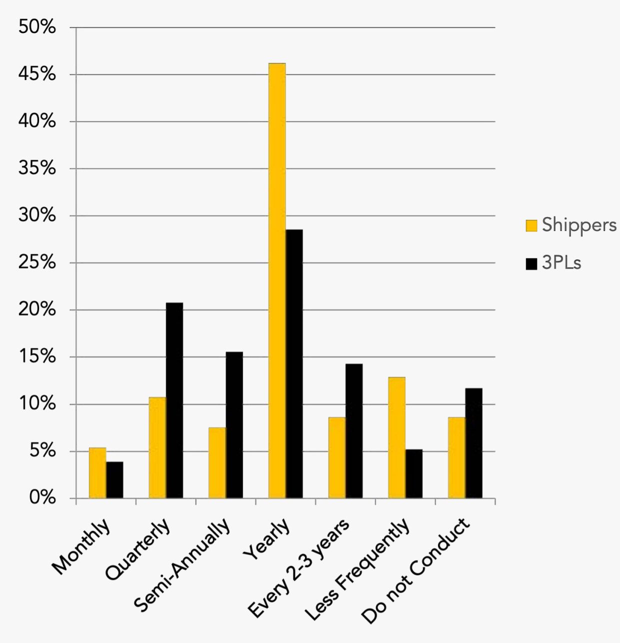


Regarding employee pay, 3PLs have increased base compensation more than shippers in response to operational pressures, as shown in **Figure 18**. More 3PLs (36%) reported increasing compensation greater than 7% compared to shippers (22%). Just 12% of 3PLs said they've made no compensation increases, compared to 18% of shippers.

Figure 18: How 3PLs and Shippers Have Increased Compensation in Response to Operational Pressures

Answer Choices	Responses	
	Shippers	3PLs
No Increase	18%	12%
0-3.99%	23%	22%
4-6.99%	23%	22%
7-10.99%	15%	21%
11-14.99%	5%	9%
>15%	1%	5%
One-time bonus	4%	4%
Unsure	11%	4%

Figure 19: Frequency of Wage Surveys for Particular Roles, Fields and the Overall Job Market



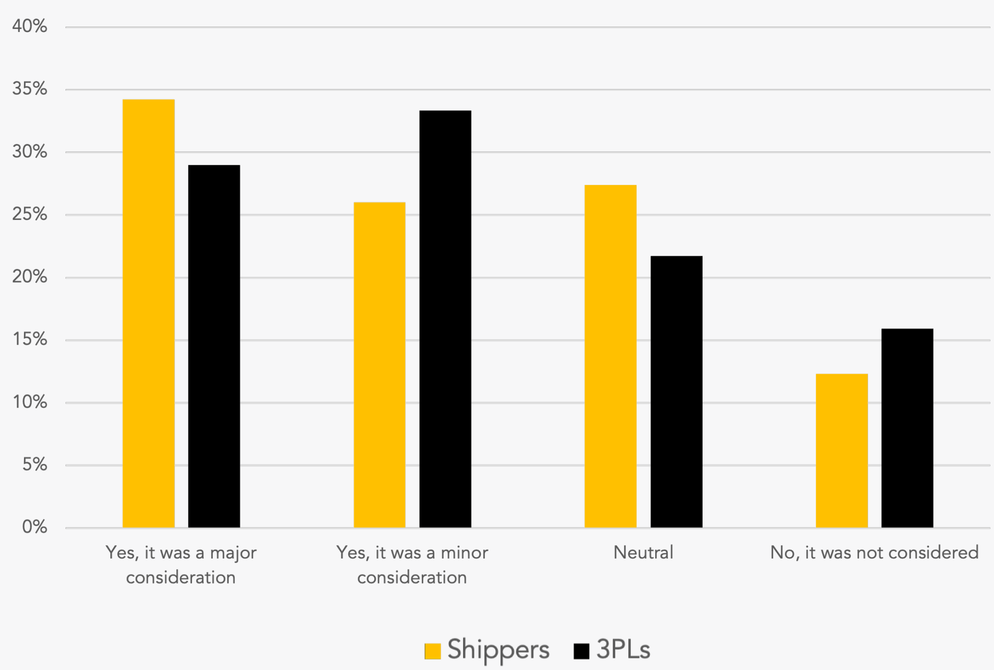
3PLs and shippers reported that they are conducting wage surveys for a particular role, field and the overall job market regularly. Roughly one-fifth of 3PLs (21%) and 11% of shippers are reviewing wages quarterly with 29% of 3PLs and 46% of shippers doing so annually (see **Figure 19**).

Korn Ferry conducts wage reviews monthly or quarterly, depending on the industry. "As a hiring manager, it is important to have a pulse on what is going on, but it doesn't necessarily behoove a hiring manager to respond to the whiplash that occurs in a disrupted market," Hadhazy said. "If you realize you have a critical position and you're not getting the candidates you want, then make a change. Reviewing compensation and benefits can help."

The Society for Human Resource Management (SHRM) has reported that inflation is causing some employers to re-examine their pay strategies and annual raises for 2022. In a SHRM survey conducted in July 2022, SHRM found that of those who were aware of their organizations' plans for yearly pay raises, 63% reported that inflation is being considered or accounted for in annual pay raises.

Labor is not only affecting employee compensation and benefits but also where new facilities are located. Shippers and 3PLs said labor played a consideration in the location of a new warehouse, facility or office, as outlined in **Figure 20**.

Figure 20: How Labor Force Conditions Have Influenced the Location of a New Warehouse, Facility or Office



The labor shortage has been especially acute in the warehousing and distribution sectors of the supply chain. "Attracting warehouse labor has gotten more difficult, but it pales in comparison to retaining warehouse labor," Stoicheff said. "Competition for talent in the warehouse and distribution vertical has increased dramatically since the pandemic, and with the overall lack of talent available in services, we now find ourselves competing with fast food restaurants, retail stores and other employers which we have traditionally not considered as competitors for labor."

Penske works to optimize labor by ensuring that supervisors and managers are trained in foundational supervisory and communication skills and understand how to coach associates, particularly as it relates to safety.

"We do our best to limit mandatory hours of work and provide flexibility in scheduling when situations or events arise," Stoicheff said.

While the 'talent crisis' may not be permanent, it is leading to operational adjustments that are expected to last. 3PLs focused on innovation and transformation are investing in technology, such as robotics and storage and retrieval systems, to help offset labor.

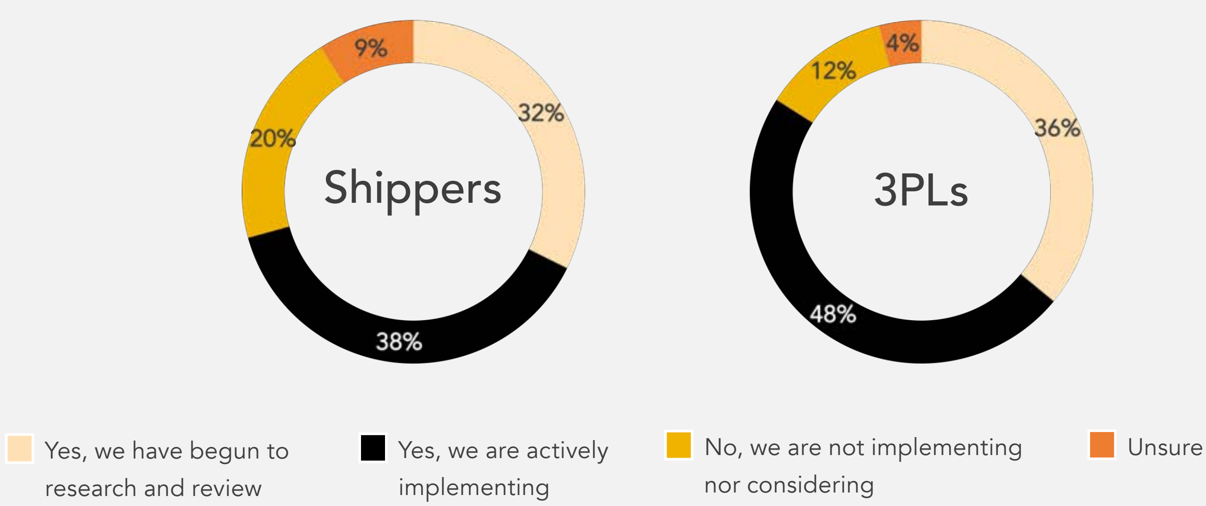
"There aren't enough people to do these jobs and the only way to supplement the amount of labor you need is to automate what you can. 3PLs are willing to make that investment because they can sell it."

Kevin Smith, CEO of Sustainable Supply Chain Consulting

The majority of 3PLs (84%) and shippers (70%) reported that they are either actively implementing or are researching and reviewing augmenting their supply chain operations with new technology and/or automation to offset talent shortage. Just 13% of 3PLs and 20% of shippers said they are not implementing or considering new technology or automation in this space, as detailed in **Figure 21**.

"There aren't enough people to do these jobs and the only way to supplement the amount of labor you need is to automate what you can. 3PLs are willing to make that investment because they can sell it," said Kevin Smith, CEO of Sustainable Supply Chain Consulting.

Figure 21: Percentage of 3PLs and Shippers Considering Augmenting Supply Chain Operations with New Technology or Automation to Offset Talent Shortages



The return-on-investment for automation and other dynamic technology solutions is shifting as wages rise and labor shortages linger. "For many years it has been hard to build a convincing business case to justify the significant upfront investment cost to transform a facility and adopt automation," NTT Data's Thompson said. "Labor shortages and their impact on operations, not just the cost of labor, is tipping the scales and we are seeing all sorts of diverse automation being implemented, from autonomous forklifts to automated storage systems."

Within the warehouse, automatic storage and retrieval systems can reduce labor needs while providing additional benefits, such as increased storage capacity and increased accuracy.

"We are also applying technology in a way that helps associates perform their work. We've introduced robotics in some of our facilities that assist in the picking and selecting function and we are also piloting drones that can assist with performing inventory counts," Stoicheff said.

Some solutions, such as remote operation of equipment, can expand the labor pool by connecting workers with critical supply chain jobs. Phantom Auto, for example, makes software that allows workers to remotely monitor, assist and drive fleets of unmanned vehicles, including forklifts and trucks, from thousands of miles away.

"We enable our customers to have a virtually limitless talent pool of essential workers in the midst of a recession-creating labor shortage, while enabling said logistics workers the privilege, for the first time ever, to work remotely," said Elliot Katz, co-founder of Phantom Auto. "Now, workers in the logistics sector have that same privilege. It's like Zoom for the physical world."

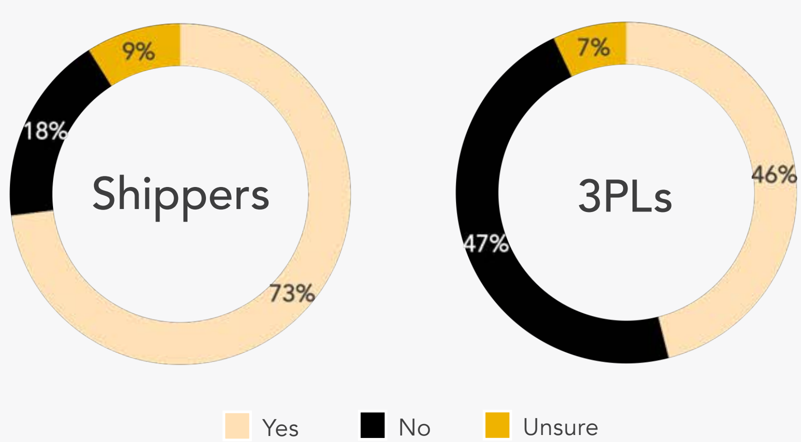
Phantom Auto has announced that the freight and logistics service provider ArcBest and the 3PL NFI have executed commercial agreements to deploy thousands of Phantom-powered forklifts in the coming years.

Shippers and 3PLs are increasingly focused on labor not only within the four walls of the warehouse but also the availability of associated workers, such as professional truck drivers, to move products to and from the facility.

"They are looking at the total landed cost and being conscious of the full supply chain when making decisions as opposed to making them myopically around the facility's geographic location," Hadhazy said.

Although labor challenges present their own difficulties, they may also bring opportunities. A higher percentage of 3PLs (73%) than shippers (46%) said companies are seeking out 3PL partners to offset labor shortages, see **Figure 22**.

Figure 22: Companies Seeking Services to Offset Labor Shortages



Overall, the pandemic, labor shortages and shifts in supply chain demands have all forced companies to focus on their current supply chain talent and potential sources of future talent.

Key Takeaways

1

Labor shortages have impacted supply chain operations for 78% of shippers and 56% of 3PLs.

2

Over a quarter of 3PLs (29%) and shippers (27%) see the 'talent crisis' as a long-term, permanent shift. Still, shippers are more optimistic, with 22% believing either there is no talent crisis or if there is, it will be resolved within the year.

3

Certified, licensed hourly workers, such as truck drivers and equipment operators, are among the most difficult roles for companies to hire and retain.

4

Salaried/professional positions take longer to fill than hourly worker positions. 3PLs are generally able to fill both positions faster than shippers, with 49% of 3PLs and 32% of shippers stating it takes less than a month to fill hourly worker roles. Similarly, 61% of 3PLs and 49% of shippers report that filling salaried/professional positions takes two to three months.

5

Overall, 3PLs are offering higher compensation adjustments and more diverse benefits to both hourly and salaried labor groups than shippers.

65% Expect Consumer Returns Expectations to Increase

61% Expect Customer Returns to Increase

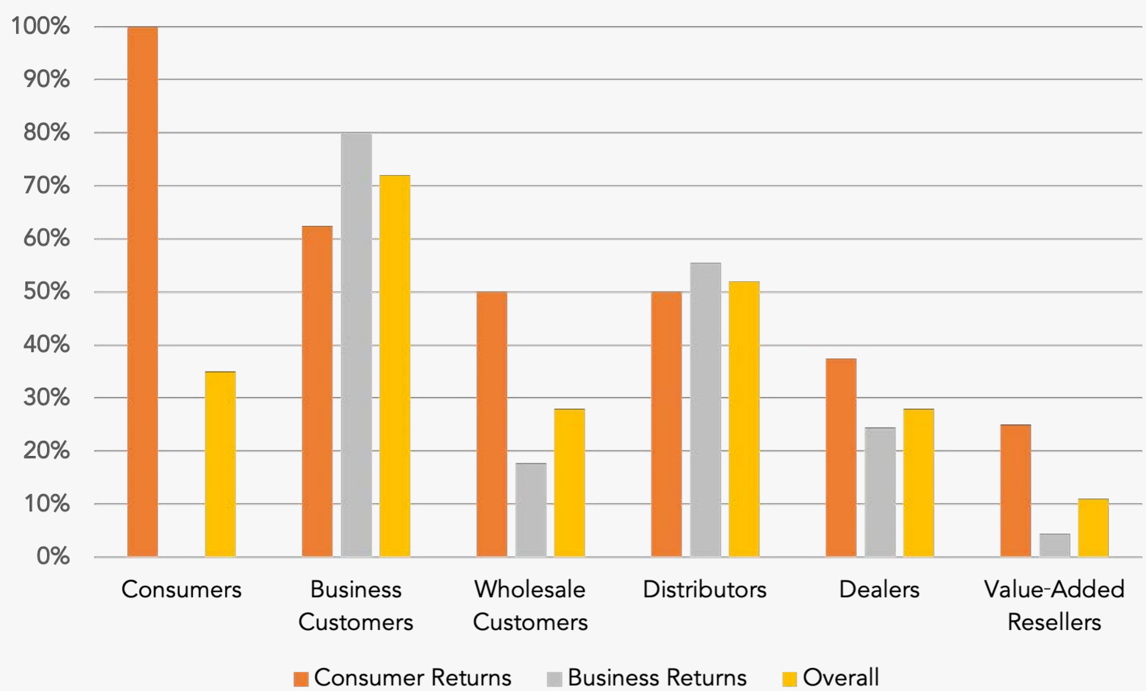
Tapping into the Potential of Reverse Logistics

The expansion of e-commerce and changing consumer preferences brought on by the COVID-19 pandemic have brought reverse logistics into the spotlight. Often discounted as the back half of the supply chain equation, reverse logistics has become an integral component of both B2B and B2C business, and a key opportunity for organizations to lower cost, boost efficiency and improve consumer satisfaction.

For the purposes of the *27th Annual Third-Party Logistics Study*, reverse logistics is considered to include consumer and business returns, product recalls, end-of-use returns, end-of-life returns, and the return of reusable package or containers. The possible disposition paths can be re-stock, resale, remanufacture, refurbish, repair, recycle and dispose.

Within this section, 3PL study participants are grouped into two distinct shipper clusters: customer-focused shippers, who accept both consumer and business returns, and business-exclusive shippers, who only accept business returns. The section also includes 3PL responses of 3PL providers that stated they currently provide reverse logistics services.

Figure 23: Return Channels

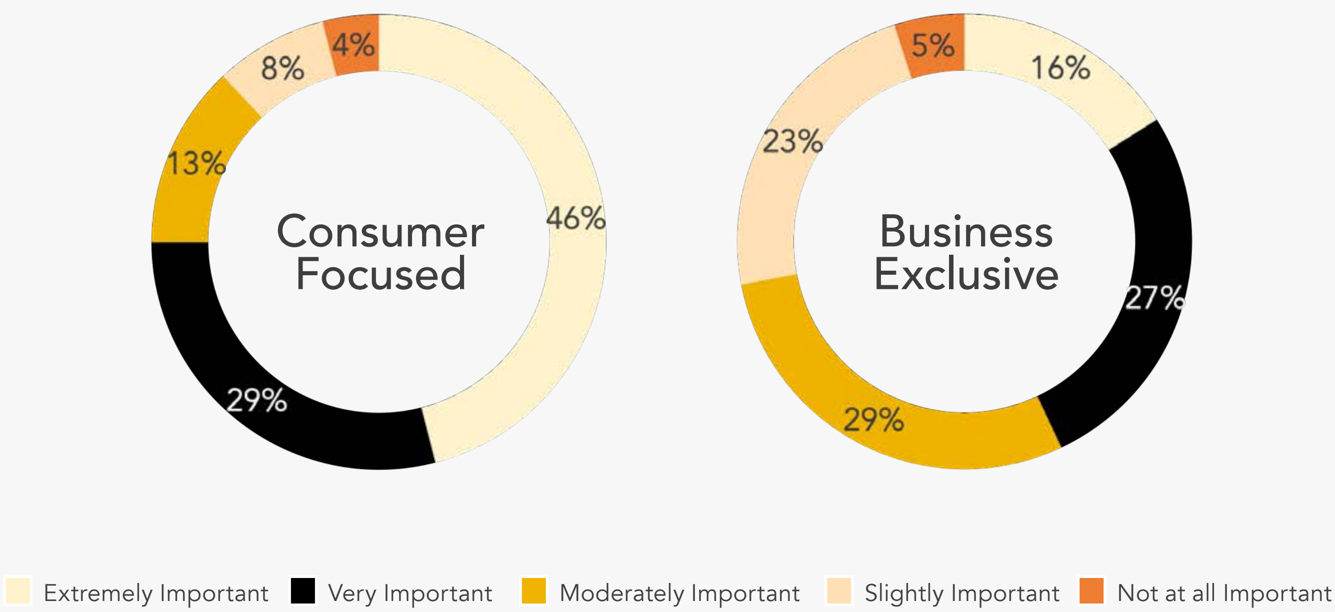


Consumer-focused shippers represented roughly one-third of the shipper respondents, shown in **Figure 23**. Shippers in this cluster accept returns from consumers and a variety of other channels, as none of these shippers exclusively accepts returns from customers.

Business-exclusive shippers represented roughly two-thirds of the shipper respondents. Interestingly, more of these organizations were focused on a single channel. Diversity in return channels is less within this group even when setting aside the consumer channel.

Both business-exclusive and consumer-focused shippers believe that the returns experience impacts consumer/customer loyalty, as shown in **Figure 24**. Roughly 75% of consumer-focused shippers rated the returns experience as being very or extremely important to consumer loyalty, while only 43% of business-exclusive shippers rated it the same level of importance for customer loyalty. This difference indicates that business exclusive shippers have not yet fully bought into the connection between returns experience and loyalty.

Figure 24: Importance of Returns Experience to Consumer/Customer Loyalty



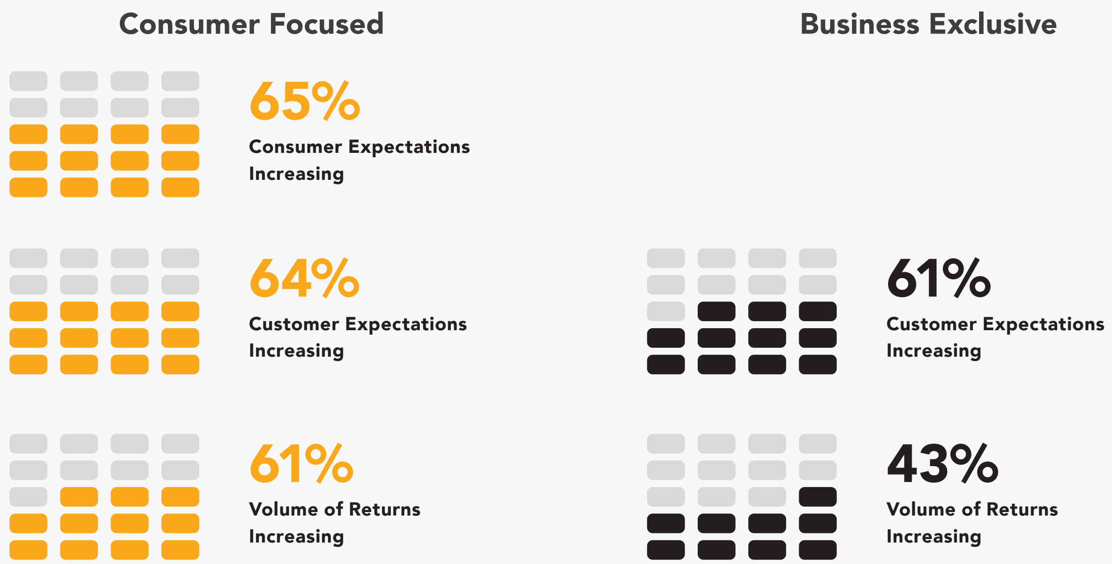
However, the increased importance of the returns experience also means that expectations are increasing. As shown in **Figure 25**, 65% of consumer-focused shippers and 60% of business-exclusive shippers state that their customers' return expectations are growing.

Consumers expect the ability to execute any part of the shopping experience in any channel, digital or physical, so they can buy and return items anywhere at any time. "Consumer expectations have grown because of the promises for quick and free delivery, the same holds true for returns, consumers expect free and easy returns," said Tony Sciarrotta, executive director of the Reverse Logistics Association.

The belief that omni-channel buying was limited to direct-to-consumer (D2C) has been proven misguided. Increasingly B2B buyers (customers) have the same expectations for business returns as they do as consumers. As noted in a 2020 McKinsey & Co. report *How COVID-19 has Changed B2B Sales Forever*, B2B leaders that commit to digitizing their go-to-market models should derive a competitive advantage in the form of more and more loyal customers compared with their slower-moving peers. "Business-to-business companies need to know that returns will continue to grow and become even more important. They need to start making plans now," Sciarrotta said.

4X **Business-exclusive shippers are four times more likely than consumer-focused shippers not to conduct any regular review of their return policy, including failing to benchmark against their competitors).**

Figure 25: Consumer Expectations and Returns Volume



In term of returns volume, 61% of consumer-focused shippers expect to see increased volumes of returns over the next three years, driven by growth in online purchases and direct-to-consumer shipping. In fact, consumers are four times more likely to return online purchases over purchases made in a physical store.

Recent pandemic-related shutdowns have amplified the adoption of online shopping in particular categories, including grocery. It is unlikely that buying habits formed over the past two years will shift back, leading not only to more returns but also greater diversity in the types of products being returned, such as higher grocery product returns.

Only 43% of business-exclusive shippers expect to see increased volumes. The study team found this result surprising considering the growing levels of government regulations that impact the disposal of products at end-of-use or end-of-life, forcing original manufacturers along with their selling networks to accept the return of these items.

"I am surprised that business-to-business companies do not see reverse logistics as a high priority nor expect returns to grow. Regardless, it is coming. Business customers expect the same attention and convenience paid to returns as they receive from forward supply chains," Sciarrotta said.

> *"I am surprised that business-to-business companies do not see reverse logistics as a high priority nor expect returns to grow. Regardless, it is coming. Business customers expect the same attention and convenience paid to returns as they receive from forward supply chains."*

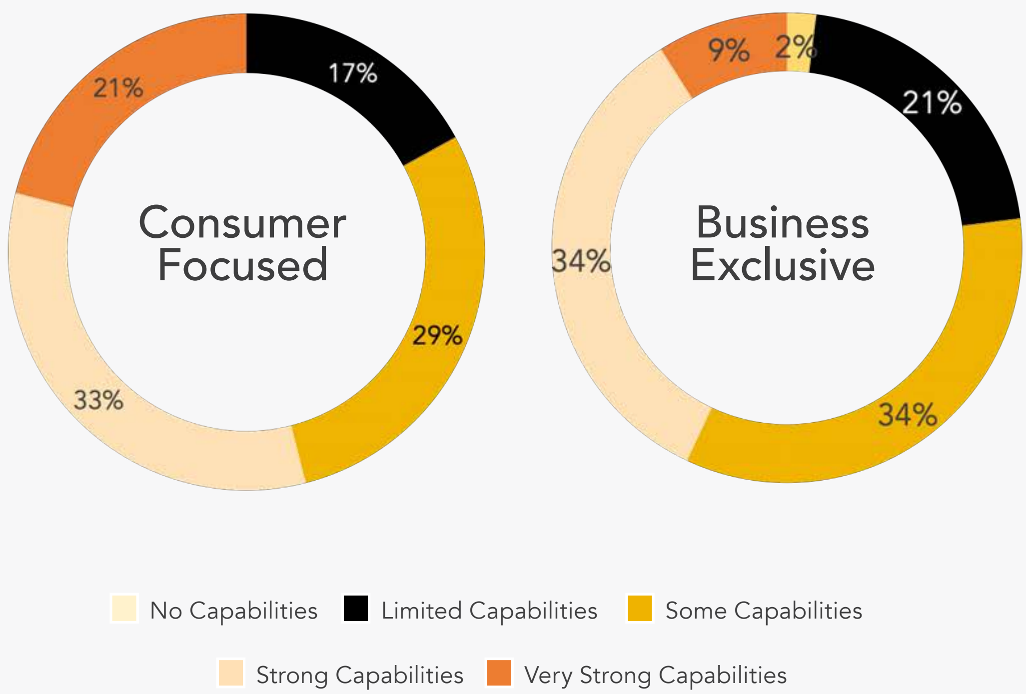
Tony Sciarrotta, Managing Director, Reverse Logistics Association

In addition, technology advances are rippling into various products particularly in high-tech, automotive, pharmaceuticals and medical devices and require reverse logistics solutions. For example, the growth of electric vehicles for both passenger cars and parcel delivery trucks is driving the growth of electric vehicle batteries circulating in the world. These batteries will need an effective and sustainable end-of-life path that can only be serviced via a global reverse logistics network. It is possible the business-exclusive cluster is underestimating the growth of returns and the need for reverse logistics.

Consumer-focused shippers tended to rate their reverse logistics capabilities higher than business-exclusive shippers. As noted in **Figure 26**, 52% of consumer-focused shippers rated their capabilities strong or very strong.

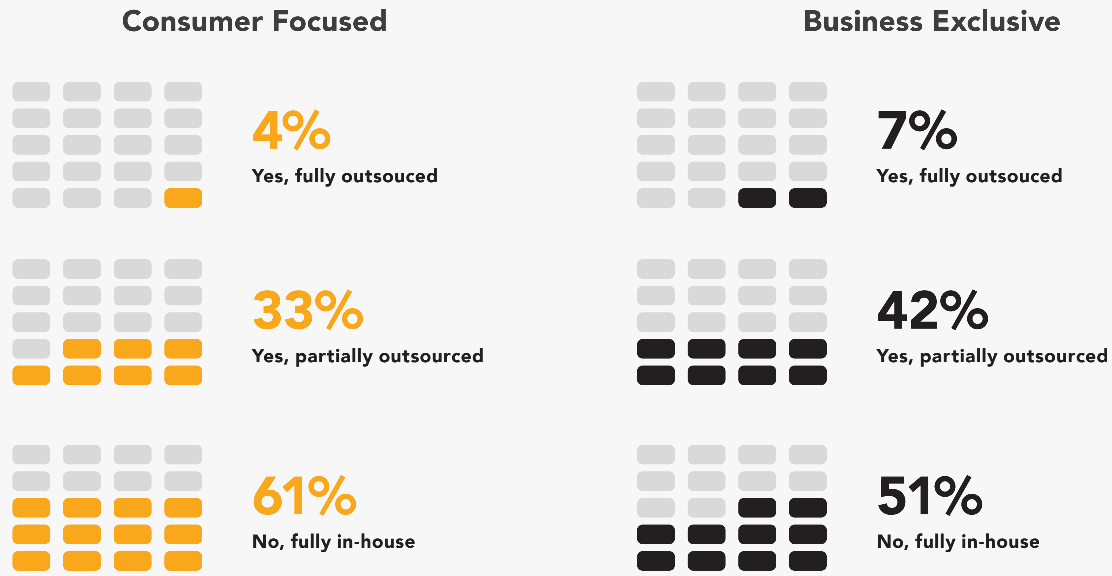
Since consumer-focused shippers view the overall returns experience as having a greater impact on loyalty and therefore revenue and profits, they likely are more willing to invest and build out these capabilities. Business-exclusive shippers tended more towards limited reverse logistics capabilities, while a small percentage noted they had no capabilities in this area of the supply chain.

Figure 26: Reverse Logistics Capabilities



Business-exclusive shippers are also more likely to outsource reverse logistics, which may explain why they are less likely to have strong in-house capabilities. However, neither group fully outsources. Reverse logistics is most often a combination of partially outsourced or fully in-housed with the majority of both groups keeping reverse logistics fully in-house as noted in **Figure 27**.

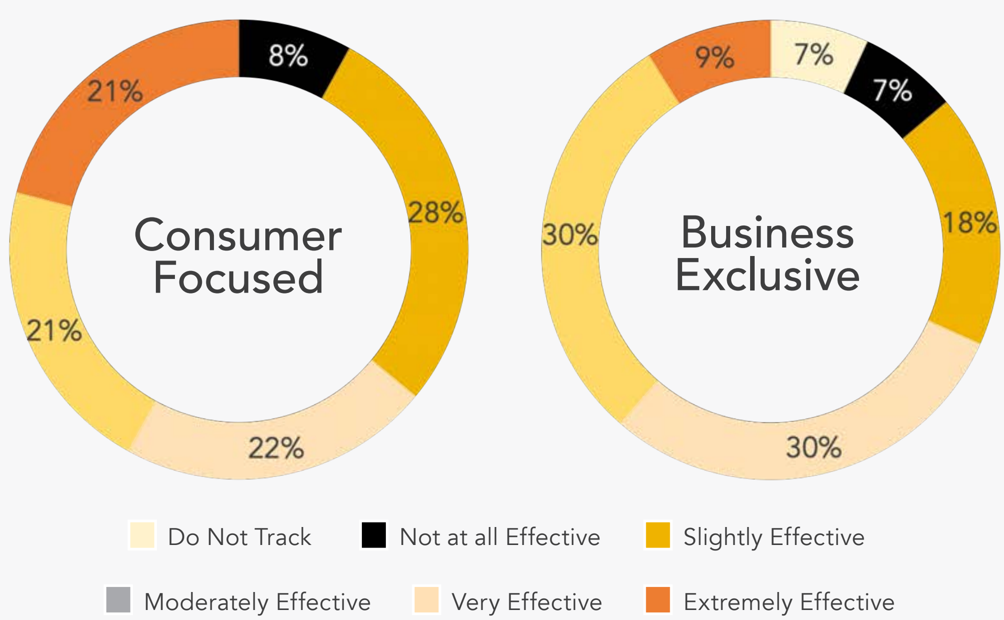
Figure 27: Reverse Logistics Outsourcing



As expectations of return volumes increase, the need for returns prevention grows in importance. In the survey, shippers rated their abilities to understand why consumers and customers return products. Business-exclusive shippers rated themselves as being more effective at understanding why returns happen than consumer-focused shippers. More consumer-focused shippers rated themselves as slightly effective over any other possible response, as noted in **Figure 28**.

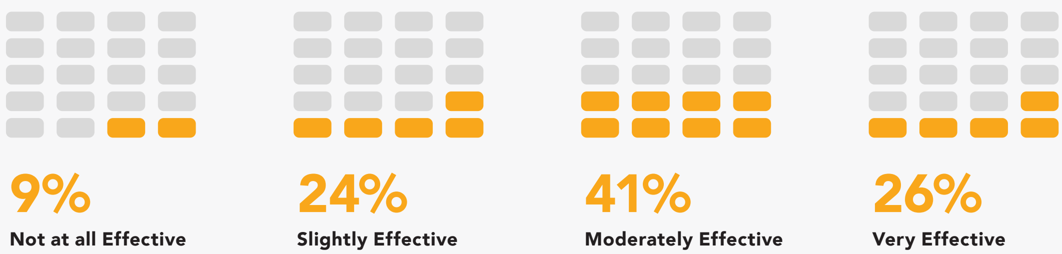
Consumer-focused shippers have the added complexity of attempting to collect honest and timely feedback from consumers on why they are making a return. Unfortunately, if consumers believe their "reasons" will impact their ability to get free return shipping, a full refund or even the timely processing of their refund, consumer return reason data is questionable.

Figure 28: Effectiveness at Understanding Why Consumer/Customers Make Returns



3PLs rated how effective their services are at helping their clients understand why consumers or customers return products, with all 3PL respondents stating that their services provide some level of tracking. However, 3PLs consider their services only moderately effective at helping their clients understand why returns take place with no 3PLs rating themselves extremely effective. See **Figure 29**.

Figure 29: Effectiveness of Services at Identifying Why Consumer/ Customers Return Products



Despite stating that they were more effective at understanding reasons for returns, business-exclusive shippers were less likely to take action to reduce returns. A small percentage stated that they take no action at all, as noted in **Figure 30**.

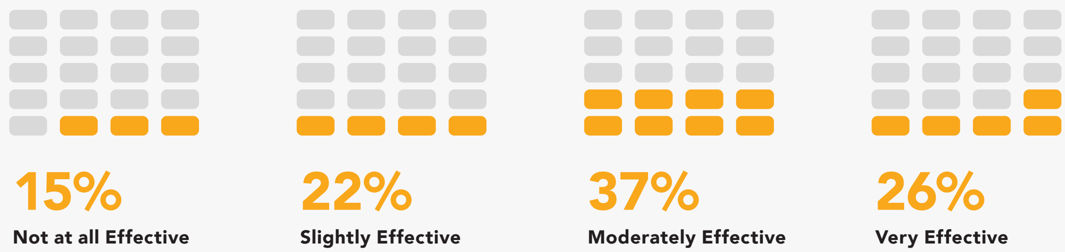
Business-exclusive shippers likely view returns as a cost of doing business and therefore not worth the effort to focus resources on prevention and corrective action. When combining their lack of action with their belief that the returns experience is not significant to customer loyalty, they may be placing themselves at a disadvantage when delivering an overall exceptional customer experience. They may also be at risk for disruption if a more holistically focused competitor enters their market.

Figure 30: Effectiveness at Taking Action to Mitigate or Reduce Returns

Answer Choices	Responses	
	Customer Focused	Business Exclusive
No Action Taken	0%	7%
Not at all Effective	4%	9%
Slightly Effective	38%	23%
Moderately Effective	29%	37%
Very Effective	13%	16%
Extremely Effective	17%	7%

3PLs were also asked to rate how effective their services are at enabling their clients to take corrective action to mitigate or prevent returns. Once again, 3PLs rated themselves only moderately effective (37%) with no 3PL rating themselves as extremely effective, as shown in **Figure 31**.

Figure 31: Effectiveness of Services at Enabling Corrective Action



Consumer-focused shippers rated themselves as very to extremely effective at re-commerce, which includes return to stock, sold as like new or used, sold as refurbished and sold as remanufactured, at 42% vs. 30% of business-exclusive shippers.

The greater variance between the two groups is at the opposite end of the effectiveness spectrum, with 23% of business-exclusive shippers stating they have no re-commerce capabilities or are not at all effective, compared to only 13% of consumer-focused shippers, shown in **Figure 32**.

The recent growth in direct-to-consumer sales by non-traditional retail organizations, such as consumer brands and consumer packaged goods companies, has led many in this group to rethink how they deal with returned products.

Traditional retailers have had the advantage of the physical store. Store returns have historically been in the less-than-10% range with most returned goods simply placed back on the shelf or put into a discount bin/rack at the back of the store. Further, many also negotiated return-to-vendor rights that allowed them to ship goods back when actual sales missed expected forecasts or the end-of-season/end-of-model life arrived.

Among brands, the rise of outlet stores was the original response to handling returned merchandise. With a significant percentage of sales shifting online, this group is seeing the volume and cost of returns increase.

The impact of returns on the bottom line for consumer-focused shippers is disproportional when compared to business-exclusive shippers. As a result, the consumer-focused group needs to explore and develop new and innovative re-commerce options. Meanwhile, the business-exclusive cluster may want to leverage lessons learned and capture savings, as well as added revenue, generated by alternative models enabled by consumer-focused shippers.

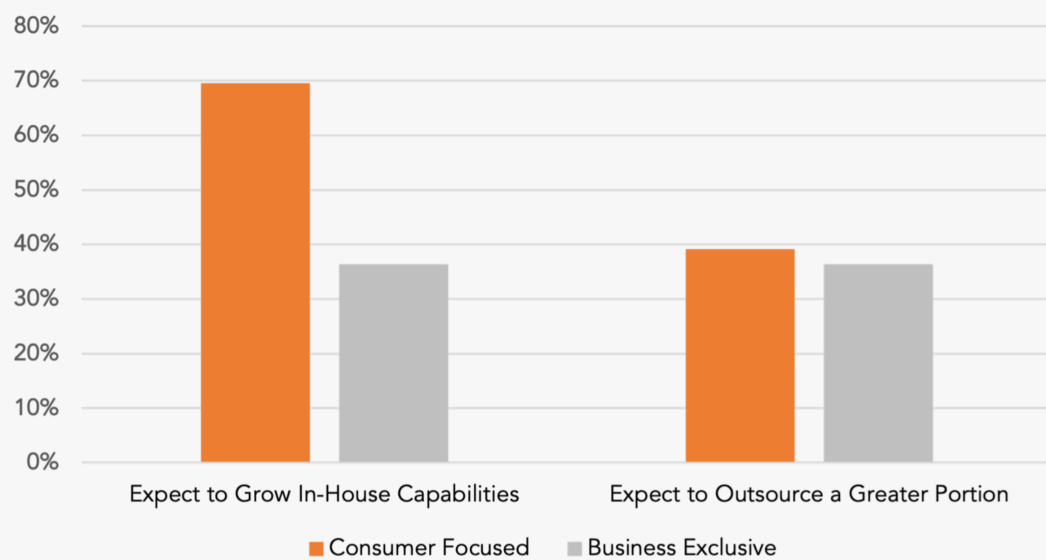
Figure 32: Effectiveness at Enabling Re-commerce

Answer Choices	Responses	
	Customer Focused	Business Exclusive
No Capabilities	4%	11%
Not at all Effective	8%	11%
Slightly Effective	21%	18%
Moderately Effective	25%	30%
Very Effective	21%	23%
Extremely Effective	21%	7%

As part of the study, researchers asked shippers to indicate if their reverse logistics requirements matched up with the services offered by 3PLs. Responses were consistent regardless of consumer-focused of business-exclusive respondents, with neither group noting an extremely strong match or no match. Overall, responses clustered around a moderate alignment with a leaning towards strong.

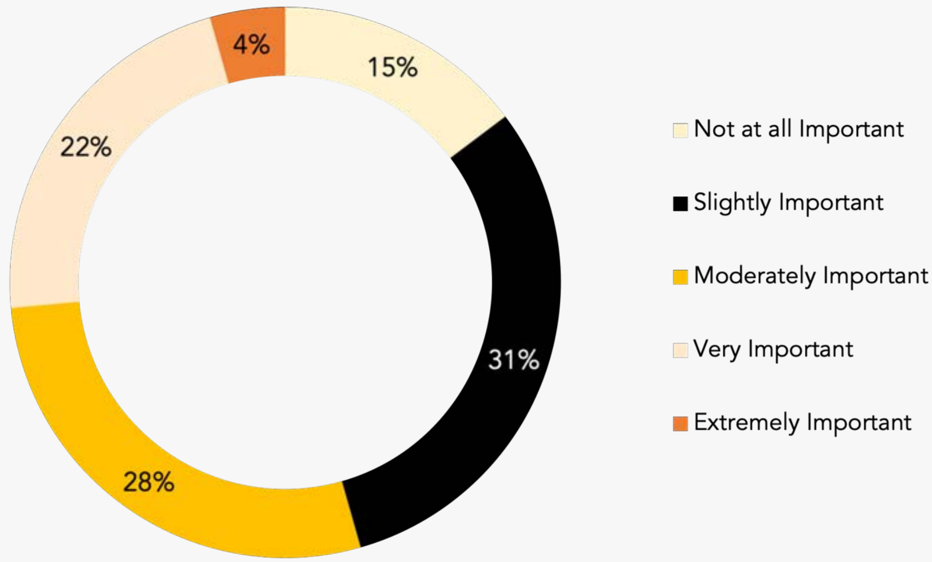
However, with the majority of shippers stated that they currently have their reverse logistics fully in-house and with only roughly one-third expecting to outsource a greater portion of their reverse logistics over the next three years. It appears the misstep may be with the 3PLs (see **Figure 33**). So far it appears they have been unable to develop a compelling offering that provides sufficient justification to push organizations into outsourcing versus continuing to build skills in-house.

Figure 33: In-House and Outsourcing Expectations Over the Next Three Years



This lack of a compelling offering is likely driven by the lack of importance 3PL place on reverse logistics within their future offerings. When 3PLs currently providing reverse logistics services were asked to rate how important their company believes reverse logistics services are to their future offerings, roughly 15% stated it was not important at all and 59% stated it was only slightly to moderately important to their future offerings, as shown in **Figure 34**.

Figure 34: Importance of Reverse Logistics to Future Service Offerings



Considering the growing size of the reverse logistics market and the increased importance to organizations, 3PLs may be missing out on the untapped potential of reverse logistics to their overall growth and customer loyalty.

87%

87% of 3PLs Expect Shippers to Outsource a Greater Portion of the Reverse Logistics

The Global Reverse Logistics Market

The global reverse logistics market was valued at roughly $635 billion (USD) in 2020 and is projected to reach just under $1 trillion by 2028, according to Allied Market Research's Reverse Logistics Market Report 2021-2028. Reverse logistics is an important part of the supply chain in a variety of industries, including retail, consumer brands and packaged goods, consumer electronics, high-tech, automotive and pharmaceuticals. Reverse logistics services range from basic logistics and warehousing services to spare parts replacement management to complex recycling programs to government and risk compliance programs.

Various Reverse Logistics Services

Warehouse Operations
Return Merchandise Authorization (RMA) Returns Processing and Management
Non-RMA Returns Processing and Management
Inspection and Disposition Management
Repackaging and Re-kitting
Consumer Returns Re-commerce/Reselling
Business Returns Re-commerce/Reselling
Return-to-Vendor Management
Repair, Remanufacturing, Refurbishment
Replacement Management
Warranty Management
Spare Parts Management
Recycling
Destruction Services
Donation Services
ESG Compliance
Data Analytics and Reporting

Returns Management Systems

Reverse logistics can't be ignored any longer, and shippers and their logistics providers are leveraging technology to optimize the other half of the supply chain equation.

For the last few decades, supply chain technology innovations have focused on the forward supply chain, such as warehousing, inventory management or transportation, and rightfully so—they are competitive differentiators that can accelerate or sink a company's performance.

But forward logistics is only half of the supply chain equation. With increased e-commerce spending in both B2C and B2B purchases, companies face growing reverse logistics challenges.

Product return volumes are increasing by double-digit percentages each year. If managed poorly, returns can be costly, time consuming and wasteful. When managed correctly, they create huge opportunities for efficiency, sustainability, lower costs and new revenue options for 3PLs.

In a time of growing return volumes and strain, a returns management system (RMS) can have an out-sized impact on processes, people and profits. We've seen customers improve profits an average of 5% and increase customer satisfaction 15-25% with better returns management.

An RMS is the final piece of the supply chain technology puzzle, optimizing the entire returns journey. As a cloud-based solution, it manages the end-to-end returns lifecycle and analyzes returns data across supply chain software.

Starting with returns initiation, an RMS facilitates fast and easy returns, along with automated customer notifications of an item's status. It enables store or warehouse employees to work with the same information, speeding up inspections and grading, resolving customer issues faster and dispositioning returns as early as possible in the cycle.

With an RMS, companies can configure workflows to their specific requirements and set rules that standardize processes across a partner or vendor network. Workflows can even reflect sustainability goals, such as prioritizing recycling.

Because an RMS fully integrates with other supply chain software, all returns data is presented in one location for easy viewing, reporting and decision making, eliminating siloed information.

By integrating an RMS into their operations, a 3PL gains better visibility, reporting and processing for themselves and for customers, helping them deliver a high-value service.

Gaurav Saran
CEO and Founder
ReverseLogix

ReverseLogix

Key Takeaways

1

Three-quarters—75%—of consumer-focused shippers rated the returns experience as being very or extremely important to consumer loyalty. Less than half of business-exclusive shippers—43%—rated it the same level of importance for customer loyalty.

2

Both groups of shippers—65% of consumer-focused shippers and 60% of business-exclusive shippers—reported that returns expectations are growing.

3

Among respondents, 61% of consumer-focused shippers expect to see increased volumes of returns over the next three years, while only 43% of business-exclusive shippers expect to see increased volumes.

4

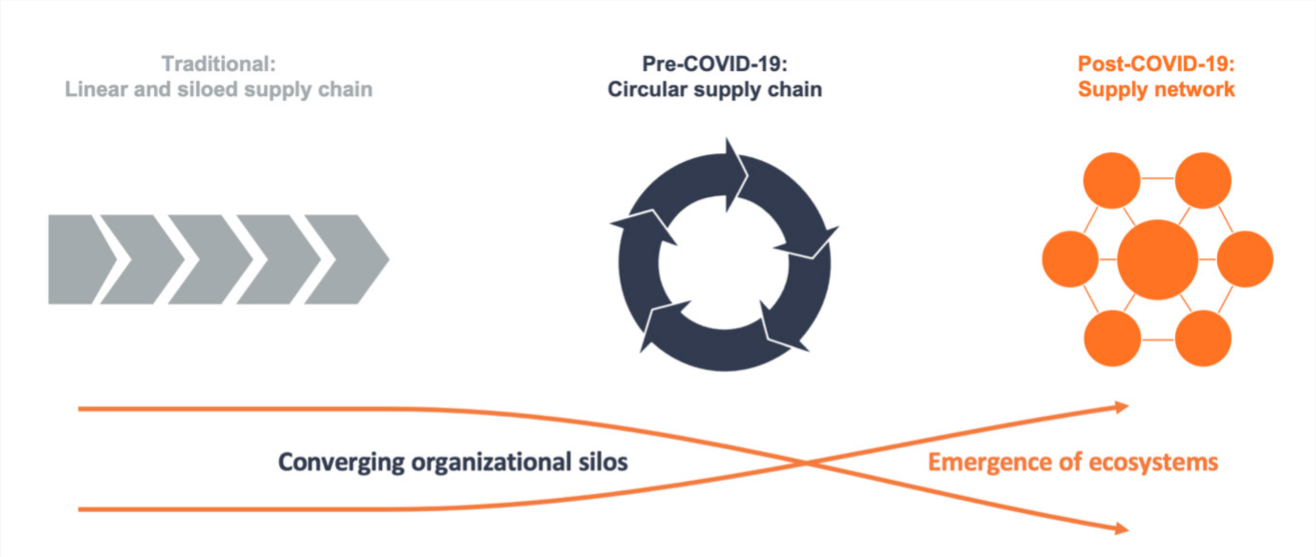
Consumer-focused shippers (52%) tended to rate their reverse logistics capabilities higher than business-exclusive shippers.

5

Among 3PLs currently providing reverse logistics services, 59% stated reverse logistics services are only slightly to moderately important to their future offerings and roughly 15% stated it was not important at all, which indicates 3PLs may be missing an opportunity.

Unchain Your Supply Chain

The term "supply chain" has served us well, but historically has implied a linear or circular arrangement of participants and processes. As organizations develop improved and innovative approaches to supply chain management, there will be a growing need to reimagine supply chains as networks and ecosystems.



COVID-19 shined a light on our supply chains and illuminated the soft spots and deficiencies of historically capable supply chains. Ongoing disruptions and inflationary pressures have further elevated the supply chain to a board room conversation. This has created a once-in-a-lifetime opportunity for supply chain executives, and for organizations that are committed to finding better ways to match supply and demand.

Lack of resiliency, flexibility and adaptability; disparate data sets; reactive planning vs. proactive planning; and a lack of an end-to-end view are significant supply chain constraints going into 2023. Organizations will need to collaborate across industries to pinpoint sources of disruption, where to disrupt, and how to keep reinventing themselves in an unforgiving world.

An emphasis on circular and supply network concepts supports the need for change, innovation and transformation in our supply chains. We now have no choice but to transform legacy corporate silos to successfully align with our customers, employees and partners in an integrated unit where data flows freely among organizations, suppliers and customers.

Saurabh Gupta
President, Research & Advisory
HFS

17% of 3PLs Rate Themselves as a Leader in ESG

Continuing the Conversation

Maturity of ESG: Shippers, 3PLs, Transportation Providers Increase ESG Efforts

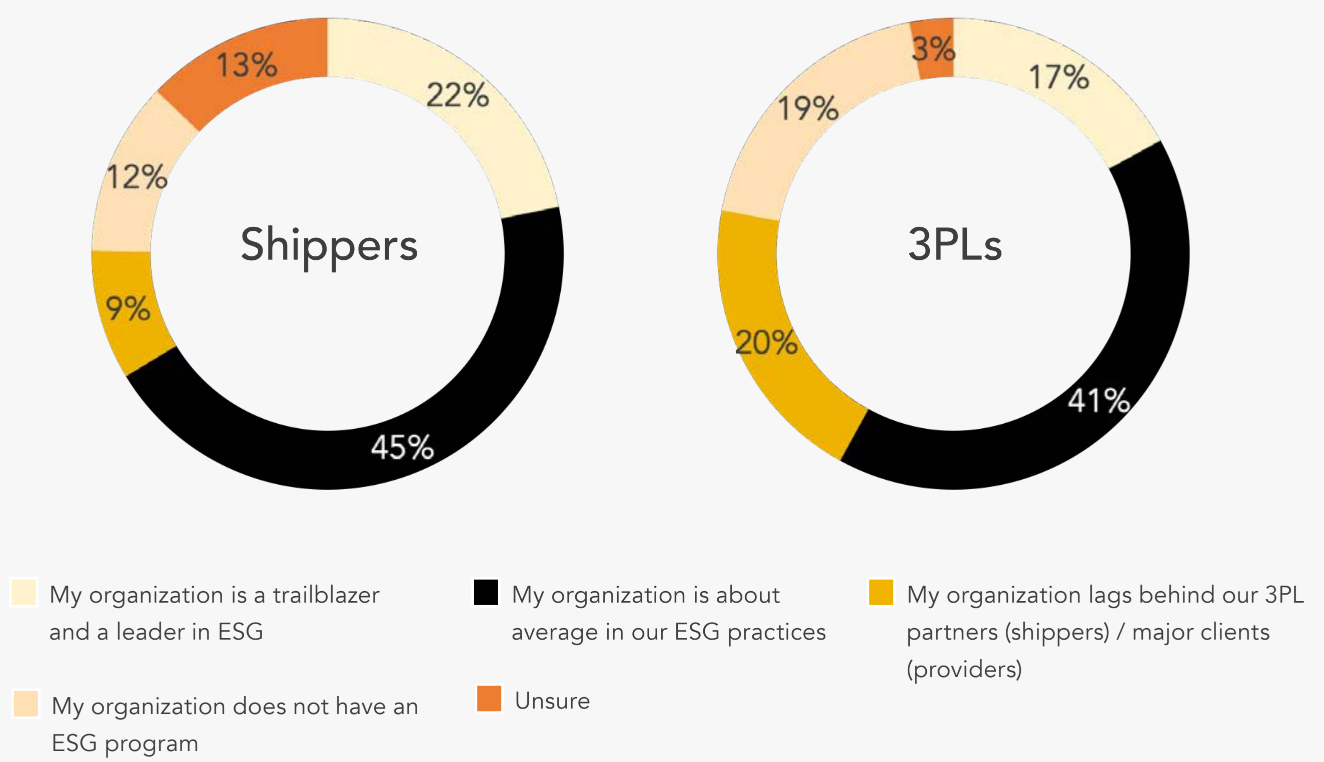
Corporations' environmental, social and governance (ESG) efforts continue to increase among businesses worldwide, and sustainability remains an important priority for investors, employees, consumers and the public. The supply chain provides significant opportunities to improve ESG efforts, and various organizations are increasingly adjusting their supply chains to better align with their ESG goals.

Shippers as well as 3PLs are making investments in ESG initiatives. "Any 3PL who can demonstrate they're doing anything to improve air and water conditions provides value. That is a big deal in the annual report or any ESG statement," said Kevin Smith, CEO of Sustainable Supply Chain Consulting.

A higher number of shippers, 22%, rated themselves as a trailblazer and a leader in ESG, compared to 17% of 3PLs. Additionally, 45% of shippers said their organization is about average in its ESG practices, compared to 41% of 3PLs, shown in **Figure 35**.

A higher number of 3PLs, 19%, reported that their organization does not have an ESG program, compared to 12% of shippers, and 20% of 3PLs said that their program lags behind their shipper partners. Just 9% of shippers felt their program lagged behind their major clients.

Figure 35: Shipper and 3PL ESG Efforts



Critical drivers of ESG programs include consumer trends and preferences, environment and climate impacts, diversity, equity and inclusion (DEI), and social contribution and responsibility. Regulatory requirements are also driving sustainability efforts, with more and more states mandating lower emissions, low-GWP refrigerants, such as those used in warehouses, and more.

Corporate-Driven Efforts

There has been an increased push to provide actual numbers around sustainability improvements. "Whether it is an annual report or an ESG statement that companies make, everybody feels like they have to make some type of a statement," Smith said.

Among S&P companies, 92% now publish ESG reports in some form as do approximately 70% of Russell 1000 companies, according to the Governance and Accountability Institute. Logistics and transportation providers are also reporting their ESG goals and achievements.

The Oxford Economics survey of supply chain decision makers across industries found that 88% have either created or are in the process of creating a mission statement around sustainability. Still, only 52% have implemented their plans and reduced their shipping miles.[5]

"We are starting to see many companies across multiple industries adding ESG-based metrics for their third-party vendor partners. The requirement to have an active ESG program is becoming a critical requirement for the onboarding and continued partnership for some global corporations," said Edmund Tribue, consulting vice president, risk and compliance, NTT DATA.

Clean Transportation

Supply chain areas felt to have made the greatest progress with ESG include transportation, manufacturing and warehousing.

Within the transportation sector, trucking companies and railroads have made emissions-reductions commitments. For example, Schneider National has committed to reducing per-mile CO2 emissions by 7.5% in 2025 and 60% by 2035. UPS has set a goal to achieve carbon neutrality by 2050, including fueling 40% of ground operations with alternative fuels by 2025.

Norfolk Southern's 2022 sustainability report said the railroad plans to reduce its Scope 1 (direct emissions from owned or controlled sources) and Scope 2 (indirect emissions from the generation of purchased electricity, steam, heating and cooling consumed by the company) greenhouse gas emissions intensity by 42% by 2034.

Electric Vehicles

Electric vehicles continue to make headlines, and several fleets are adding and testing EV technology. Advancements vary by market segment.

A report from the North American Council for Freight Efficiency found that 100% of the medium-duty market segment will embrace electrification. Still, some applications within the duty cycle will be easier to electrify than others. The simpler box truck portion of the market segment includes about 380,000 trucks in the U.S. and Canada, and the vast majority are not driven long distances and are home every night.

"The marketplace in these shorter-haul, return-to-base operations are ready today to electrify, and the industry should work together as one to amplify and realize the benefits while mitigating challenges and risks urgently," said Mike Roeth, NACFE's executive director.

FedEx, for example, has plans to transform its entire parcel pickup and delivery (PUD) fleet to all-electric, zero-tailpipe emissions by 2040.

More complex Class 6 and 7 trucks, such as snowplows and refuse trucks, will require significant efforts, which will delay the timing of electrification.

NACFE has also reported that 50% of that Class 8 market segment is ready for electrification now.

"The marketplace in these shorter-haul, return-to-base operations are ready today to electrify, and the industry should work together as one to amplify and realize the benefits while mitigating challenges and risks urgently."

Mike Roeth, Executive Director, NACFE

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5 https://www.sap.com/cmp/dg/sustainable-supply-chain/index.html

"Heavy-duty Class 8 tractors are the most challenging of all the truck segments considered for electrification," said Rick Mihelic, director of emerging technologies at NACFE. "Battery electric vehicles cannot replace all diesels, but they can replace a significant share of regional haul ones, where the driver and truck return to base each day, where loads are usually cubed out, or in the case of beverage deliveries, the daily distances are not very long."

Dependable Supply Chain Services, a transportation and logistics provider based in Los Angeles, has partnered with the Volvo LIGHTS (Low Impact Green Heavy Transport Solutions) program, a collaboration between the South Coast Air Quality Management District in California, Volvo Trucks and 12 other organizations to pioneer a range of vehicle, charging and workforce development to advance battery electric trucks and equipment.

"We felt electric would be a way of the future because it would fit the organization very easily," said Joe Finney, chief operating officer of Dependable Supply Chain Services.

As part of the program, Dependable Supply Chain Services has added solar power, electric forklifts, and electric yard tractors and is testing different Class 8 trucks. It has also added electric equipment at additional facilities.

However, challenges remain for long-haul electric vehicles. "The infrastructure and the ability to get any mileage out of the trucks is what has slowed us down in doing anything more," Finney said. "A diesel can run 500 miles, refuel and run another 500 miles. With an electric, I can run it maybe 120 miles with a load, then it has to be down for hours recharging. Plus, it costs three times a diesel."

Additionally, Class 8 EVs cost significantly more than a diesel. "Monetarily, it doesn't make sense. So, you need the grants to try and help companies go down the path of electric," Finney said, adding that even with challenges, he believes electric is still going to be the future."

Regulatory Requirements

While many companies are taking action on their own accord, regulatory action is also moving sustainability forward.

Several states are advancing regulations designed to reduce tailpipe emissions in the transportation sector. California's Advanced Clean Truck regulation requires a percentage of each fleet's trucks to meet the definitions of zero-emission vehicles beginning in 2024. As part of ACT, 9% of Class 4-8 trucks must be classified as ZEVs in model year 2024 and 75% by MY 2035. For Class 7-8 tractors, the percentage is 5% in 2024, increasing to 40% by the 2032 model year.

Several other states, including Oregon, Washington, New York, New Jersey and Massachusetts, have followed California's lead and passed the ACT regulation. More states are expected to pursue similar regulations, and the federal government has also begun to roll out proposed national emissions regulations.

Sustainable Facilities

Often, the actual transportation segment of a company's supply chain can have a smaller carbon and environmental footprint than its facilities, Smith said.

Energy-efficient production facilities and warehouses can cut operational costs while improving sustainability, making the initiatives a win-win solution within the supply chain industry. A range of eco-friendly solutions can be applied to new construction or existing facilities.

Lighting is a significant contributor to a location's energy demands. LED lights are much more efficient. Warehouses can also utilize skylights to increase the amount of natural light flooding into the building. Another option is to install sensors that can monitor lighting demands within a space and adjust the amount provided. Sensors can also turn off lights when the area is not in use.

Additionally, temperature control measures can focus on those areas occupied by people and high-efficiency HVAC systems can generate better savings and reduce energy consumption.

Several major brands have announced facility goals, including Kraft Heinz Co., which pledged to reduce energy use intensity by 15% across manufacturing facilities by 2025 and procure the majority of electricity from renewable sources by 2025.[6]

Smith said water usage is a significant sustainability issue, and several consumer-packaged goods companies have announced efforts to reduce water usage. Nestle, for example, has implemented programs at its factories to improve water efficiency, monitors water withdrawals at 100% of its factories using flow meters and monitors water quality using sensors and probes, including all water discharged to third parties or back into surface water bodies.[7]

The Cold Chain

The cold chain is phasing down its use of hydrofluorocarbons that have high global warming potential, leading to higher use of natural refrigerants, which are more sustainable.

The U.S. Environmental Protection Agency was given statutory authority to move forward with phasing down hydrofluorocarbons as part of the American Innovation and Manufacturing Act (AIM), which is expected to increase the long-term use of natural refrigerants. The AIM Act will result in an 85% phase down by 2035.

"There is an ongoing effort to green the cold chain, and the Aim Act is one of the policies that is being put forward in the U.S.," said Lowell Randel, senior vice president at the Global Cold Chain Alliance.

Future Progress

As ESG initiatives continue to take on greater importance to meet consumer, investor and regulatory demands, companies will increasingly look to supply chain partners to provide solutions.

[6] https://www.kraftheinzcompany.com/esg/index.html

[7] https://www.nestle.com/sustainability/water/sustainable-water-efficiency-operations

Good360 Provides Needed Logistics Solutions While Doing Good

Good360, a leader in product philanthropy and purposeful giving, is helping retailers, manufacturers and brands move unused or unwanted merchandise to those in need, solving a business problem while benefitting communities.

"The forward-looking supply chain and reverse logistics are such that we can catch goods almost anywhere in their system," said Shari Rudolph, chief development officer for Good360. "Not only can we solve a business problem for them but also do it in a way that addresses some sustainability solutions for them and generates meaningful social impact."

Over the last few years, supply chain disruptions in the forward supply chain have caused goods to back up at ports. "What that means for Good360 is we have donors who have been inundated with goods at the wrong time. They may discount or liquidate those goods, but they also see value in donating them," Rudolph said.

For one retailer, Good360 serves as the complete reverse logistics service partner. "It is an e-commerce company, and if there is a return, those returns come straight to Good360 or one of our non-profit partners and are automatically donated," Rudolph said.

Good360 can help businesses move anything from a single carton of running shoes to a whole semi-trailer of home goods. "We want to be a turnkey solution for companies, and at the same time provide a broad base of donated goods to non-profits," Rudolph said, adding that Good360 strives to keep goods local to minimize the environmental impact.

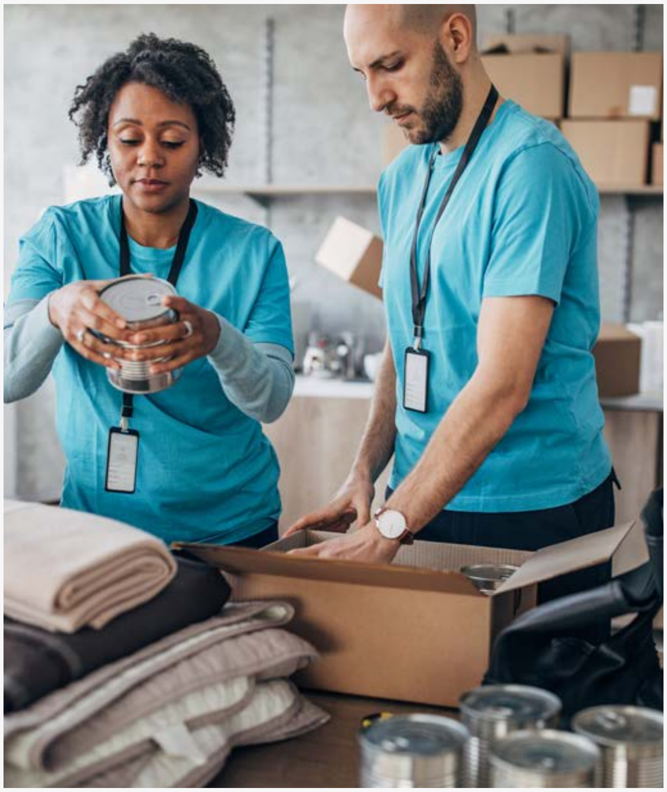
In some communities, Good360 has connected individual stores and distribution centers with local non-profits that will receive donations directly, picking them up on a set schedule. "It is a combination of items that get pulled off the shelf for whatever reason—a dent in the box or a rip in the package—or returns that have come into the location," Rudolph said.

Good360 also focuses on compliance by verifying all recipients are valid 501(c)3s. "We commit that the fair market value will go to the 501(c)3," said Romaine Seguin, CEO of Good360. "We ensure they have a turnkey solution, and they can trust us and don't have to worry about their branded goods getting into the secondary market."

Since formal ESG programs require data to help measure achievements, Good360 can provide information on waste measurement, such as how many pounds of goods were diverted from a landfill and how many lives were impacted.

Seguin said when organizations are mission-driven about ESG and sustainability, their supply chain and reverse logistics operations tend to be higher performing. "They understand this is a huge cost area if it isn't managed well," she said.

Since it started, Good360 has distributed more than $13 billion in goods (based on their fair market value) via an expansive network of more than 100,000 vetted nonprofits. "We are the centerpiece of an ecosystem of hundreds of corporate donors on one side and tens of thousands of non-profits on the other side," Rudolph said. "We have a portfolio of solutions to get donated goods where they can do the most good."



Giving Back in the Time of Crisis

When a disaster strikes, businesses, communities and individuals often come together to help those in need but coordinating logistics solutions to provide humanitarian relief can be challenging.

Supply chain professionals came together to form the American Logistics Aid Network (ALAN), an industry-wide organization that provides supply chain assistance to disaster relief organizations and other non-profits by connecting the organizations with the expertise and resources of the logistics industry.

"We identify and facilitate pro bono logistics solutions for non-profit organizations responding to disasters and humanitarian crises," said Kathy Fulton, executive director of ALAN. "We connect businesses with opportunities to serve in disaster, provide real-time information to keep business moving, and ensure communities receive the food, water and medical supplies needed to recover from a crisis."

Supply chain businesses and professionals provide financial support, volunteer, and donate equipment and services.

"There are a number of challenges that arise during a disaster that impede the free flow of supplies. These include obvious concerns, like damage to infrastructure—roads, power, communications," Fulton said. "There are also other less visible challenges around access to information, like the visibility of need and available supply. An effective response requires embracing the uncertainty and having strong partners who can help reduce the information impediments."

ALAN has launched its Supply Chain Intelligence Center in partnership with Everstream Analytics. The center tracks potential impacts from weather hazards at shared infrastructure locations around the U.S. These include ports, airports, roadways and other areas of concern to supply chain professionals. "This free-to-all geographic-information-system tool provides real-time analysis so that non-profits, emergency managers and supply chain professionals can better prepare and respond to potential threats," Fulton said.

ALAN also tracks basic metrics on donated services, including pallets transported, the value of supplies and miles moved. "Each of those represents cost savings to a community that is working to recover from a disaster," Fulton said. "The funds saved on logistics can then be used to hasten rebuilding and improve resiliency."

Rebalancing Underway: Shippers Focus on Resilient Supply Chains

Rebalancing the global supply chain was originally examined by the study team in the *2021 Annual Third-Party Logistics Study*. The study, released in September 2020, highlighted the potential for increased nearshoring and the shifting of inventory as organizations began reacting to disruptions due to the global pandemic and the U.S.-China trade war. The study team revisited this topic as part of the *2022 Annual Third-Party Logistics Study* released in September 2021, asking more in-depth questions. That release supported the prior year's findings and indicated that the coming changes were likely to occur faster than originally anticipated.

Increased shipping delays, continued port shutdowns, ongoing supply shortages, and significant demand uncertainty necessitated a more dynamic and resilient supply chain. For 3PLs, it was an opportunity to capture a greater share of existing client business and opened doors for new client opportunities. The need to explore new relationships opened up as companies shifted major components of their supply chains and rebalanced their ecosystems.

Since the release of the *2022 Annual Third-Party Logistics Study*, the world has proven to be even more dynamic and more uncertain. Local shutdowns in key areas of the globe continue. The war in the Ukraine has limited flows into and out of the region, bringing continued disruption. Congestion continues, and labor shortages are growing, as noted in the section Understanding the Talent Crisis, making it difficult for the supply chain to get back in sync.

Throughout the world, from corporate board rooms to consumers in grocery store aisles, people are talking about supply chains. The one thing that is certain is that disruption is continuous. Black swan events may now be more greyish.

A positive result coming from this disruption is the long-needed recognition of the importance of supply chains. Companies are increasingly realizing that supply chains create a competitive advantage and shouldn't be seen as simply opportunities to reduce costs.

In the past, many companies tried to squeeze every penny out of the supply chain, but now they realize significant investments are needed. Supply chains are not only the backbone to business survival but also the backbone of societal survival. Resiliency has become a cornerstone principle.

How do organizations build resilient supply chains? It starts with rebalancing as the study team noted two years ago.

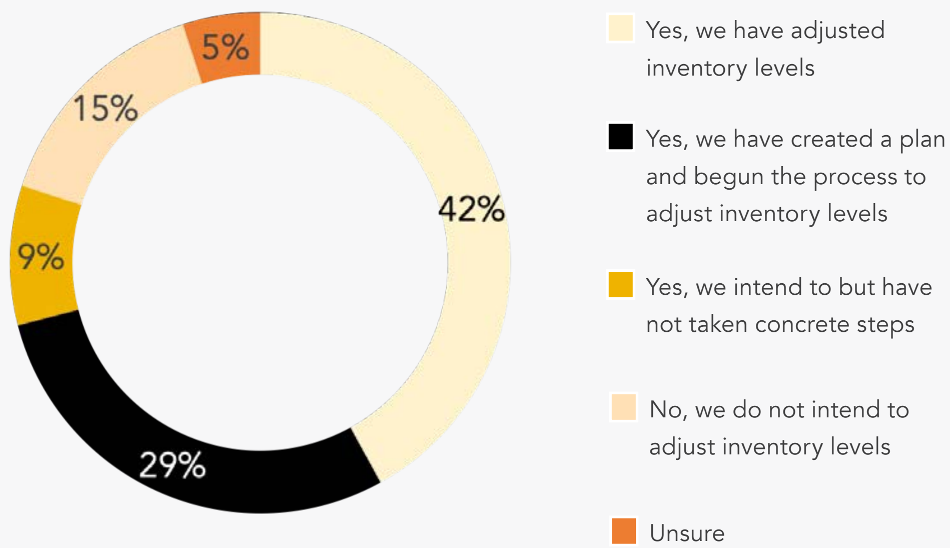
Inventory Rebalancing

As referenced in the *2022 Annual Third-Party Logistics Study*, more than three-quarters of shippers— 83%— reported experiencing disruption in the supply of key materials. Almost two-thirds—62%—said they believed that supply chains had become too lean. This was up significantly from the prior year when only 42% believed that supply chains had become too lean.

This year, the study team looked closely at actions shippers have taken to rebalance inventory levels based on these beliefs. As noted in **Figure 36**, 80% of shippers have taken or are planning to take action, with 71% of shippers reporting they have already rebalanced or have kicked off efforts to do so, and 9% stating they intend to take action.

The year-over-year trend, starting with 42% in the *2021 Annual Third-Party Logistics Study* to the current 80% is significant, indicating rapid adjustments are taking place a s organizations recognize the need for greater agility and resiliency in their supply chains.

Figure 36: Rebalancing Inventory Levels

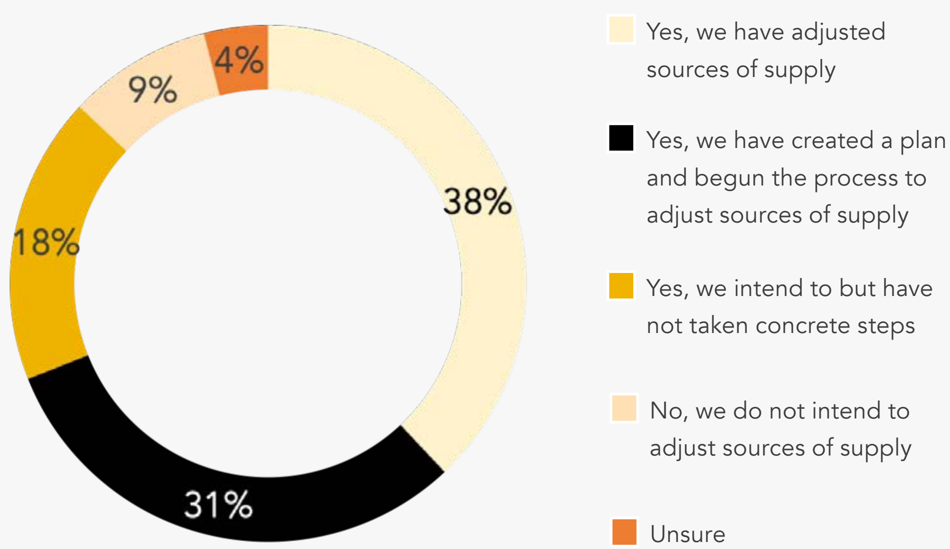


Sources of Supply Rebalancing

As discussed in prior 3PL studies, the definition of a single source of supply has been expanded to include a single country or region, not just a single vendor. Because a significant majority of shippers in the *2022 Annual Third-Party Logistics Study*—83%—said they plan to rebalance their sources of supply, the 2023 study followed up by asking what steps shippers had taken to rebalance sources of supply.

As noted in **Figure 37**, plans of rebalancing sources of supply have transitioned into concrete rebalancing, with 69% of shippers stating they have already executed or are in the process of executing changes. An additional 18% state they intend to take action. Overall, 87% of shippers are making rebalancing adjustments, aligning with the 83% referenced from the *2022 Annual Third-Party Logistics Study*.

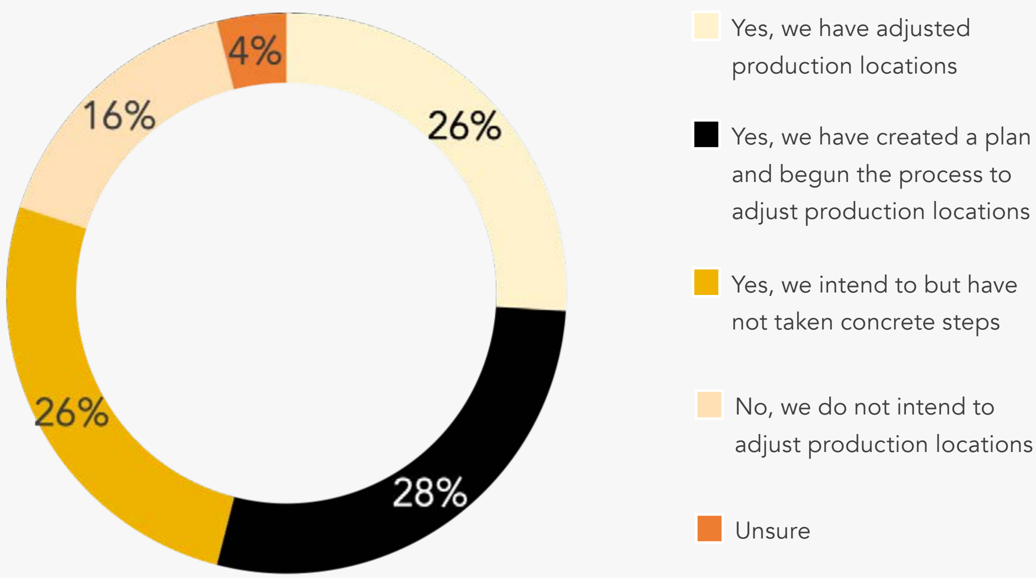
Figure 37: Rebalancing Sources of Supply



Production Rebalancing

Roughly 80% of shippers responding to this year's survey reported they are rebalancing production locations to move towards more regional or domestic production networks (see **Figure 38**). Of these shippers, more than half—54%—said they have completed efforts or were in the process of making production location adjustments to rebalance their global supply chain networks, compared to 45% last year. An additional 26% stated they intend to adjust, while 16% stated they have no plans to adjust.

Figure 38: Rebalancing of Production Locations



In order to increase resiliency and agility, supply chain professionals need to rebalance their supply chain ecosystems while understanding the implications of onshore, nearshore and offshore strategies. The balance between sources of supply, including manufacturing locations and inventory holding levels, will be crucial. Companies have to determine what to make where, what to store where and what levels are needed to achieve the balance between resiliency and efficiency.

Shippers will need increased support and collaboration from 3PLs, ranging from contract manufacturing to warehousing to transportation and reverse logistics. Technology will also play a role as the need for visibility and traceability become increasingly important for all organizations—shippers and 3PLs—to respond to disruption effectively.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Control Tower Technologies

Years of applying and over-applying lean principles have left supply chains fragile and susceptible to disruptions. The pandemic highlighted these weaknesses, wreaking havoc as disruptions reverberated through the supply chain, creating a series of under-stocking and over-stocking situations.

Panic buying in the early stages have now resulted in over stock, as long-lead-time items from overseas are finally reaching ports, but with demand significantly less than originally anticipated.

Mitigating future disruptions has caused companies to re-evaluate their approach to the inventory balancing problem, with renewed focus on creating resiliency. Transition efforts include re-shoring, collaboration, flexible capacity and control tower technologies.

From a strategic perspective, many companies are considering some form of re-shoring to shrink the time lag between the demand signal and the supply response. Tighter synchronization between the two reduces the need for both safety stock and cycle stock.

For example, companies with a four-week lead time only need to forecast out a little beyond four weeks when customer intentions are often clearer. In contrast, overseas lead times of 8 to 12 weeks require forecasting out further than that, where accuracy is significantly worse.

Collaboration is the second area of renewed focus. Tighter collaboration with customers can often improve demand visibility. Perhaps the greatest change has been on the supplier side. Often viewed as adversaries, many supplier relationships have evolved from lowest price to value add. A supplier who is reliable may be higher cost, but they enable reduced inventory and increased customer satisfaction. Involving them through collaborative planning enable greater synchronization and reduced outages.

Flexible capacity is also paramount. Contract manufacturers allows companies to meet peak seasonal demand, without the need for additional capital expense. Partnering with 3PLs enable warehousing space to be brought online as needed, delaying or eliminating the need for new leases or construction.

While the first three approaches are considered as strategic or tactical avoidance techniques, the fourth—control tower technology—is a real-time mitigation technique. This is a broad term for any technology designed to give either an early warning of an impending disruption, or early detection of an in-process disruption. In either case, early visibility allows a wider range of responses.

Combining one or more of these approaches are a critical priority for companies in 2023. Their implementation allows the company to transition away from lean but fragile supply chain into one that is truly robust and resilient to future disruptions.

Jeff Baker
Principal, Integrated Demand and Supply Planning, Chainalytics

chainalytics
an NTT DATA Company

Continued Demand for Cold Chain

Cold chains—supply chains specializing in the packaging, planning, manufacturing, storing, loading and movement of temperature-sensitive products—must perform flawlessly to ensure properly cooled products reach the end user, whether that user is the consumer, patient, chef or more.

Every link in the temperature-controlled chain must be intact and connected to maintain required temperature parameters. Temperature-sensitive products, from food to over-the-counter beauty products, pharmaceuticals and vaccines, also tend to be governed by stricter regulatory compliance guidelines.

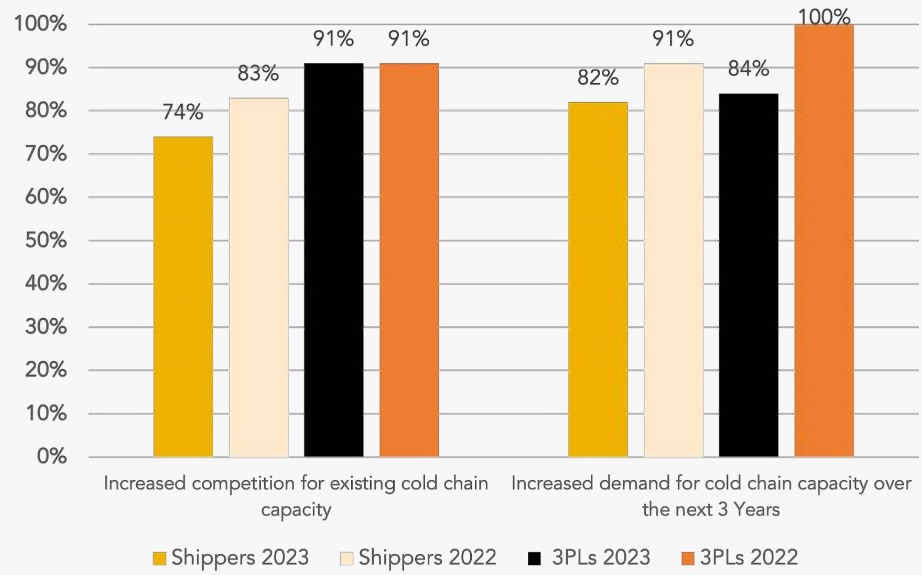
Cold chains continue to face headwinds. Similar to non-temperature-controlled supply chains, they face port congestion, labor storages and cost pressures due to rising inflation.

However, cold chains also face additional challenges such as rising fuel costs, which are compounded by the need to keep refrigerated trailers running even while parked in yards waiting to be loaded. As noted in the *2022 Annual Third Party Logistics Study*, cold chains face greater challenges in terms of infrastructure investments, temperature monitoring, and a lack of skilled labor qualified to ensure proper handling and willing to work in very cold environments.

Rising healthcare standards, healthier food choices, and a growing middle class in various parts of the world have all generated increased demand for cold chains and cold chain services. This increased demand also affects existing cold chain capacity, with 74% of shippers and 91% of 3PLs stating they are seeing increased competition in this area (see **Figure 39**). This is down only slightly for shippers and consistent year-over-year for 3PLs. Further, both shippers (82%) and 3PLs (84%) continue to believe that demand for cold chain capacity will increase over the next three years. These numbers are down slightly from the 2022 study, but still remain extremely high for both groups.

How Cold is Cold?

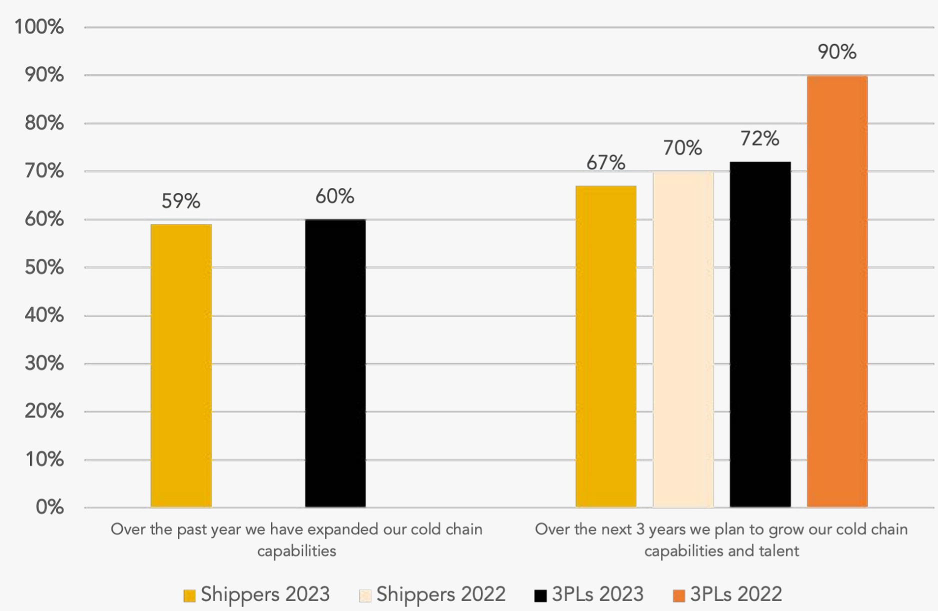
Figure 39: Increased Competition and Demand



"We're still in a good position to see increased demand. We're continuing to have members increase capacity in response to that growing demand," said Lowell Randel, senior vice president at the Global Cold Chain Alliance.

As a result of growing demand, both shippers and 3PLs are investing in cold chains. Roughly 60% of shippers and 3PLs stated they expanded their cold chain capabilities over the past year, as shown in **Figure 40**. Further, 67% of shippers and 72% of 3PLs report they plan to continue to continue to expand their cold chain capabilities and capacity over the next three years. This also marks a significant decrease for 3PLs compared to responses from the 2022 study (90%).

Figure 40: Expanding Capabilities and Capacity



Cold chain operators faced the unprecedented challenge of mass global distribution of the COVID-19 vaccine and rapidly developed treatments. Over the past two years, cold chains were forced to adapt quickly as global markets shut down, restricting the flow of food products and bringing about rapid changes in food service, delivery and consumer food shopping patterns. Agility became paramount for cold chains, well above non-temperature-controlled supply chains.

"During the pandemic, cold chain operators had to embrace flexibility. For example, early in the pandemic there was a significant shift from food-service to grocery store fulfillment. With that shift, there were challenges that had to be overcome," Randel said. "If a product was packaged and designated for food service, operators had to find ways to quickly repackage, relabel and redirect a bulk product to a retail environment. We all learned a lot about what it takes to be nimble."

Adoption of technology will be crucial for sustainable agility and resilience within cold chains. Automation is a top priority, especially as talent shortages continue to disproportionally impact cold chain operators.

"Early on, adoption of automation was slow, and people felt they weren't ready to automate, or the automation technology wasn't ready for cold chain environments. Technology has evolved and has a much broader menu of choices even in temperature-controlled environments. As a result, you're seeing more and more companies select from that menu, either fully automated, partially automated or adopting some of these newer technologies. I don't see anything other than a continuation of that trend," Randel said.

Other important technology advances include:

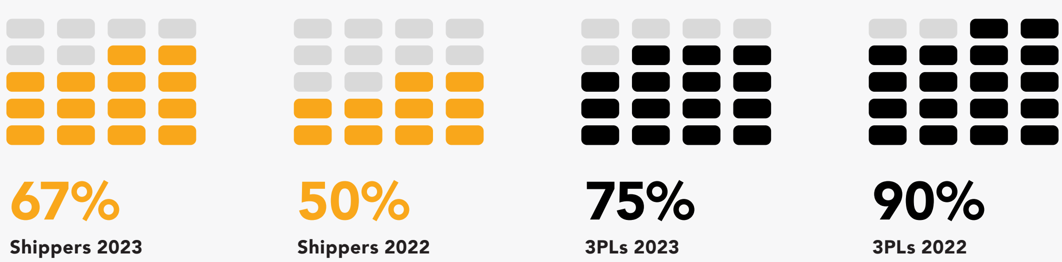
- IoT and sensors for tracking and monitoring
- SMART platforms, such as camera-assisted picking
- Reusable packaging that reduces waste while improving durability
- Blockchain for risk and compliance

Beyond typical operational improvements such as improved accuracy and efficiency, drivers for technology adoption within cold chain include:

- Reducing waste
- Extending shelf-life
- Improving efficacy
- Ability to take rapid corrective action

Both shippers and 3PLs expect to outsource more of their cold chain needs over the next three years, as shown in **Figure 41**. Outsourcing expectations rose from 50% last year to 67% this year among shippers, while 3PLs saw a decrease from 90% to 75% over the same period. However, this is likely due to the increased collaboration between shippers and 3PLs within cold chains.

Figure 41: Projected Outsourcing Increases Over the Next Three Years



"Many of our members are having strategic discussions with their customers to make sure their current and future needs are met. Sometimes that means creating long-term agreements and more collaborative structures. As a result, they are more willing to build additional capacity to meet customer needs," Randel said.

This enhanced level of collaboration may also explain why more shippers are willing to consider outsourcing then in the prior year.

Overall, it is clear that pre-pandemic strategies are no longer sufficient for today's cold chains. Increased consumer demand, rising competition and advances in technology all articulate the need for agile cold chains to meet the needs of tomorrow.

Spotlight: Cold Chain Visibility

Accurate real-time visibility across the cold chain is vital to ensuring the safety and integrity of temperature sensitive products. However, as the old adage goes, a chain is only as strong as its weakest link.

Often, data collection and inspections are labor intensive and prone to human error and judgement. Real-time visibility into the products once they leave the manufacturing plant or loading dock is also a challenge.

The Internet of Things (IoT) automates the collection of data to provide real-time monitoring of products, equipment and infrastructure to ensure the safety and integrity of the cold chain. A holistic IoT deployment enables real-time decision making based on automated collection of data.

Step one is to digitize the physical environment through sensors. Examples include temperature and humidity sensors, location tracking sensors, door open/close sensors, fuel-level sensors for refrigeration trailers, leak detectors and many others.

Another type of sensor is the camera, which allows computer vision that can be trained to perform visual inspections, count items or recognize objects. Once the sensor collects the data, the right network technology must be used to transmit the data. Traditional cellular technology (e.g. LTE) provides ubiquitous global coverage. New standards, such as LTE Cat-M, NB-IoT and LoRaWan, allow for long battery life and low-cost connectivity. Step two is to aggregate analyze the data and create insightful recommendations or alerts. A data lake and analytics platform can take multiple data streams from sensors, ERP systems and external data such as weather to provide insights and recommendations. Examples could be external weather data combined with temperature, vibration and even auditory information to signal an issue with a refrigeration compressor. This data repository also serves as an audit trail and provides benchmark data that can be used for planning and forecasting.

Finally, the most important step is to convert insights into action. Having insights that a shipment of eggs is not being stored at correct temperature, a freezer door has been propped open, a compressor is about to fail or an HVAC filter needs to be changed won't be effective unless the data gets to the right person in the right format at the right time. This includes integration into case management systems to trigger tickets and workflows along with the right change management and operating models to support new technologies.

Devin Yaung
Senior Vice President,
Group Enterprise
IoT Products and Services,
NTT Ltd.

75% of shippers state technology playing a greater role in evaluations and selection of 3PLs

Contemporary Issues

Technology as a Differentiator

Supply chains used to be about physical assets and infrastructure to move boxes. Now supply chains are all about information flows, moving data and capturing intelligence. Intelligence can optimize operations, improve real-time visibility and enable rapid business decision making.

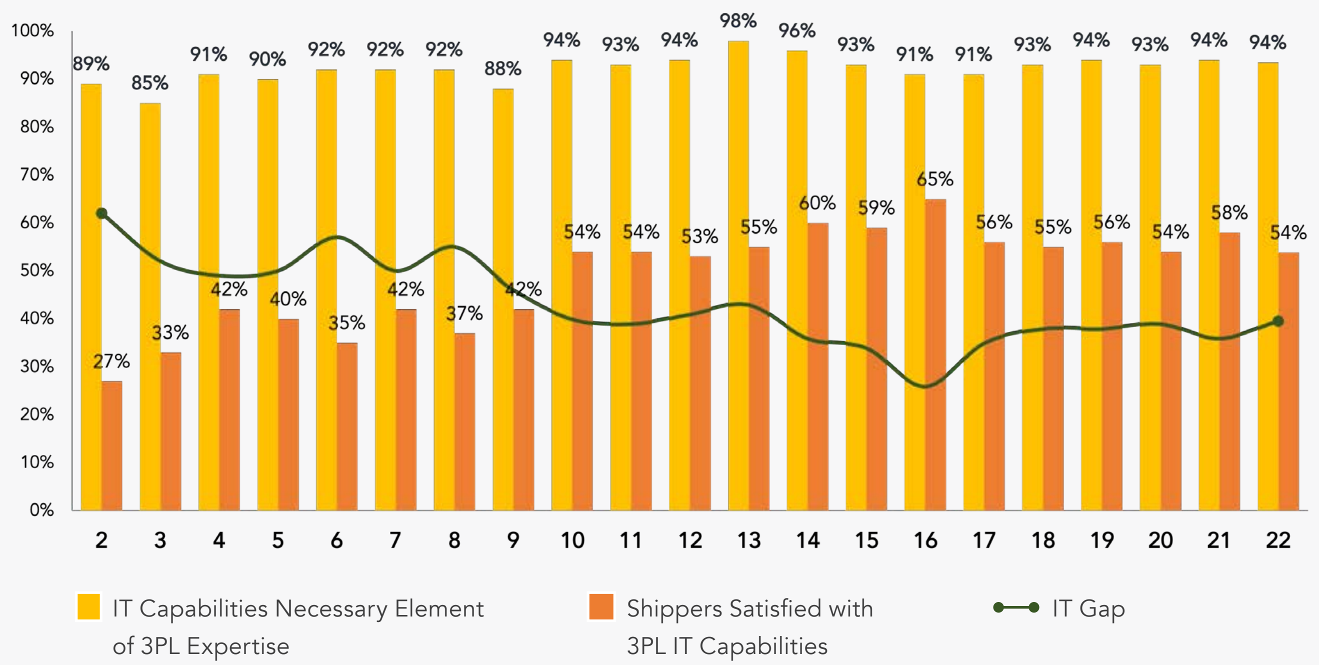
Technology serves as a key differentiator, especially among 3PLs that leverage technology as a medium across different service dimensions to increase revenue and elevate business growth. Today, technology is just as important as people.

The study team raised the question in the *2022 Annual Third-Party Logistics Study* of whether the IT Gap was stuck. The IT Gap is a subject the study team has tracked for more than 20 years. Continuous progress had been made to close the gap up to and including 2016. The study team then saw the gap widen again between 2016 to 2018, but it has since stabilized and remained flat since 2018.

What is the IT GAP?

The study team has been asking shippers to rate 3PLs on their IT capabilities. The IT Gap is calculated based on the difference between (1) shippers' opinion as to whether information technology solutions are a necessary element of a 3PL's offerings and expertise, and (2) whether shippers have been satisfied with the IT capabilities provided by 3PLs. **Figure 42** charts the results from 2002 to present.

Figure 42: The IT Gap



Is the IT GAP Stuck?

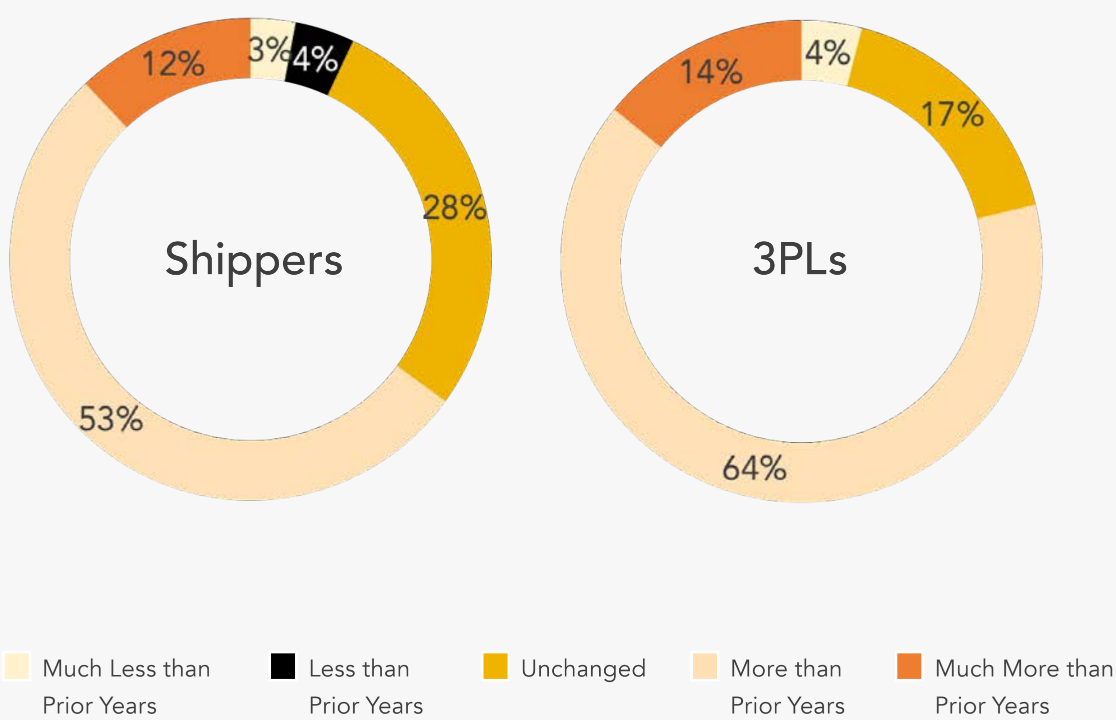
The opinion that technology is an important element to 3PL expertise has remained very high since the question was first posed by the study team. It has not dipped below 91% since 2010 and has been consistently in the 93 to 94% range for the past several years. Shipper satisfaction has also been flat since 2010, hovering in the 54 to 58% range except for a short-lived run in 2014 to 2016.

Instead of viewing the IT Gap as stuck, it could be that expectations are consistently increasing and evolving as new solutions are emerging and the supply chain transitions into digital. Shippers are seeking enhanced services that go beyond traditional tactical solutions such as warehouse management or transportation management systems.

Technology is increasing at a rapid pace and shippers may simply be expecting more from their 3PL partners. The study team decided to ask a few additional questions to understand whether the IT Gap is stuck or not.

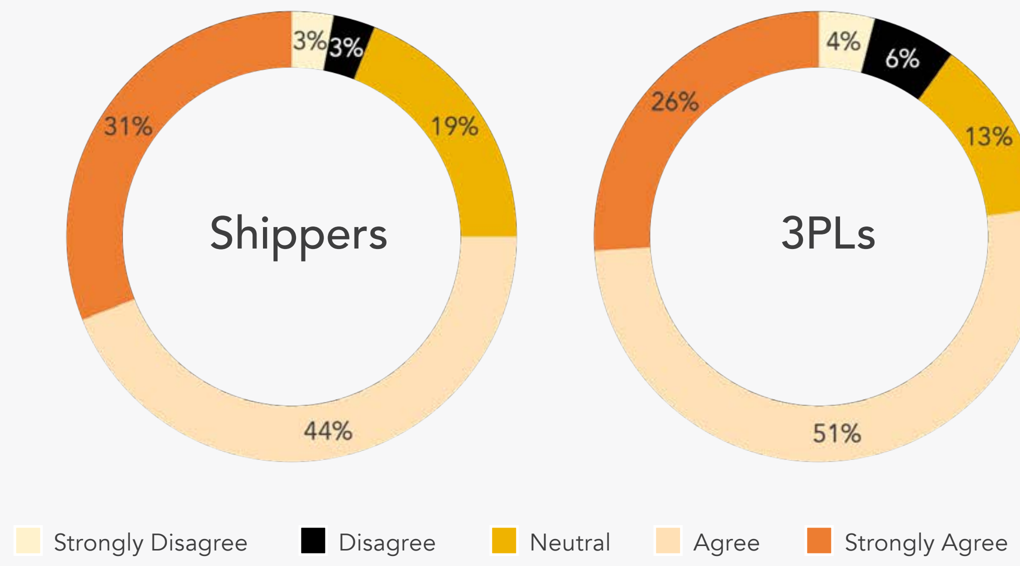
As illustrated in **Figure 43**, 65% of shippers stated that their expectations have been increasing, while 78% of 3PLs believe that shipper expectations have increased in regard to the technology solutions they offer.

Figure 43: Changing Expectations Relating to Technology Solutions



Interestingly, as illustrated in **Figure 44**, a greater number of shippers (75%) stated that technology solutions are playing a greater role in their 3PL partnership evaluations and selection process. This was also up for 3PLs, with 87% believing that shippers have placed a greater emphasis on technology solutions during their evaluation and selection process.

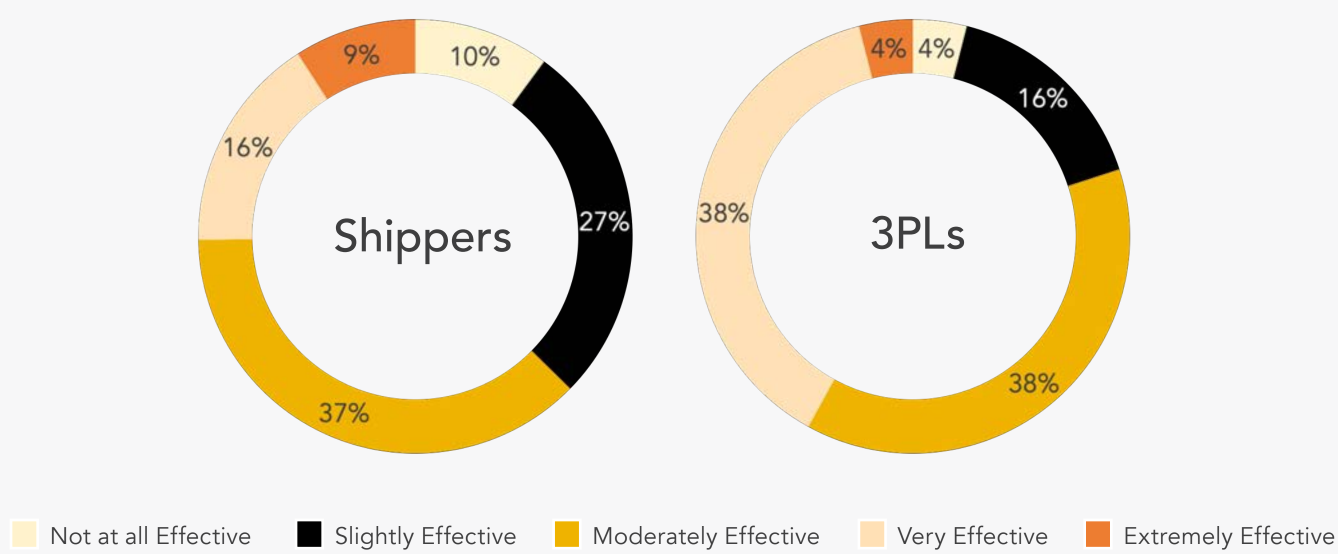
Figure 44: Technology Solutions Role in 3PL Partner Evaluation and Selection



Unfortunately, there appears to be a disconnect between the desire for technological solutions and the role they play in partnership selection versus the ability of shippers to effectively leverage those same solutions. Only 25% of shippers rated themselves very effective or extremely effective at leveraging the solutions being offered by their 3PL provider, shown in **Figure 45**. This contrasts with 37% of shippers who rated themselves slightly effective or not effective at all.

There does appear to be mutual alignment between shippers and 3PLs that roughly one-third of shippers are moderately effective at leveraging the technology solutions provided to them. Overall, 3PLs gave shippers a better rating on effectiveness than shippers did rating themselves.

Figure 45: Effectiveness at Leveraging the Technology Solutions Provided



Static vs. Dynamic

3PLs have increased their technology solutions and enhanced their technology capabilities, as outlined in the Current State section of this study. So far, they have kept up with shipper demands including their "must have" lists. At the same time, shippers have become more proficient buyers of technology solutions.

Based on the study team's enhanced review, it has become clear that the IT Gap is not stuck. It is simply not static as the two core elements measured are dynamic. Over time the bar is continuously being raised. With this perspective in mind, the consistent "gap" can be viewed as a positive. 3PLs have been able to keep up with the rapidly changing expectations of shippers and have been able to manage shipper satisfaction levels appropriately.

Ideally, both shippers and 3PLs should now focus on how best to leverage what is already available, particularly during a time when supply chains need to reset, rebalance, and embrace back-to-basics.

The Truck Driver and Maintenance Technician Shortage

The truck driver shortage remains a top concern in the trucking industry, reaching an all-time high for the industry of 80,000 drivers, according to Bob Costello, chief economist for American Trucking Associations (ATA). Based on driver demographic trends—including gender and age, as well as expected freight growth—the shortage could surpass 160,000 by 2030.

While all sectors in the industry have struggled finding enough drivers, the driver shortage is most acute in the longer-haul, for-hire truckload market. Increased demand for freight, pandemic-related challenges from early retirements, closed driving schools and DMVs, and other pressures have pushed up demand for drivers, Costello said.

"A thing to note about the shortage is that before the pandemic, we were adding drivers to the industry—even though we had a shortage, more people were entering the industry," Costello said. "The issue is that new entrants into the industry didn't keep up with demand for goods."

Improving the driver onboarding experience can help retain new hires. "We aim to create a white glove experience during the recruiting process and a red-carpet experience while onboarding new drivers," said Jeff Jackson, executive vice president operations, dedicated contract carriage, Penske Logistics. "Beyond that we arm our field leaders with an engagement playbook that offers various ways to effectively connect with our drivers to drive retention. We also have a predictive analytics model that helps identify drivers at risk of leaving."

Penske launched a centralized driver hiring center (DHC) at its corporate headquarters in 2019. The DHC handles all administrative functions in the hiring process, including advertising, interviews, background checks and drug screens. As a result of the center, Penske shortened its cycle time to hire by 15 days.

While there is no single cause of the driver shortage, a primary factor involves the high average age of current drivers, which leads to an increased number of retirements.

The American Transportation Research Institute's (ATRI) Critical Issues in the Trucking Industry 2021 survey reported that several pressures are contributing to the shortage, including increased freight demand, the aging driver workforce, drivers who left the industry over health concerns during COVID, new entrant training, licensing backlogs from COVID-related closures, and drivers who are not initiating the return-to-duty process after positive drug tests.

> *"We aim to create a white glove experience during the recruiting process and a red-carpet experience while onboarding new drivers."*
>
> **Jeff Jackson, Executive Vice President Operations, DCC, Penske Logistics**

To help bring drivers into the industry, ATRI has advocated for programs that expand interstate commercial driver's license (CDL) eligibility for 18-to-20-year-olds. Another option is to increase the number of women and other non-traditional drivers.

Ellen Voie, president of the Women In Trucking Association, estimates that women make up more than 13% of professional drivers. Although the number is increasing, it is still significantly lower than the overall workforce participation rate for women.

"Women are looking for a safety environment, so carriers would be wise to consider the maintenance of their equipment in regard to safety for drivers, ensure the loading docks are in a safe area or have security and lighting for drivers and finally, make sure the driver has the ability to turn down any load that would make her feel unsafe, such as slippery roads, impending storms, protest areas or areas of high crime," Voie said.

Fortunately, Leah Shaver, CEO of the National Transportation Institute (NTI), said interest in trucking seems to be on the rise. CDL programs are operating at full capacity again after being restricted during COVID. Long backlogs at state licensing agencies and the lapse in available driver trainers due to social distancing requirements are easing. Plus, opportunities in trucking have become more attractive.

"Driver pay has climbed quickly over the past two years, and there was a steady stream of headlines earlier this year in national consumer media and in local press about how much money someone can earn as a truck driver on an annual basis," Shaver said. "Carriers and the industry at large have also done a better job of showing that trucking is a career for anyone and everyone—women, younger people and anyone else looking for a rewarding career opportunity."

Once drivers are onboard, retention is critical. ATRI's Critical Issues in the Trucking Industry 2022 also ranked driver retention as a top concern, becoming the second-most critical issue. According to ATA, driver turnover at large truckload fleets reached 92% at the end of 2020.

NTI's top recommendation for retention programs is to be transparent and consistent with drivers' schedules and pay and to engage drivers in health and wellness programs. Medical disqualifications and other health issues push hundreds of thousands of drivers from the industry each year, and it's usually the biggest cause of driver attrition in individual companies.

The ATRI survey also listed the diesel technician shortage as a top issue. The U.S. Bureau of Labor Statistics estimates that there will be over 28,000 openings for diesel service technicians and mechanics in each of the next 10 years.

"We all need to promote trucking and logistics in our communities and in our schools, and trucking companies need to be at the forefront of both of those," Shaver said. "We need to engage high school and community college students to promote trucking and careers in trucking by showing them the impact that the industry has on society and in our communities."

Spotlight: The Driver Shortage

There has been much written about driver shortages, not just over the last year, but over the last few decades. The statement “there are not enough drivers to haul freight that needs hauling” has been around since there was freight to move. We don’t have the space here to debate the “reasons why” or the “accuracy of” but, suffice it to say, being a truck driver is often a thankless job with a severe lack of work-life balance.

While driver shortages grab headlines and are convenient scapegoats when explaining virtually any supply chain disruption, there are other labor shortages that also affect the availability of transportation services: skilled truck technicians and mechanics. If the trucks can’t roll, finding a driver for the seat becomes a moot point. As truck technology and systems have gotten more advanced, the need for skilled technicians to keep trucks running is only increasing.

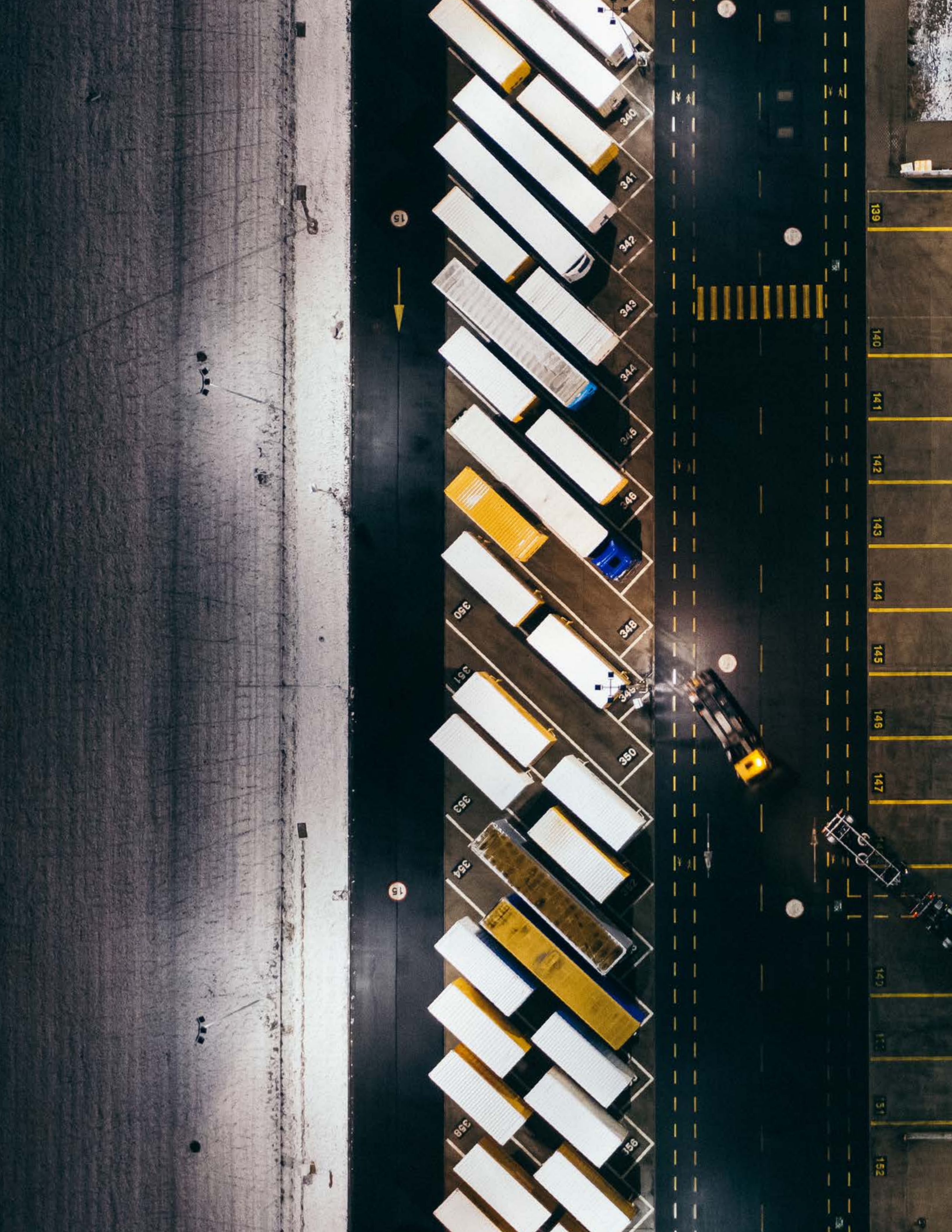
Whether these are real shortages or issues of economics, pay or retention, what can’t be argued is the effect that trucking capacity shortages have on the supply chain. The adage “if you bought it, a truck brought it” while trite, is certainly true. The empty shelves and product shortages we experienced during the pandemic were visible manifestations of many ongoing labor and production challenges. A big factor driving those product shortages were shipping delays. We’ve all endured shortages as shop-at-home consumers, and companies across the supply chain have too.

A highly visible supply chain issue recently highlighted by the media was the extraordinary congestion at our major seaports. The containers stacking up and the queue of ships offshore waiting to be unloaded, were by-products of the inability to pick up containers from ports in a timely fashion

While port congestion in the U.S. is driven by a multitude of problems, struggles with trucking capacity have been a key ingredient. These shortages and delays have ultimately led to the largest and most painful impact of all—higher costs. Companies have seen higher costs for their raw materials and other inputs for well over a year now. Consumers see those higher costs in the goods they purchase. Once again, while trucking capacity and driver and technician shortages are not the sole causes of inflation, there is little doubt they have been contributing factors.

Kevin Zweier
Vice President, Transportation
Chainalytics

chainalytics
an NTT DATA Company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About the Study

The *2023 27th Annual Third-Party Logistics Study* utilizes multiple research streams to provide an objective look into the third-party logistics industry both from a user or purchaser of services (shipper) perspective and from a providers' perspective. Throughout the year, researchers also explore views and trends from leading organizations that do not currently utilize external services from a 3PL provider, which are noted in the study as non-users.

The study's goal is to investigate leading trends and uncover how shippers and 3PLs can collaborate to improve service and drive value. The study examines growth within the 3PL industry as a whole and specific sub-segments of the industry. It also looks at overall growth and development, what shippers outsource and what 3PLs offer, why shippers outsource to 3PLs, and the value they gain from those relationships. Additionally, researchers investigate trends and issues that are expected to alter the future state of logistics outsourcing.

When developing the study, the research team establishes topics of interest, develops the survey instrument, conducts the research, analyzes the results, writes this report, and presents and shares the findings.

As part of this year's research, the team engaged shippers and 3PLs/4PLs with an email survey and focused interviews. Workshops and discussions were conducted virtually.

Contributions from industry representatives, supporting organizations and sponsor firms are vital to the study and have helped maintain and sustain the report for the past 27 years. Shippers and 3PLs generously participated in the surveys and interviews needed to produce this year's study, and, once again, the *27th Annual Third-Party Logistics Study* is dedicated to those who have made this possible.

The *Annual Third-Party Logistics Study* has been designed to serve as a resource and tool for shippers and 3PLs, as well as those trying to understand and become familiar with the industry. The study has become a widely anticipated, heavily referenced index on the state of the 3PL industry.

The report has evolved since its founding by Dr. C. John Langley, but it has always maintained its focus on people, processes and technology, relationship management and the end-to-end supply chain.

The Annual 3PL Study Process

Steps and elements of the development of the *Annual Third-Party Logistics Study* include:

Accessibility:

Links to the Web-based survey were circulated through Annual Third-Party Logistics Study supporting organizations for distribution to their members and affiliates. This year's survey closed in July 2022, yielding 341 usable responses from both users and non-users of 3PL services and providers of 3PL services. The study report and additional materials are also presented via its dedicated website, www.3PLstudy.com.

Topics:

In addition to measuring core trends in the 3PL industry, the *Annual Third-Party Logistics Study* conducts in-depth examinations of contemporary supply chain topics that affect both users and providers of 3PL services. This year's topics include Getting Back-to-Basics for Supply Chain Professionals, Understanding the Talent Crisis and Tapping into the Potential of Reverse Logistics. To continue the conversation, researchers also addressed the Maturity of ESG, Rebalancing the Supply Chain and Continued Demand for Cold Chain.

Contributing Sponsors:

The *2023 27th Annual Third-Party Logistics Study* sponsors include NTT DATA and Penske.

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Supporting Organizations:

Each year, several supply chain organizations facilitate the research process by asking members and other contacts to respond to the survey. In addition to completing the survey, individual companies help by enabling executives to participate in focused discussions and by lending subject matter expertise. These include:

- Reverse Logistics Association (RLA)
- Council of Supply Chain Management Professionals (CSCMP)
- Consumer Brands Association
- Global Cold Chain Alliance (GCCA)

Multiple Research Streams:

A distinguishing feature of the *Annual Third-Party Logistics Study* is the incorporation of multiple streams of research undertaken by the study team to validate and illuminate the findings in this report. The team solicits survey topic ideas throughout the year from key industry participants and through desk research conducted by the team and NTT DATA, which also helps to vet potential topics of interest. Survey topics and questions are designed to reflect key issues and trends facing both users and providers of logistics services.

Wide Coverage:

The *Annual Third-Party Logistics Study* is presented and discussed in prominent supply chain industry venues, including the following:

- Presentations at influential industry conferences, such as the Council of Supply Chain Management Professionals (CSCMP) EDGE Conference and Exhibition, the International Supply Chain Forum hosted by ILOS, and executive education programs available through the Center for Supply Chain Research® at the Pennsylvania State University and Penn State Executive programs.
- Analyst briefings, which are typically conducted in the weeks following the release of the annual study in the fall.
- Magazine and journal articles in publications, such as Supply Chain Management Review, Logistics Management, Inbound Logistics, Logistics Quarterly and Supply Chain Quarterly Digest.
- Webcasts conducted with media and publications, including Supply Chain Management Review, Logistics Management, SupplyChainBrain, Stifel Nicolaus and others.

Definitions:

Survey recipients were asked to think of a "third-party logistics (3PL) provider" as one that provides or manages one or more logistics services for its customers. A "fourth-party logistics (4PL) provider" is one that may manage multiple logistics providers or orchestrate broader aspects of a customer's supply chain. To ensure confidentiality and objectivity, 3PL users were not asked to name any specific 3PLs they use. Correspondingly, the Annual Third-Party Logistics Study does not generate any information that could lead to ratings or rankings of 3PL providers.

Components of the *2023 Third-Party Logistics Study*

Research and analysis for the Current State of the Market chapter sets out to:

- Understand what shippers outsource
- Understand what services 3PLs offer
- Identify trends in both shipper usage and 3PL services
- Recognize key shipper and 3PL perspectives on the use and provision of services
- Determine how 3PLs add value to their customers' supply chains
- Understand the benefits reported by shippers that are attributed to the use of 3PLs
- Assess the importance of 3PL capabilities relating to people, process, technology, implementation and execution
- Determine what types of technologies/solutions 3PLs need to offer to successfully serve customers
- Determine the extent 3PL technologies/solutions are successful in helping their customers achieve their objectives
- Examine why shipper elect to outsource or elect not to outsource
- Learn how both shippers and 3PLs are leveraging their relationships to improve and enhance their businesses and supply chains overall
- Update researchers' knowledge of 3PL-shipper relationships

The **Special Topics** section is crafted to take an introspective view of the future of the 3PL industry and shipper-3PL relationships. Topics are chosen based on what was learned from the study process and current trends in the industry. This year's sections include:

- Getting Back-to-Basics for Supply Chain Professionals
- Understanding the Talent Crisis
- Tapping into the Potential of Reverse Logistics

Continuing the Conversation provides a valuable update on still-relevant topics covered in previous versions of the report as needed. This year, researchers further examined the following areas:

- Maturity of ESG
- Rebalancing Underway
- Continued Demand for Cold Chain

The **Contemporary Issues** section is crafted to take an introspective view of the future of the 3PL industry and shipper/3PL relationships. This year, researchers explored the following areas:

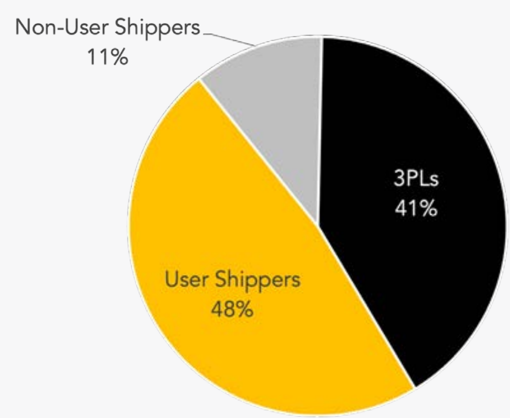
- Technology as the Differentiator
- The Driver and Maintenance Technician Shortage

About the Respondents

Shippers

Figure 46 reveals the percentage of shipper respondents to the survey, including both users (48%) and non-users (11%) of 3PL services and the percentage of 3PLs (41%). The non-user responses are helpful because they provide valuable insights on why some organizations have elected not to use 3PLs as well as non-user perspective on several other relevant topics throughout the study.

Figure 46: About the Respondents



Shipper respondents are typically senior managers, directors, vice presidents and above from a mixture of different industries. **Figure 47** reflects the ten most prominent industries reported by users of 3PL services, accounting for almost 90% of the overall respondents. Manufacturing represented the single largest industry category at 19%, while Consumer Packaged Goods, Retail and Consumer Brands collectively formed the largest cluster at 21%.

Figure 47: Shippers by Industry

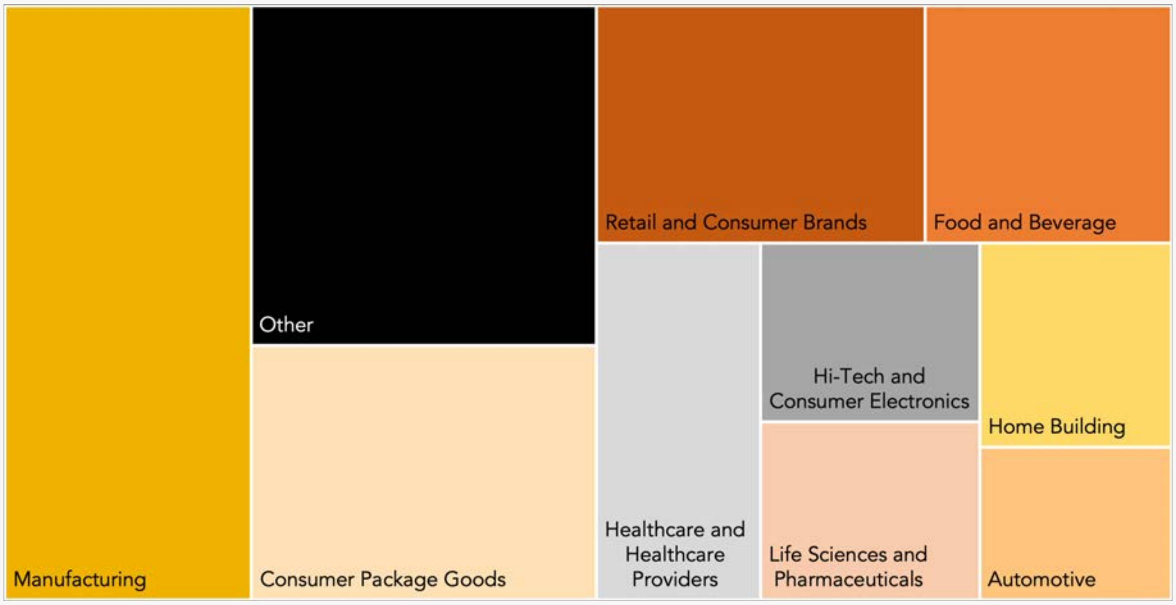
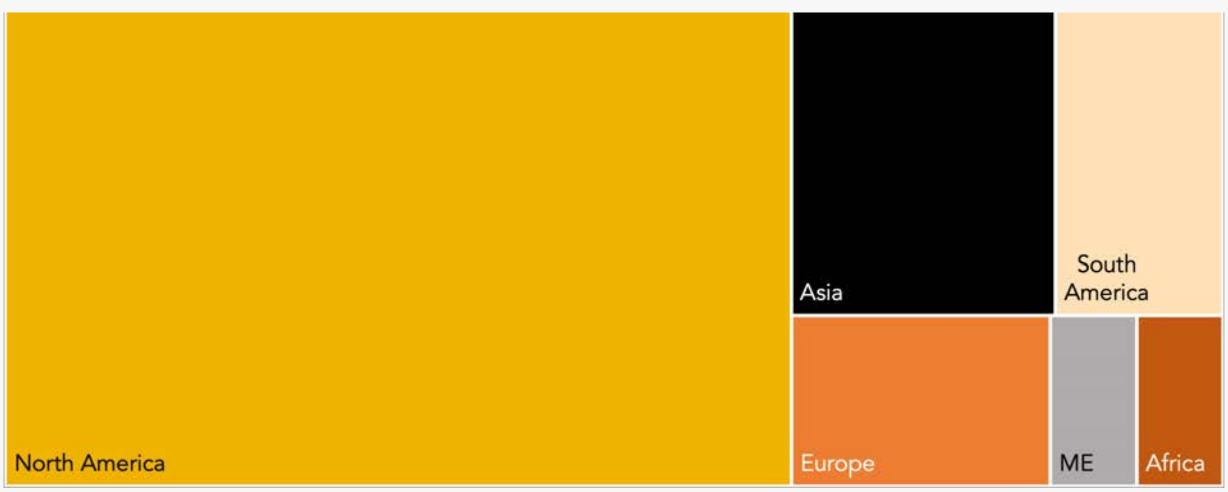


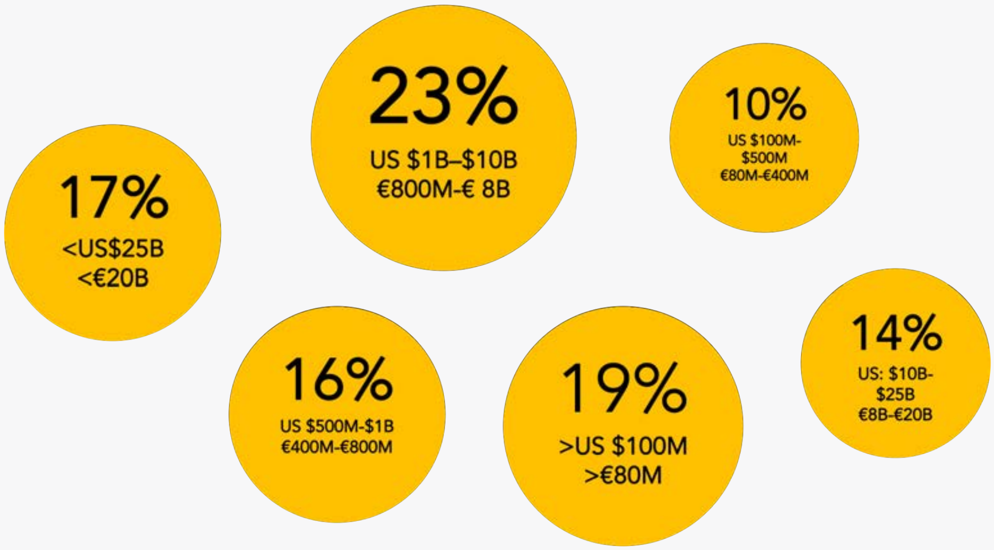
Figure 48 groups shippers according to geographic location. A high concentration of shippers recorded their base location in the United States (65%). For the first time, more respondents reported Asia (13.92%) as their base location over Europe (7.59%), and overall, there was a noted drop in European respondents over prior years.

Figure 48: Shippers by Geography



Shipper respondents represented a diverse group based on total annual sales with no significant variance year over year in any one response cluster (see **Figure 49**). Just over half of shippers (54%) reported $1 billion in sales or greater this year. This was up slightly from last year, when 49% of shippers reported $1 billion in sales or greater.

Figure 49: Shippers by Total Annual Revenue



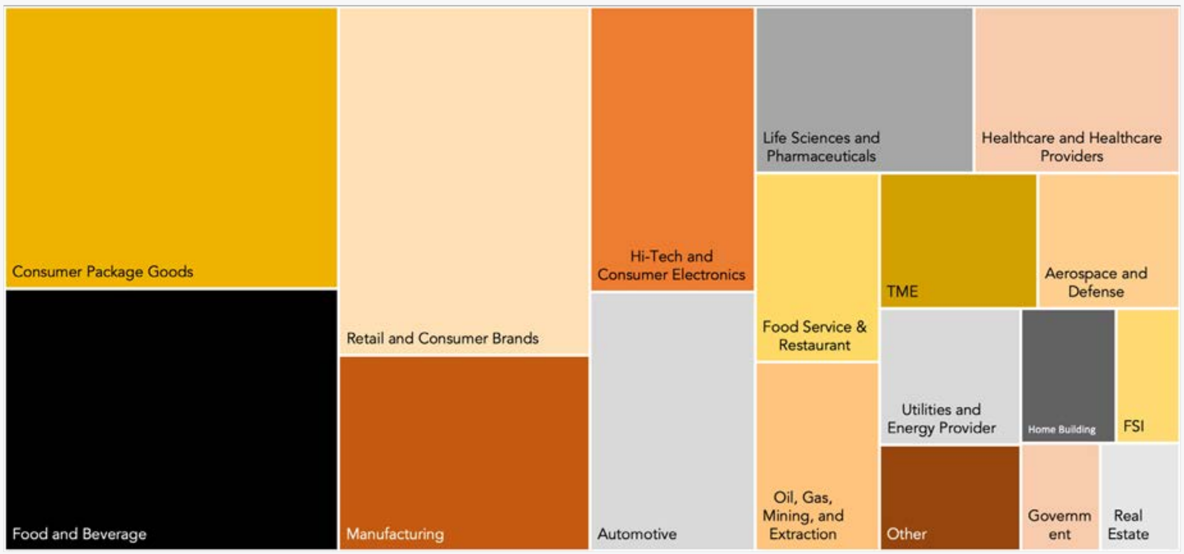
3PLs

3PL executives and senior leaders responded to a similar, yet separate version of the survey. Since 3PL respondents tend to service multiple geographically areas, the study team asked them to select all major geographies for which they provide service (see **Figure 50**). North America continues to be the single largest service area at 78%, but all major geographies are represented.

Figure 50: 3PLs by Geography

3PL respondents service a diverse group of industries ranging from consumer-packaged goods (CPG) (59%) to financial services and insurance (FSI) (5%) and government organization at the federal, state and local segments (5%), as shown in **Figure 51**. Overall, 3PL respondents work primarily with those industries that have a direct-to-consumer element such as retail, consumer brands, CPG, consumer electronics, and food and beverage.

Figure 51: 3PLs by Industry Serviced



3PL respondents represented a diverse group based on total annual sales with more variance year over year than shipper respondents. Just 29% of 3PLs report $1 billion in sales or greater this year, compared to 54% of shippers, see **Figure 52**. Additionally, 38% of 3PLs report less than $100 million in total annual revenue.

Figure 52: 3PLs by Total Annual Revenue

About the Sponsors

NTT DATA

NTT DATA Services is a digital business and I.T. services leader. Headquartered in Plano, Texas, it is the largest division of trusted global innovator NTT DATA Corp., a top 10 provider and part of the $109B NTT Group. With its consultative approach, NTT DATA leverages deep industry expertise and leading-edge technologies powered by A.I., automation and cloud to create practical and scalable solutions that contribute to society and help clients worldwide. Its global team delivers one of the industry's most robust and integrated portfolios. This includes consulting, applications, data intelligence and analytics, hybrid infrastructure, workplace, cybersecurity, and business process services to help organizations accelerate and sustain value throughout their digital journeys.

Penske Logistics

Penske Logistics is a Penske Transportation Solutions company with operations in North America, South America, Europe and Asia. Penske Logistics provides supply chain management and logistics services to leading companies around the world. Penske Logistics delivers value through its design, planning and execution in transportation, warehousing and freight management. Visit www.penskelogistics.com to learn more.

Lead Writer: Mindy Long

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