2019 THIRD-PARTY LOGISTICS STUDY

The State of Logistics Outsourcing

Results and Findings of the 23rd Annual Study

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EXECUTIVE SUMMARY

The 2019 23rd Annual Third-Party Logistics Study shows that shippers and their 3PL providers are increasingly moving toward meaningful partnerships and working together to accomplish their supply chain goals. Both parties appear to have a much greater awareness of what they're trying to accomplish as well as the ways in which the availability of data and the use of technology can help them progress.

The study shows that the majority of shippers—91%—report that the relationships they have with their 3PLs generally have been successful. A higher number—98%—of 3PLs agree that their customer relationships generally have been successful.

Among respondents of the 2019 study, 89% of shippers and 98% of 3PL providers agree that the use of 3PLs has contributed to improving services to the ultimate customers. Additionally, 73% of 3PL users and 91% of 3PL providers agree that 3PLs provide new and innovative ways to improve logistics effectiveness.

Shippers are increasingly aware that if they do not have the technological capabilities to accomplish their goals, they should partner with those that do. As the amount of available data increases, shippers and their logistics partners will need to be able to take the information and make it relevant as many 3PLs are already making significant investments in technology that allows them to analyze shippers' operations. The majority of shippers—93%—agree that IT capabilities are a necessary element of 3PL expertise, and 55% of shippers agree they are satisfied with 3PL IT capabilities.

Again this year, there has been a continuation of the most frequently outsourced activities, which tend to be those that are more transactional, operational and repetitive. The most prevalent outsourced activities are domestic transportation (81%), international transportation (71%), warehousing (69%), freight forwarding (50%) and customs brokerage (40%).

Keeping the Supply Chain Alive and Nimble

To keep up with the increasing level of complexity within the supply chain, companies must be agile to meet rapidly evolving conditions. This is particularly relevant as retailers and manufacturing locations work to keep inventories low, respond to faster shipping demands and react to changes in demand patterns within the global economy.

In an agile supply chain, shippers are able to adjust quickly in response to market conditions. Most shippers understand the need for agility, but 42% said they haven't made changes to increase their inherent agility over the past five years.

To help improve service and reduce costs, respondents said they are willing to try new approaches to the supply chain, with more than half of shippers—51%—saying nothing is off of the table and they are willing to evaluate all pieces of the supply chain.

Shippers and 3PLs said they are making investments to increase the nimbleness of the supply chain. Roughly three-fourths of shippers and 3PLs said they plan to invest in supply chain visibility/control towers within the next two years, and more than half of shippers and 3PLs are investing in predictive analytics.

Logistics is being transformed through the power of data-driven insights, and current technology is enabling unprecedented amounts of data to be captured from various sources along the supply chain. The use of technology is exploding within every area of the supply chain, which is driving increased agility.

The Last Yard

The last mile in logistics and supply chain management, which generally refers to the final segment of a delivery process, has been relevant for many years. However, it has taken on enhanced significance with the growth in e-commerce and omni-channel distribution.

Taking it one step further, the "last yard" concept refers to what happens to a shipment once it is delivered to a customer or consumer and how it is routed to the specific location where it may be needed or used. Last-yard logistics can be chaotic. The pain points are driven by the increased package volumes and how these volumes impact the time and space constraints at the final destinations.

The majority of shippers (72%) and 3PLs (71%) agreed that shippers/customers recognize the need for capable, last-yard logistics services. Just over half of the shipper respondents (53%) reported that they effectively manage last-yard logistics needs, while only 34% of 3PL respondents agree that their customers effectively manage these needs.

There are several last-yard logistics issues that may occur at delivery or drop-off locations, such as delayed, damaged, misplaced and lost deliveries. Strategies that may help to eliminate or reduce last-yard problems include shippers improving their internal processes to see that delivered items are transferred efficiently and effectively to point of use or relying on 3PLs to take greater responsibility for facilitating and executing shippers' last-yard services.

The focus on last-yard capabilities is consistent with the idea of structuring supply chains to create maximum value for its customers and consumers.

Omni-Channel Revisited

Retailers continue to emphasize an always-on, always-open shopping experience that provides seamless interaction across all retail sales channels, which is forcing shippers and their logistics partners to be fluid and move quickly.

This study last asked those within the supply chain about omni-channel retailing in 2015. This year's responses demonstrate that many shippers and 3PLs are still struggling to create a true, omni-channel retailing experience. Just 4% of shippers rated themselves as high-performing in omni-channel retailing in the current study, up from 2% in 2015. The highest percentage—38%—said they are inconsistent and 36% said they had no capability. Just 18% of shippers rated themselves as competent.

Among 3PLs, just 3% rated themselves as high-performing, while 24% said they are competent and 14% said they are efficient. The largest percentage—31%—said they have no capability and 28% rated themselves as inconsistent.

To help meet omni-channel goals, many within the supply chain are turning to integrated technologies. Shippers have already invested in enterprise resource planning software (72%), warehouse management systems (56%), transportation management systems (38%), supply chain visibility (34%) and WMS add-ons, such as labor management, analytics and slotting organization, etc. (24%).

Among 3PLs, the largest percentage—67%—are investing in WMS. The same number is investing in TMS, followed by supply chain visibility (48%), ERP (42%), mobile applications (37%) and WMS add-ons (34%).

Many within the supply chain are utilizing, considering or piloting several fulfillment strategies to meet or exceed consumers' expectations, such as Sunday delivery and customer delivery. This may grow as companies work to meet increasing consumer demands.

Dealing with Disruption Revisited

Supply chain disruptions and delays can have a significant effect, resulting in increased costs, missed deliveries, downed production lines and excessive costs. The *Annual Third-Party Logistics Study* last visited the topic in 2013, and this year's study shows shippers and 3PLs are placing greater importance on mitigating supply chain disruption.

The most common issues that shippers face have remained fairly constant. The top three disruptions include increased transportation and logistics costs (77%), transportation and logistics network disruptions (76%) and increase in supplier costs (67%).

Furthermore, 83% of 3PLs reported an increase in transportation and logistics costs, 74% reported transportation/logistics network disruption, up from 63% in 2013; 67% reported an increase in supplier costs, down from 69% in 2013.

What is causing disruptions has also remained consistent. The majority of shippers (58%) and 3PLs (64%) report that most disruptions were due to natural disasters, extreme weather or pandemics. Shippers and 3PLs also cited infrastructure issues as well as extreme volatility in commodity, labor or energy prices.

Disruptions can cause a potential decrease in revenue or decreased customer service satisfaction, and 63% of shipper respondents said they have key metrics in place to quantify the impact of a disruption. However, the majority of 3PL respondents—57%—said they do not have metrics in place to measure the impact of a disruption.

The top methods shippers and 3PLs use to mitigate and manage supply chain disruptions are supply chain visibility tools and partnerships. Both 3PLs (47%) and shippers (34%) said they are planning on investing in supply chain disruption mitigation/response capability within the next two years.

Shipper-3PL Data Sharing

Communication is one of the key components of a successful 3PL-shipper relationship, and strong communication often begins when shippers procure the services of a 3PL. A meaningful and thorough RFP process is central to the development and sustainability of successful shipper-3PL relationships.

Four crucial elements for an effective RFP process include: a problem that needs to be solved, complete data, true assumptions and operational insight. There are many points where useful information needs to be shared between shipper and 3PL, and also among the various people/departments within the 3PL responsible for understanding and analyzing the shipper's request and developing a suitable response.

Smooth handoffs of information minimize the risk of disruption. The majority of shippers (61%) and 3PLs (54%) said issues with data sharing between the two parties contributed to customer satisfaction issues. Other consequences include late payments, not renewing a contract and negative word of mouth.

Shippers and 3PLs generally agree that there are specific types of data hand-offs where improvements in efficiency and effectiveness could be improved, and there is a continuing need for shippers and 3PLs to improve their practices relating to people, processes and technologies.

The effective and efficient sharing of data between shippers and 3PLs resonates as a common denominator in effective shipper-3PL relationships.

CURRENT STATE OF THE 3PL MARKET

A solid economy, tightening capacity and high consumer expectations are creating a strong operating environment for third-party logistics providers as shippers engage outside resources to meet stringent delivery deadlines and boost customer satisfaction.

Customer expectations continue to increase, and, as a result, shippers have greater expectations of what those within the supply chain industry should deliver. Transportation and logistics companies will need to focus on digital fitness, cost efficiency, asset productivity and innovation if they want to meet the rapidly changing expectations of shippers and consumers.

The *2019 23rd Annual Third-Party Logistics Study* provides the latest perspectives on the nature of shipper and 3PL relationships, why they are generally successful, some of the ways in which they could be improved and how they can better meet the supply chain demands of the future.

For today's supply chains to be successful, shippers and 3PLs must have the ability to obtain data in real-time or near real-time. This year's study shows that shippers and their 3PL providers are increasingly moving toward meaningful partnerships and working together to accomplish their supply chain goals. Together both parties are creating reliable solutions and improving the end-user experience for the customer, which is allowing shippers to use the supply chain as a competitive advantage.

Shipper Experiences with 3PLs: Measures of Success

Shippers and their 3PL providers appear to have a much greater awareness of what they're trying to accomplish as well as the ways in which data sharing and technology can help them advance their goals.

Shippers are continuing to leverage what 3PLs offer, allowing them to optimize the supply chain, minimize costs and create value, and align expectations as a key to achieving success for both parties. *The 23rd Annual Third-Party Logistics Study* shows that the majority of shippers—91%—report that the relationships they have with their 3PLs generally have been successful. A higher number—98% of 3PLs—agree that their customer relationships generally have been successful.

Other key indicators of success have remained high, as shown in **Figure 1**:

- 89% of shippers and 98% of 3PLs reported that 3PLs have contributed to improving services to the ultimate customer.
- 73% of 3PL users and 91% of 3PL providers agree that 3PLs provide new and innovative ways to improve logistics effectiveness.
- 72% of 3PL users and 95% of 3PL providers agree that the use of 3PLs has contributed to reducing overall logistics costs.

Similar to previous studies, the percentage figures from 3PL respondents typically run somewhat higher than those from shipper respondents.

Current Challenges

Within the transportation and logistics industry, disruption is taking place across several areas.

E-commerce sales have continued to increase, fueling consumer demands and serving as the catalyst for new technologies that are making the supply chain more relevant. Furthermore, last-mile deliveries have grown increasingly complicated as customers get more specific about delivery demands and expect even faster shipping times.

With last-mile deliveries, there is no single solution, and many shippers have turned to 3PL providers to fulfill last-mile requirements in ways that meet customer demands. One of this year's special topics, The Last Yard, will look beyond the last mile to see how well shippers and 3PLs actually move shipments from where they are received to where they are actually used.

At the same time, growth in the economy has contributed, in part, to increasing freight levels, and new federal regulations surrounding electronic logging devices have tightened the amount of available capacity in terms of equipment and driver availability, making securing dedicated transportation space difficult for some shippers.

FIGURE 1: USER-PROVIDER AGREE/DISAGREE STATEMENTS

STATEMENT	PERCENT IN AGREEMENT	
	3PL Users	3PL Providers
The relationships between shippers and 3PLs generally have been successful	91%	98%
The use of 3PLs has contributed to improving service to customers	89%	98%
The 3PLs provide new and innovative ways to improve logistics effectiveness	73%	91%
The use of 3PLs has contributed to reducing overall logistics costs	72%	95%
Overall shippers are increasing their use of outsourced logistics services	63%	86%
Shippers are reducing or consolidating the number of 3PLs used	61%	73%
Shippers are collaborating with other companies, even competitors, to achieve logistics cost and service improvements	41%	86%
Shippers are returning to insourcing many logistics activities	28%	36%

Both situations can bode well for capable logistics providers that can either provide or obtain capacity for shippers, help them identify the optimal mode of transportation and move products to consumers faster. Technological resources, such as advanced transportation management systems, warehouse management systems and load tracking systems are enabling shippers to make informed decisions to optimize the supply chain.

Shippers are increasingly aware that if they do not have the technological capabilities to accomplish their goals, they should partner with those that do.

3PL User Spending Patterns on Logistics and 3PL Services

Overall, the current survey data relating to financial aspects of users' logistics and 3PL expenditures is relatively similar to that of recent years. Among respondents, shippers report that an average of 11% of their total logistics expenditures are related to outsourcing, which remains consistent with the amount reported last year, shown in **Figure 2**. Total logistics expenditures include transportation, distribution, warehousing and value-added services.

The percent of total logistics expenditures directed to outsourcing was slightly higher at 53% in the current study, versus the 50% reported in the previous two annual 3PL studies.

This year's percentage of transportation spend managed by third parties was 50%, and the percentage of warehouse operations spend managed by third parties was 34%. Both of these figures are slightly lower than those reported in recent years.

FIGURE 2: SELECTED FINANCIAL ASPECTS OF USERS' LOGISTICS AND 3PL EXPENDITURES

SELECTED INFORMATION	2017 Study	2018 Study	2019 Study
Total Logistics Expenditures as a Percentage of Sales Revenues	10%	11%	11%
Percent of Total Logistics Expenditures Directed to Outsourcing	50%	50%	53%
Percent of Transportation Spend Managed by Third Parties	53%	55%	50%
Percent of Warehouse Operations Spend Managed by Third Parties	40%	39%	34%

FIGURE 3: GLOBAL 3PL REVENUES RISE SHARPLY

REGION	2014 Global 3PL Revenues (US $Billions)	2015 Global 3PL Revenues (US $Billions)	2016 Global 3PL Revenues (US $Billions)	2017 Global 3PL Revenues (US $Billions)	Percent Change 2014 to 2015	Percent Change 2015 to 2016	Percent Change 2016 to 2017	CAGR 2010 to 2017
Africa	29.6	27.1	25.5	26.1	-8.4	-5.9	2.4	1.3%
Asia Pacific	289.3	292.7	306.1	329.3	1.2	4.6	7.6	6.1%
CIS/Russia	33.7	23.5	21.7	25.5	-30.3	-7.7	17.5	-0.5%
Europe	196.4	172.6	173.4	184.1	-12.1	0.5	6.2	-0.4%
Middle East	45.3	40.3	40.5	42.2	-11.0	0.5	4.2	2.7%
North America	195.9	195.7	200.3	220.0	-0.1	2.4	9.8	4.6%
South America	45.0	37.9	36.7	41.8	-15.8	-3.2	13.9	1.1%
Grand Total	835.2	789.8	804.2	869.0	-5.4	1.8	8.1	3.5%

3PL Usage Reflects Global Economic Trends

While global demand for logistics and supply chain services has exhibited very mixed results over the past several years, the latest available information from Armstrong & Associates documents very strong results for 2017, the latest complete year for which data is available. **Figure 3** shows global 3PL revenues by region for 2014 to 2017, and the percentage year-over-year (YOY) increases or decreases. Also included for each region are compounded annual growth rates (CAGR) of 3PL revenues from 2010 to 2017.

Of great significance is that global 3PL revenues increased to $869 billion in 2017 from $804.2 billion in 2016. This reflects global growth in the 3PL market of +8.1% from 2016 to 2017. Interestingly, and in contrast to results from recent year-over-year comparisons, increases for all seven regions were reported for 2017 over 2016. Thus, 2017 was a very encouraging year for all.

The highest percentage increases in 3PL revenues from 2016 to 2017 were recorded by CIS/Russia (+17.5%), South America (+13.9%) and North America (+9.8%). Other positive increases from 2016 to 2017 were Asia Pacific (+7.6%), Europe (+6.2%) and Africa (+2.4%). The last column in Figure 3 indicates the CAGR of global 3PL revenues was calculated at +3.5% from 2010 to 2017. This represents a significant increase over the CAGR from 2010 to 2016 of +2.8% that was reported in last year's 3PL study.

Recent projections by Armstrong & Associates indicate optimism for the growth of global 3PL revenues from 2017 to 2018. Among the factors contributing to the likelihood of continued growth are data-driven technology, increased capacity and demand, and overall rising prices.

Expectations in Shipper-3PL Relationships

The collaborative nature of shipper-3PL relationships is leading to greater overall value for shippers as well as improved service and supply chain optimization. It is increasingly obvious that 3PLs are doing much more than just moving products from one place to another. Instead they are creating dynamic and responsive supply chains that can create a competitive advantage for shippers, allowing them to speed their products to market and flex their capabilities up or down based on demand.

To accomplish their goals, both parties need to be willing to share data and engage in conversations earlier in the process. This year's study indicated, as shown earlier in Figure 1, that 41% of shippers and 86% of 3PLs agreed they would collaborate with other companies, even competitors, to achieve logistics cost and service improvements. These percentages are up from 38% and 81%, respectively, as reported in the 2018 Study.

A section in this report titled "Shipper-3PL Data Sharing" will add some perspectives on the request for proposal (RFP) process and areas where shippers and 3PLs may improve both efficiency and effectiveness.

What Shippers Outsource and What 3PLs Offer

Figure 4 shows the percentages of shippers outsourcing specific logistics activities.

Among shipper respondents, the current percentage outsourcing domestic transportation was 81%, down slightly from the 83% in last year's report. The percentage outsourcing international transportation increased to 71% from 63% in the previous report, and customers outsourcing warehousing grew to 69% from 66%. The number of respondents outsourcing freight forwarding increased to 50% from 46%, and those outsourcing customs brokerage lessened somewhat to 40% in the current year from 46% in the previous year.

Even some activities that are not outsourced as frequently have increased. The percentage of shippers outsourcing inventory management increased to 22% from 17% in the previous year's study. Also, the percentage of shippers outsourcing transportation planning and management this year increased to 28% from 25% from last year.

Consistent with results from previous studies, the more strategic and customer-facing activities tend to be outsourced somewhat less than those that are more tactical and operational. Looking at the data in Figure 4, some of the activities in this category are order management and fulfillment (19%), information technology services (11%), LLP (lead logistics provider)/4PL services (9%) and customer service (6%).

3PL's IT Capabilities: A Consistent Differentiator Among 3PLs

Logistics providers are using technology to drive a wide range of efficiencies, such as load planning, optimal warehouse slotting and overall network design. As the amount of available data increases, shippers and their logistics partners will need to be able to take the information and make it relevant as many 3PLs are already making significant investments in technology that allows them to analyze shippers' operations. As a result, they can help reduce overall transportation costs, improve asset utilization and provide better service.

FIGURE 4: SHIPPERS CONTINUE TO OUTSOURCE A WIDE VARIETY OF LOGISTICS SERVICES

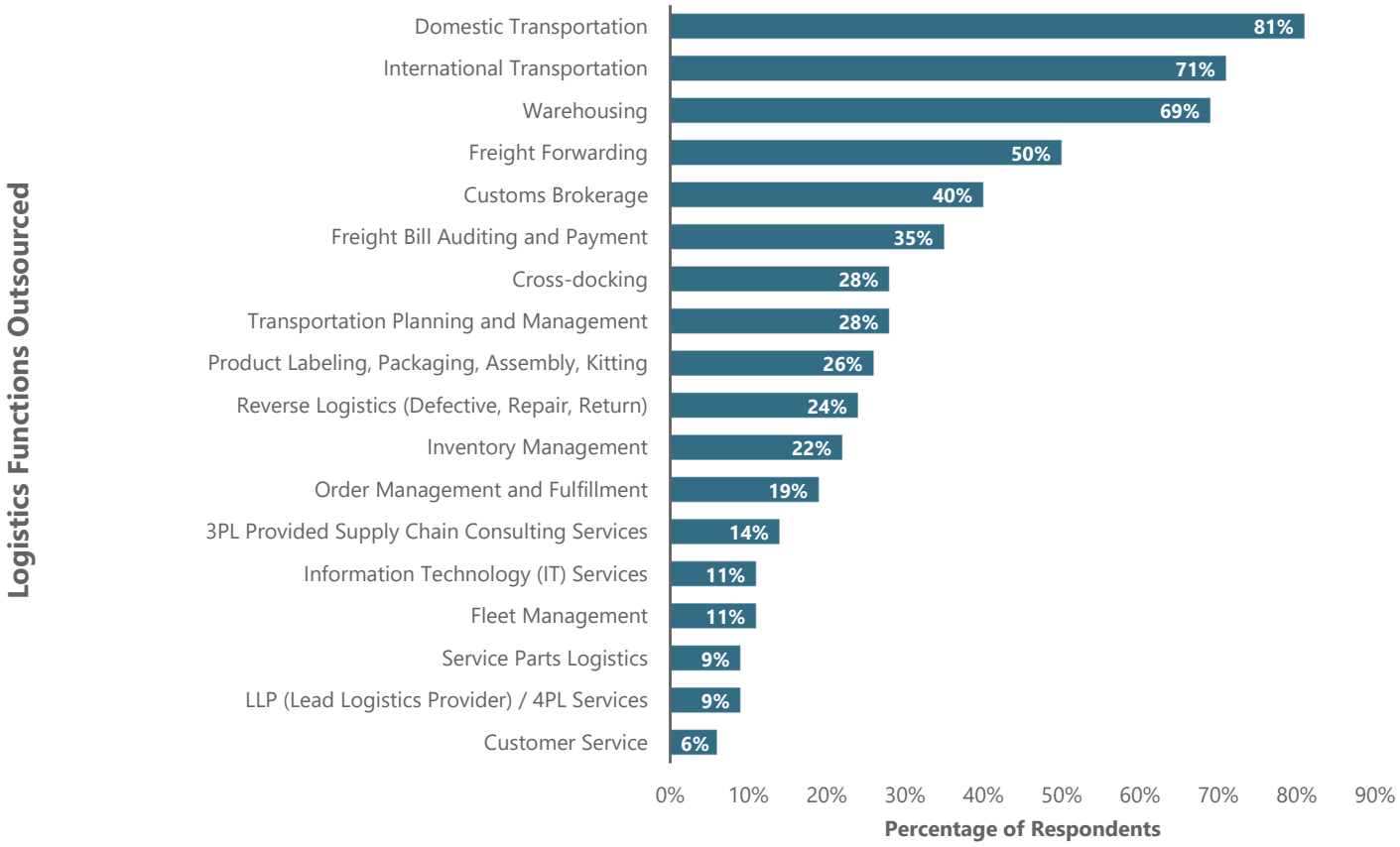


FIGURE 5: VIEWS OF IT-BASED CAPABILITIES NEEDED FROM 3PLS

IT-BASED CAPABILITIES	% Reported by Shippers	% Reported by Providers
Transportation management (planning)	71%	79%
Warehouse/distribution center management	67%	66%
Visibility (order, shipment, inventory, etc.)	63%	75%
EDI data interchange - orders, advanced shipment notices, updates, invoicing	54%	73%
Transportation management (scheduling)	54%	75%
Transportation sourcing	46%	56%
Global trade management tools (e.g., customs processing and document management)	42%	37%
Network modeling and optimization	39%	58%
Bar coding	39%	50%
Supply chain planning	39%	56%
Web portals for booking, order tracking, inventory management and billing	33%	56%
Customer order management	32%	50%
Cloud-based systems	30%	47%
CRM (customer relationship management)	29%	62%
Advanced analytics and data mining tools	27%	47%
RFID	24%	23%
Distributed order management	23%	32%
Yard management	20%	26%
Blockchain	8%	15%

The 2019 study highlights once again how important it is for 3PLs to provide a range of IT-based services to help create value for their shipper customers. **Figure 5** outlines shipper and 3PL responses to the question "which information technologies, systems or tools must a 3PL have to successfully serve a customer in your industry classification?"

The most frequently-cited technologies remain those that are more execution- and transaction-based capabilities, including transportation management (planning and scheduling), warehouse/distribution center management, visibility and electronic data interchange. This year, 46% of shippers said they need IT capabilities to support transportation sourcing, an increase from 38% last year, which likely is related to overall capacity shortages.

Other top contemporary technologies cited include network modeling and optimization, use of web portals, cloud-based systems, and advanced analytics and data mining tools. Respondents were asked for the first time in this year's survey about "blockchain," with 8% of shippers and 15% of 3PLs indicating this was among the needed technologies.

Since 2002, this study has tracked measurable differences between shipper's opinions as to whether they view information technologies as necessary elements of 3PL expertise and whether they are satisfied with their 3PLs' IT capabilities. Referred to as the "IT Gap," **Figure 6** charts the behavior of this analytic from 2002 to present. A few general observations include:

- Current year results indicate that 93% of shippers agree that IT capabilities are a necessary element of 3PL expertise, and 55% of shippers agree they are satisfied with 3PL IT capabilities.
- Over the 17 years of data contained in Figure 6, shippers have been relatively consistent in their evaluation of IT capabilities as a necessary element of 3PL expertise. These figures have generally been in the low- to mid-90% range over most of the timeframe studied.
- While we have commented in earlier reports about the fact that the percentage of shippers indicating satisfaction with 3PL IT capabilities exhibited overall increases from 2002 to 2011, this analytic has remained relatively consistent in more recent years.
- Overall, the IT gap appears to have stabilized somewhat in recent years. This observation deserves further attention, as it has been apparent for some time that 3PLs have increased their IT capabilities while shippers have become more proficient buyers of IT-related services.

Today's shippers have greater expectations of providers' data reporting and data analysis capabilities. Shippers are increasingly using data to optimize their networks and drive supply chain decisions. As a result, the availability of capable IT technologies and competencies in the IT area has become a key selection criteria in shipper bid and RFP processes. Correspondingly, 3PLs have been promoting their IT capabilities as a key differentiating factor to current and prospective shipper-customers.

Increased Outsourcing vs. Insourcing

Throughout *The 23 years of the Annual Third-Party Logistics Study*, researchers have observed changes in the percentages of shippers indicating increases in their use of outsourced logistics service and those indicating a return to insourcing many of their logistics activities. While some shippers may exhibit a consistent use or non-use of outsourced logistics services, there are others that may modify their use of outsourcing from time to time.

Outsourcing: Among respondents, 63% of shippers indicate they are increasing their use of outsourced logistics services this year, which compares to a figure of 61% reported last year. In comparison, 86% of 3PL providers agreed their customers experienced an increase this year in their use of outsourced logistics services, which compares to 83% last year. These figures are consistent with the generally positive growth rates for 3PL services that have been referenced earlier in this report.

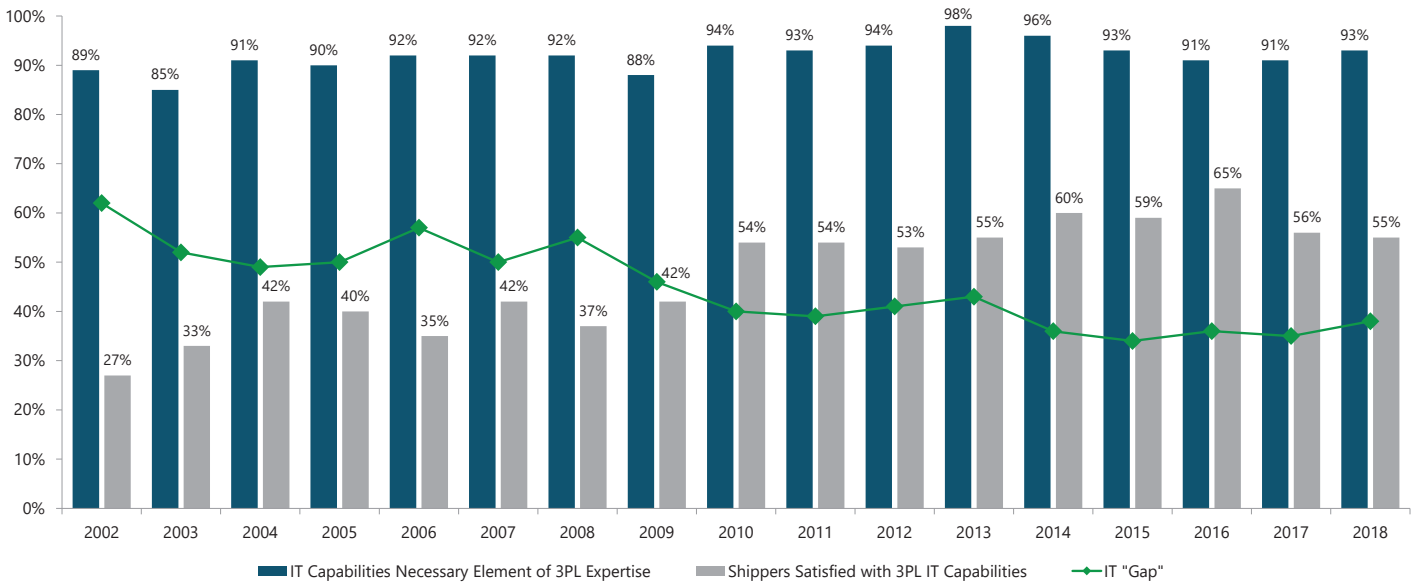
Insourcing: This year, 28% of shippers indicate they are returning to insourcing many of their logistics activities, which is equal to the 28% reported last year but still lower than the 35% reported two years ago. Also, 36% of 3PL providers agree that some of their customers are returning to insourcing, a decrease from the 42% reported last year. While these percentages may seem to conflict, individual shipper responses pertain only to their organization's directions, while the 3PL responses reflect the providers' thoughts about their overall group of customers.

Reducing or Consolidating 3PLs: This year, 61% of 3PL users report reducing or consolidating the number of 3PLs they use, compared to the 53% reported in the previous year.

Responses from Non-Users of 3PL Services

Since some of the respondents to our annual survey classify themselves as non-users of 3PL services at present, it is always interesting to ask them about the reasons why this may be the case. Among the results are: 27% feel that control over the outsourced functions would diminish; 22% suggest they have more logistics expertise than most 3PL providers; 18% are concerned that it would be too difficult to integrate their IT systems with the 3PLs systems; and 15% believe that cost reductions and/or service level commitments would not be realized.

FIGURE 6: THE "IT GAP": SHOWING POTENTIAL STABILITY



As we have commented in previous years' studies, results from our annual 3PL study workshops have confirmed that some of the stated reasons as to why some shippers elect not to outsource their logistics services are some of the very same reasons why others choose to use the services of 3PLs. The conclusion to be drawn is that each shipper organization needs to diligently assess the need for its range of supply chain services and determine which strategies relating to outsourcing best fit their needs.

Key Takeaways

Key findings about the Current State of the Market for the *2019 23rd Annual 3PL Study* include:

- The majority of shippers—91%—report that the relationships they have with their 3PLs generally have been successful. A higher number of 3PLs—98%—agree that relationships have generally been successful.
- According to Armstrong and Associates, global demand for logistics and supply chain services was strong in 2017, with global 3PL revenues increasing to $869 billion in 2017 from $804 billion in 2016. In contrast to results from recent year-over-year comparisons, increases for all seven regions were reported for 2017 over 2016. Thus, 2017 was a very encouraging year for all.
- Total logistics expenditures as a percentage of sales revenues is a reported 11% in the current year, equal to the results in the previous year's study. Over the same timeframes, the percentage of shippers' transportation spend managed by 3PLs decreased to 50% from 55%, while the percentage of shippers' warehousing spend managed by 3PLs decreased to 34% from 39%.
- Users of 3PL services report an average of 53% of their total logistics expenditures are related to outsourcing, which is up slightly from the previous year's figure of 50%.
- The *2019 Annual 3PL Study* reports that 63% of shippers are increasing their use of outsourced logistics services, compared to 61% reported last year. However, 86% of 3PL providers agreed their customers increased their use of outsourced logistics services, compared to 83% last year.
- Shippers outsource a wide range of logistics services, with the most prevalent being domestic transportation (81%), international transportation (71%), warehousing (69%), freight forwarding (50%) and customs brokerage (40%).
- Activities that are more strategic, IT-intensive and customer-facing tend to be outsourced to a lesser extent. Examples of these types of activities include order management and fulfillment (19%), information technology services (11%), LLP (lead logistics provider)/4PL services (9%) and customer service (6%).
- The IT Gap appears to be fairly static in recent years, with 93% of shippers currently agreeing that IT capabilities are a necessary element of 3PL expertise, and 55% of shippers indicating they are satisfied with their 3PLs' IT capabilities.

Customer Expectations of Brands and Delivery are Evolving

E-commerce continues to grow, and customer satisfaction with retail is heavily dependent on what happens between the time a shopper places an order and when the package is delivered. For most consumers, trust in brand is a top factor that influences their decision on where to shop. Shoppers want to trust those they do business with, and retailers have to be confident that their transportation providers will deliver products on time.

Today's shoppers value fast, reliable delivery. They also look for a good returns policy, with many valuing free return shipping the most.

While free delivery is always welcomed by shoppers, but consumers are showing that they are willing to pay for premium, rush delivery services. As consumers increasingly demand greater convenience and faster deliveries, shippers and retailers will have to be able to increase their efficiency, optimize distribution networks and streamline inventories.

3PLs are investing in technology to track and trace products, which increases visibility not only for consumers but also shippers, which can contribute to the overall trust both parties place in the supply chain. Technology can also minimize disruptions and allow 3PLs to identify synergies within the supply chain.

CURRENT STATE OF THE 3PL WORKFORCE

The changing face of the supply chain, low rates of unemployment throughout the United States and new technology has impacted the supply chain industry from the warehouse floor and the cab of the truck to the C-suite level. While each sub-sector of the supply chain workforce has its own challenges, one thing is certain: to be successful, companies need to create alternatives to their traditional ways of hiring, staffing, promoting and recruiting executives as well as hourly workers.

Workforce issues are among the top concerns of those taking part in *The Annual Third-Party Logistics Study*. Respondents reported that the top five workforce issues currently facing their organization are attracting talent (59%), developing leaders (48%), retaining high performers (40%), enhancing employee motivation and engagement (38%) and enhancing workforce performance (37%), indicated in **Figure 7**.

FIGURE 7: TOP FIVE WORKFORCE ISSUES ORGANIZATIONS ARE CURRENTLY FACING

Attracting talent	59%
Developing leaders	48%
Retaining high performers	40%
Enhancing employee motivation and engagement	38%
Enhancing workforce performance	37%
Developing bench strength	34%
Reducing workforce costs	30%
Enhancing career and job flexibility	29%
Effectively managing succession	27%
Improving supervision and coaching	25%
Reducing employee turnover	24%
Addressing changing workforce demographics / Responding to cultural or generational differences	18%
Building a global workforce	15%
Developing an effective reward strategy	10%
Increasing diversity and inclusion	10%
Utilizing workforce planning to determine future workforce needs	8%
Other	2%

Korn Ferry estimates that by 2030 the global supply of skilled labor could fall short of demand by 16%, which is expected to drive salaries higher. To attract and retain top talent, organizations may have to pay $2.515 trillion more globally in the year 2030. The global average salary surge per worker by 2030 could be $11,164 more per worker, on top of inflation. As outlined in **Figure 8**, economies facing the greatest wage increase per worker include Hong Kong, Singapore and Australia.

Pay equity may take on greater significance as businesses work to recruit international employees. A study by Korn Ferry found that as a demographic group, women get paid less than men because they are not getting to the highest-paying jobs, functions and industries.

However, data shows that the gender pay gap differs from conventional wisdom. When pay for men and women is compared first by job level, then by job level and company, and finally by job level, company and function, the gap gets smaller and smaller until it all but disappears.

Even still, organizations are under-using 50% of the workforce, Korn Ferry said, which means it's time for a new approach. Organizations, managers and women themselves need to share responsibility for removing the gap, Korn Ferry said in its report, "The Real Gap: Fixing the Gender Pay Divide."

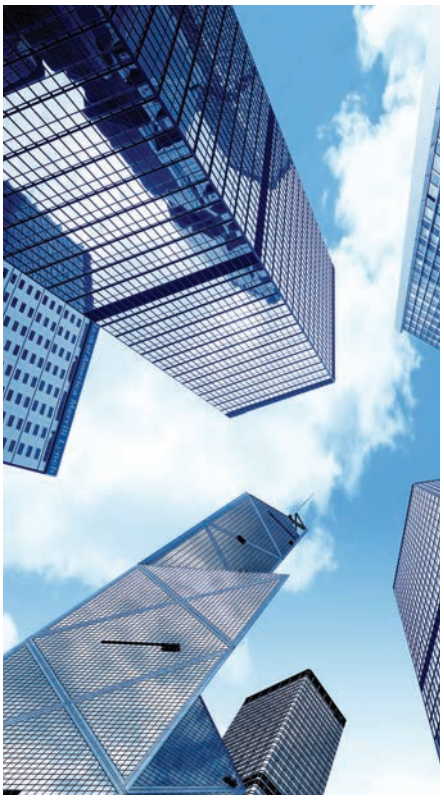
Many within the supply chain are already facing a shortage of talent and labor, including the trucking industry. In addition to the existing shortage of drivers, the situation is expected to worsen by 2024. (See more within the Alive and Nimble section).

FIGURE 8: TOP FIVE COUNTRIES FACING THE GREATEST WAGE INCREASE PER WORKER BY 2030

Source: Korn Ferry

FIGURE 9: TOP REASONS ORGANIZATIONS HAVE LOOKED EXTERNALLY FOR TALENT IN THE PAST 12 MONTHS

Need for new skills/capabilities due to strategy change	44%
Need for new skills/capabilities due to update in innovation/technology tools, products, applications or industry standards	43%
Lack of bench talent to move up into larger or next level role	43%
Need for new skills/capabilities due to newly created lines of business and/or service offerings for customers	39%
Enhancing employee motivation and engagement	38%
Backfilling talent that unexpectedly left the organization	34%
Enhancing career and job flexibility	29%
Reorganization opened up new or different scoped roles	20%
Looking for best-in-class talent from target companies	19%
Looking to add diversity to team/organization	15%
New leadership making talent changes	14%
Seeking different culture qualities or leadership	12%
Increasing diversity and inclusion	10%
Utilizing workforce planning to determine future workforce needs	8%
Other	6%
Changes in regulations require new roles or expanded responsibilities	3%



The booming construction and energy sectors are drawing away potential drivers due to higher pay and greater work/life balance, such as more time at home, as well as potential warehouse employees. Plus, as shippers utilize multiple shipping modes, such as intermodal, labor requirements shift from over-the-road, long-haul drivers to drayage drivers.

The use of telematics on Class 8 tractors and trailers has increased, which is driving asset optimization. The global fleet management market size is expected to reach $31.7 billion by 2023, rising at a market growth of 19% CAGR during the forecast period, according to the Global Fleet Management Market Analysis (2017-2023). The technology is used to increase profitability and improve sustainability by reducing fuel consumption, tracking average idle times per vehicle, providing better understanding of the performance of the vehicle and the driver, and mitigating overtime payouts.

Talent requirements for the digital business model are shifting as well. (See more about the workforce challenges within a digital supply chain within the Alive and Nimble section).

Many have noted that Uber, the world's largest ridesharing company, owns no vehicles. Facebook, one of the most popular social media companies, creates no content. Alibaba, the most valuable retailer, has no inventory, and Airbnb, the world's largest accommodation provider, owns no real estate. This speaks to the ways in which the employees that support these types of businesses must adapt.

Artificial intelligence (AI) and automation is expected to change jobs. While some will be lost, a number of new jobs will be created. For AI to work, humans must be involved, and as more products and services depend on AI, there will be a greater need for human talent that can ensure AI works. This same AI technology can also be used to assist with employee recruiting, helping both shippers and 3PLs find the talent they need.

Nearly half of shippers and 3PLs—44%—reported that they most often look outside of their organization for talent when they undergo a strategy change and 43% reported they've looked outside of the organization for talent in the last 12 months due to an update in innovation or technology, shown in **Figure 9**. These surges of innovation and related talent capture have put certain technological experts (technology and cyber security executives, for example) in high demand and therefore with higher pay requirements. This creates a new issue for organizations: executives and employees with compensation outside of the company's compensation philosophy.

Laura Balser, associate client partner, executive pay and governance at Korn Ferry, explained that it boils down to the law of supply and demand we learned in basic economics. "Jobs requiring hard-to-find skill sets or hot skill premiums command higher compensation," she said. "Further, talent in these roles is less loyal, meaning they are willing to move to another company for more pay. Organizations not only need awareness of this risk but also retention strategies to prevent turnover."

Among all of this change, some positions are evolving and taking on more importance. More specifically, the chief supply chain officer and other functional leaders are being required to act as strategists. Chief technology leaders, which are important partners to supply chain leaders, are experiencing this trend dramatically. A Korn Ferry survey found that 83% of technology chiefs said their role was more strategic than it was three years ago, and an increasing number of chief information officers are being "invited to the table as a strategic partner."

KEEPING THE SUPPLY CHAIN ALIVE AND NIMBLE

Supply Chains Strive to Improve Reaction Times and Dependability

As supply chain complexity continues to increase, companies must strive to build in agility that can handle rapidly evolving conditions. More stress than ever is being put on supply chains as retailers and manufacturing locations work to keep inventories lean and customers demand faster shipments personalized to their lifestyle. Further, customer demands are changing at a rapid pace and changes in the global economy demand quick shifts in which business segments need to ramp up or down in a short period of time.

Supply chain disruptions can be costly. Shutting down a production line due to a missed inbound shipment can result in tens of thousands of dollars in losses if workers stand idle, and lost time, which, beyond lost revenue, equates to revenue manufacturers will never recoup. On the retail side, empty shelves mean missed sales opportunities, which can damage a company's reputation and alter customer loyalty.

Today's supply chains are working to be agile as well as efficient, but there are significant differences between the two. Supply chains optimized for efficiency are able to produce and transport product to market, taking advantage of economies of scale with large manufacturing facilities and large production runs. They can be good opportunities for offshoring to take advantage of lower cost manufacturing locations and because of the known demand, it is worth saving money on ocean and rail freight. Efficient supply chains have limited inventory being carried to manage fluctuations in demand.

While an efficient supply chain focuses on being cost-effective and predictable, an agile supply chain is flexible and adaptable. That adaptability allows it to adjust quickly in response to the market, which is particularly valuable when consumer demands and outside forces can alter a supply chain rapidly.

Supply chains that are optimized for agility include capabilities that quickly allow for fluctuations in supply in order to align with rapid changes in demand. These supply chains tend to rely on smaller manufacturing sites and have facilities closer to customers in order to quickly satisfy demand. Efficient supply chains can take advantage of offshoring to lower the cost associated with manufacturing locations and utilize inventory to manage fluctuations in demand.

The challenge of crafting a state-of-the-art supply chain is balancing the need to reduce costs while improving agility in an ever-changing marketplace. Crafting a supply chain that effectively balances these competing needs has been a critical challenge for shippers and 3PLs for decades.

The Push for Agility

By focusing on creating an agile supply chain, shippers and 3PLs can position themselves to handle market demands quickly and efficiently. In addition, by understanding the demands of particular customers shippers/3PLs can create segmented experiential supply chains to meet the changing needs of a wide spectrum of consumers.

FIGURE 10: SHIPPERS' INVESTMENTS TO INCREASE AGILITY

In the most successful supply chains, 3PLs are increasingly moving further upstream within shippers' supply chains and collaborating with customers to overcome challenges and meet high delivery expectations.

Although most shippers understand the need for agility, 39% said they haven't made changes to increase their inherent agility over the past five years and 15% reported decreasing supply chain nimbleness to reduce cost, shown in **Figure 10**.

Among those that reported making changes, 17% said they moved production closer to customers in order to reduce lead-time and improve flexibility. Additionally, 8% said they kept production offshore but realigned to suppliers that offered improved flexibility to change production volumes or products.

Cost is always important, continues to be top-of-mind in every conversation and is a major consideration for both shippers and their logistics providers. Both parties said it is a leading factor in their decision-making process.

To help improve service and reduce costs, respondents said they are willing to try new approaches to the supply chain, with more than half of shippers—51%—saying nothing is off of the table and they are willing to evaluate all pieces of the supply chain, indicated in **Figure 11**.

Joe Carlier, senior vice president of sales for Penske Logistics, said the desire to reduce costs, improve delivery times and optimize networks is driving a willingness to eschew traditional business rules, particularly with tightening capacity in the trucking industry. "When there is no capacity, those conversations change," Carlier said. "Today the focus is on maximizing utilization and resources as they are becoming more limited and moving products to the end user in the most economical way."

FIGURE 11: ARE PARTS OF THE SUPPLY CHAIN UNCHANGEABLE?

ARE ANY PARTS OF YOUR SUPPLY CHAIN DESIGN UNCHANGEABLE? (SELECT ALL THAT APPLY)	
No, we are willing to evaluate all pieces	51%
Key suppliers	36%
Key MFG locations	36%
Key distributors	14%
Other	1%

Capacity within the trucking industry has continued to tighten, with Bob Costello, chief economist at American Trucking Associations, reporting in June 2018, "This continues to be one of the best, if not the best, truck freight markets we have ever seen."

As trucking capacity tightens and the driver shortage worsens, it likely will become more beneficial for shippers to work with strategic partners that have a broad reach. "A shipper may have a wonderful supply chain department, but they're not going to have the utilization. A 3PL will have a diverse set of customers and large bases they can work with," Carlier said, adding that Penske is utilizing data scientists to look at the $4 billion of managed freight it handles to find natural pairings that would optimize the supply chain.

The next step is talking with customers to discuss 'what if' scenarios that could drive utilization and improve costs. Carlier said it is also important to differentiate between rate and costs. "Large shippers have their procurement departments and they are measured on rate and rate improvement. Today it is about mitigating rate increases, and that in itself changes the conversation and drives the rate vs. cost discussion," he said.

Carlier has also seen several shippers turning to dedicated contract carriage in an effort to control costs and secure capacity. "If I can move to dedicated contract carriage, I can ensure on Monday morning I have trucks and I am no longer competing against a much larger market," he said.

Co-mingling is also taking place within warehouses. When combining multiple clients into a single space, 3PLs must address the complex business rules of each customer individually.

Shippers and 3PLs both said the desire to lower overall operating costs is one of the primary reasons they revaluate supply chains, shown in **Figure 12**. Both parties ranked gaining competitive advantage and moving closer to the point of consumption as the top factors.

To move products closer to the point of consumption, shippers are continuing to turn to smaller, regional distribution centers built near greater populations.

In early 2018, Walmart announced that it would convert several of its Sam's Club retail locations into regional distribution

FIGURE 12: TOP REASONS WHY BUSINESSES RE-EXAMINE THEIR SUPPLY CHAINS

SHIPPERS	
RANK	CATEGORY
1	Lower overall operating cost
2	Competitive advantage
3	Closer to point of consumption
4	Reduced freight transport time
5	Lower wage cost
6	Risk management
7	Closer to supply sources
8	Tariff/tax incentive
9	Exchange rate

3PLS	
RANK	CATEGORY
1	Lower overall operating cost
2	Competitive advantage
3	Closer to point of consumption
4	Lower wage cost
5	Reduced freight transport time
6	Closer to supply sources
7	Risk management
8	Tariff/tax incentive
9	Exchange rate

centers. Walmart attributed the decision to the need to better fulfill online orders, lower-than-expected population growth in some markets and increased competition.

Among shippers, the most common business events that trigger their firm to re-examine its supply chain include changes in performance (71%), mergers and acquisitions (54%), new market entries (54%) and new product launches (48%).

Shippers said they involve several partners when designing the supply chain, including 3PLs (71%), suppliers (68%), customers (59%) and consulting firms (40%), shown in **Figure 13**. Half of shippers said they use partners to evaluate different operations to determine the impact on supply chain design; 42% said they seek out country-specific expertise; and 35% said the partners execute the design activities.

FIGURE 13: SUPPLY CHAIN PARTNERS PROVIDE INPUT ON SUPPLY CHAIN DESIGN ACTIVITIES

WHICH SUPPLY CHAIN PARTNERS ARE PART OF SUPPLY CHAIN DESIGN ACTIVITIES? (SELECT ALL THAT APPLY)	
3PL(s)	71%
Suppliers	68%
Customers	59%
Consulting firms	40%
Software suppliers	28%
Other	4%

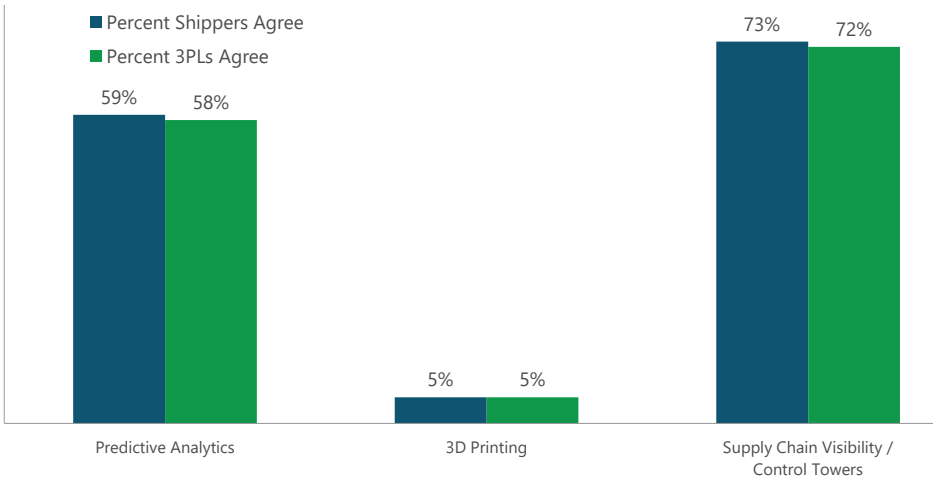
HOW ARE PARTNERS USED AS A PART OF SUPPLY CHAIN DESIGN ACTIVITIES? (SELECT ALL THAT APPLY)	
Evaluate different operations to determine impact on supply chain design (e.g., distribution center locations, manufacturing plant site evaluations)	50%
Country-specific expertise (e.g., in-country knowledge of customs, labor resources, taxes)	42%
Execute the design activities (e.g., build analyses)	35%
They are not	18%
Other	3%

FIGURE 14: TOP CONCERNS AND CHALLENGES ABOUT SUPPLY CHAIN DESIGN DECISIONS

SHIPPERS	
RANK	CATEGORY
1	Infrastructure
2	Workforce readiness
3	Economic stability
4	Freight/supply chain transparency
5	Lack of strategic partners/suppliers in region
6	Regulations/tax structure
7	Security/crime/corruption
8	Executive-level talent
9	Border-crossing delays

3PLS	
RANK	CATEGORY
1	Workforce readiness
2	Infrastructure
3	Economic stability
4	Freight/supply chain transparency
5	Lack of strategic partners/suppliers in the region
6	Executive-level talent
7	Security/crime/corruption
8	Regulation/tax structure
9	Border-crossing delays

FIGURE 15: SHIPPERS AND 3PLS INVEST TO INCREASE NIMBLENESS



The Role of Technology in a Nimble Supply Chain

The use of technology is exploding within every area of the supply chain, and the development pace is unparalleled. Penske's Carlier said, "When we look at emerging tech, we have to say, 'What are the adoption rates and with what speed will the industry adopt it?'"

That largely depends on the challenges it can address. Shippers and 3PLs are closely aligned on the biggest pain points within the supply chain, as shown in **Figure 14**, with workforce readiness, infrastructure, economic stability and freight/supply chain transparency ranking among the top concerns.

Technology can help alleviate several of these concerns while also facilitating agility on several fronts, including demand planning, network optimization and real-time visibility throughout the supply chain.

Shippers and 3PLs said they are making investments to increase the nimbleness of the supply chain, shown in **Figure 15**. The largest percentage—73% of shippers and 72% of 3PLs—said they plan to invest in supply chain visibility/control towers within the next two years. More than half of shippers (59%) and 3PLs (58%) are investing in predictive analytics. (See additional information on technology adoption within the Omni-Channel section).

Technology supports the use of advanced algorithms, which facilitate real-time, concurrent supply planning and execution. As underlying inputs are changed, the entire supply chain plan is refreshed right away, so plans are always current and exceptions are generated in real time as soon as any metric exceeds a set tolerance level. Plus, predictive analytics and scenario-modelling capabilities help enable swift what-if analysis, which is beneficial for those looking to make changes within the supply chain.

Carlier expects to see increased use of technology throughout the supply chain, which may bode well for logistics providers. "3PLs might be in a better position to make these investments because of the diversification of their customer base. They can spread the costs out and make more cost-effective decisions when investing in or creating new technologies," he said.

Data Use in the Supply Chain

Logistics is being transformed through the power of data-driven insights, and current technology is enabling unprecedented amounts of data to be captured from various sources along the supply chain.

Capitalizing on the value of big data offers massive potential to optimize capacity utilization, improve customer experience, reduce risk and create new business models in logistics.

Operational efficiency can be improved by using big data to optimize resource utilization, process quality and performance, and to increase speed and transparency in decision making. For example, in transportation, the intelligent correlation of data streams (shipment information, weather, traffic, etc.) can enable real-time scheduling of assignments, optimization of load sequences, and 'down-to-the-minute' prediction of the estimated time of arrival. That, in turn, can allow shippers and receivers to better schedule labor.

Leveraging big data can also enhance customer experiences by creating an integrated view of all customer interactions and operational performance indicators. This enables precise customer segmentation and the targeting and tailoring of service levels. Further incorporation of sentiment analytics can be applied to proactively maintain customer loyalty and retention.

End-to-end supply chain risk management based on predictive analytics can increase the resiliency of global supply chains. Big data can be used to mitigate risk by detecting, evaluating and alerting all potential disruptions on key trade lanes (e.g., growing port congestion or high flood risks).

Key Takeaways

- Shippers understand the need for agility, but the majority—42%—said they haven't made changes to increase their inherent agility over the past five years and 15% reported decreasing supply chain nimbleness to reduce cost.
- Just over half of shippers—51%—said they are willing to evaluate all pieces of the supply chain for potential changes. However, 36% said they are not willing to change key suppliers and the same amount said they won't change key manufacturing locations.
- Shippers and 3PLs are aligned on the drivers to re-examine supply chains, with both parties ranking lower overall operating costs, gaining competitive advantage and moving closer to the point of consumption as the top three factors. Lower wage costs also ranged in the top five drivers for both parties
- Top pain points within the supply chain for both shippers and 3PLs include workforce readiness, infrastructure, economic stability and freight/supply chain transparency.
- Shippers said they involve several partners when designing the supply chain, including 3PLs (71%), suppliers (68%), customers (59%) and consulting firms (40%).
- Shippers and 3PLs said they are making investments to increase the nimbleness of the supply chain, with 74% of shippers and 73% of 3PLs reporting that they plan to invest in supply chain visibility/control towers within the next two years. More than half of shippers (58%) and 3PLs (54%) are investing in predictive analytics.

FIGURE 16: HOW TECHNOLOGY IS CHANGING THE WORKFORCE

CHANGING TECHNOLOGY CAPABILITIES AND ADVANCEMENTS (FOR EXAMPLE DIGITIZATION, AUTOMATION, PREDICTIVE ANALYTICS, ETC.) HAS CHANGED THE WORKFORCE MAKEUP AND TALENT STRATEGY OF OUR ORGANIZATION.	
Yes	52%
Not yet but expect it to change in the future	41%
No and won't be an issue in the future	7%

3PLs and Shippers Report Missing Key Talent at all Levels

Those within the supply chain reported that finding and retaining talent is a top concern. Workforce readiness ranked as shippers second highest concern in today's supply chain right after infrastructure. Among 3PLs, workforce readiness was their top concern, and labor issues are prevalent throughout the supply chain.

One of the primary areas is among professional truck drivers. Nearly 71% of all the freight tonnage moved in the U.S. goes on trucks, and the industry continues to face a worsening driver shortage, American Trucking Associations reported. Bob Costello, chief economist at ATA, said the shortage could reach 174,000 by 2024.

"In addition to the sheer lack of drivers, fleets are also suffering from a lack of qualified drivers, which amplifies the effects of the shortage on carriers," Costello said. "This means that even as the shortage numbers fluctuate, it remains a serious concern for our industry, for the supply chain and for the economy at large."

When it comes to supply chain design, 24% of shippers and 3PLs said they do not have the needed executive level talent in order to re-examine supply chain design; 21% said that their organization does not have the needed mid-level talent in order re-examine supply chain design; 34% said they don't have the hourly or entry-talent needed in order to re-examine their supply chain design.

3PLs reported the second most influential factor that drives shippers to re-examine their supply chains was lower cost wages.

Shippers and 3PLs are engaging more technology as they work to make the supply chain more responsive and nimble. Among respondents, 52% of shippers said changing technology capabilities and advancements, such as digitization, automation, predictive analytics, etc., has changed the workforce makeup and talent strategy at their organizations; 41% said it hasn't changed it yet but they expect it to in the future. Only 7% said it hasn't changed it and that it won't be an issue in the future, shown in **Figure 16.**

THE "LAST YARD"

One Further Step in Making Sure That Customers' Needs Are Met

Revisiting the Last Mile

The term "last mile" is in common use today in the fields of logistics and supply chain management, and it generally refers to the final segment of a delivery process that spans from a point of origin to the destination specified by a customer. The length of the last mile may range from a few blocks to much longer distances, but it typically represents the last segment of a supply chain or order-fulfillment process.

Although this concept has been relevant for many years, it has taken on enhanced significance in today's world of e-commerce and omni-channel distribution. Operationally, this can be the most expensive and most important part of the supply chain process, particularly to those logistics and transportation providers that are most involved in seeing that shippers' delivery requirements are met.

There are business-to-business (B2B) and business-to-consumer (B2C) examples of the importance of last-mile capabilities as both industrial buyers and individual consumers typically have preferences or requirements as to when and where shipments are delivered. Overall, last-mile capabilities have become recognized as essential to the growth and profitability of businesses and the success of their supply chains.

Introducing the Last Yard

The "last yard" concept refers to what happens to a shipment once it is delivered to a customer or consumer, and then how it is routed to a specific location where it may be needed or used. The examples below suggest that the last yard is applicable to both business and consumer situations.

- Movement of repair parts needed for a manufacturing process from the receiving dock to the manufacturing location (B2B)
- Movement of shipments of weekly magazines, from the point-of-receipt to point-of-sale areas within the store where they are available to shoppers (B2B)
- Movement of consumer purchases from the point-of-central delivery to the point-of-use (B2C)

Essentially, the capable execution of last-yard responsibilities will determine whether the customer's needs are fully satisfied or not. For example, if repair parts are not available at the manufacturing location when and where they are needed, it would significantly diminish the extent to which "value" is realized by ordering such repair parts. Ironically, this failure may negate the value created by parcel, truck or 3PL providers that deliver shipments on time and complete as per customer requirements.

This means that the last mile doesn't necessarily end when needed products are delivered to a customer or a receiving location, but that value is created when those products are available at locations where they are needed within the customer organization. While it would be logical to think of the last yard as a distinct step beyond the last mile in an overall supply chain or fulfillment process, there are situations where the term last mile might be interpreted to include last-yard responsibilities.

An interesting example is Frito-Lay, which is known for its "direct store delivery" system, the largest DSD system in North America with more than 15,000 sales routes. A key element of Frito-Lay's competitive advantage is that the company delivers its chips directly to retail stores to ensure freshness, to accurately fill order levels, and to take responsibility for other activities such as stocking and refreshing shelves, etc. One of Frito-Lay's corporate and supply chain strategies is to have control over its last-mile and last-yard responsibilities.

Figure 17 provides some additional examples of innovative last-yard services that pertain to both B2B and B2C supply chain environments. While it is true that

FIGURE 17: EXAMPLES OF B2B AND B2C LAST-YARD INNOVATIONS

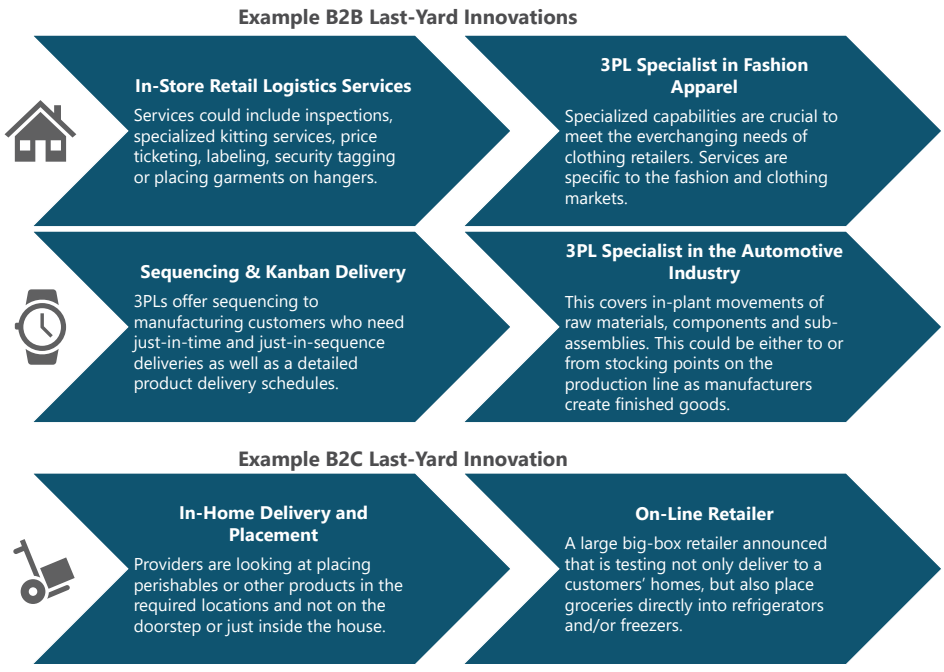
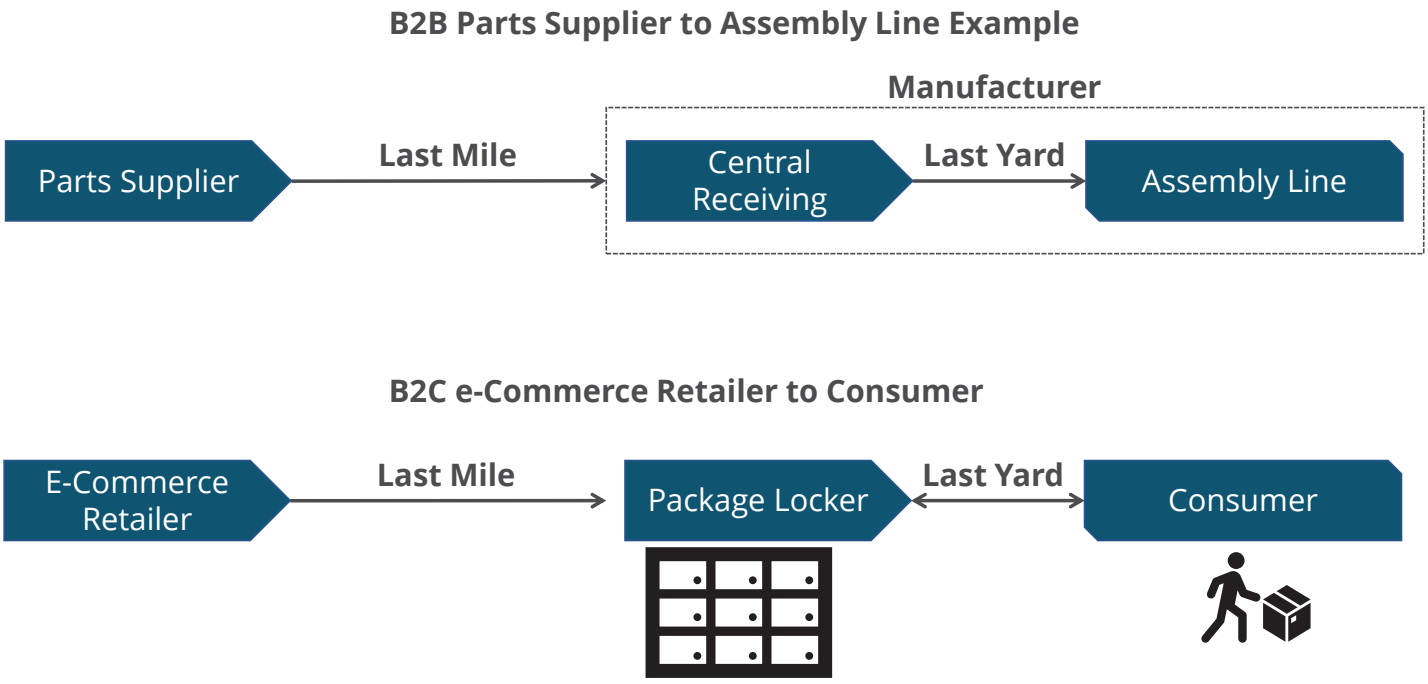


FIGURE 18: LAST MILE VS. LAST YARD - B2B AND B2C EXAMPLES



there are some industries where last-yard failures may be more consequential (e.g., medical supplies, airline repair parts, fresh grocery items, etc.), in an overall sense the critical nature of last-yard services is more situational than industry-specific.

To help clarify the distinction between the last mile and the last yard, **Figure 18** provides B2B and B2C examples. For the B2B parts supplier to assembly line example, the last mile concludes at the point of central receiving for the manufacturing organization, while the last yard extends to the assembly line where the part is needed.

The second example is that of a consumer who needs to pick up a shipment at a package locker provided by the shipper or e-commerce retailer from which it was ordered. In this instance, the consumer would be the party who assumes last-yard responsibility.

Key Trends Driving Changes in Last-Yard Logistics Landscapes

In the last few years, the last-yard logistics landscape has changed greatly for all kinds of businesses and institutions. In addition to significant increases in shipment volumes, researchers have seen greater concerns for adequate security and control over shipments from point of origin to the ultimate destination and specific user. These changes have heightened concerns over how effectively, efficiently and securely the supply chain has been able to move shipments over the last mile and the last yard. The capabilities of historical receiving points are being scrutinized, and smart companies are looking to their logistics services providers for advice and capabilities as to how to improve.

Key trends that have been observed include:

- **Declining volumes of physical ("snail") mail and rising package volumes.** This trend has been evidenced by statistics from corporate mailrooms, apartment complexes and collegiate mailrooms.

- **Significant increases in seasonal shipments of all types.** This is particularly evident during holiday seasons, and shippers have greater expectations of logistics service providers to take responsibility for the capable delivery and availability of these shipments.

- **Increases in personal packages shipped to work addresses.** Consumers choosing their workplace for delivery is frequently done to reduce the chance of theft, and organizations have seen significant increases in the volumes of personal shipments that have been delivered to employees at their business locations. Aside from the resources needed by organizations to deal with these shipments, there also is an element of liability for the organization once possession is taken.

- **Increases in value and criticality of many shipments.** Examples include medical equipment and supplies, repair/replacement parts, high-priority deliveries for senior executives, and a number of other types of shipments that must be delivered when and where they are needed to avoid organizational problems.

- **Growth in perishable consumables and non-consumables.** There has been significant growth within the food and grocery sector, particularly with fresh and perishable foods that need prompt delivery and adherence to specific controls, such as temperature, etc. This also applies to non-consumables for which timely delivery is necessary to deliver the value created by the product itself. An example is dated periodicals that need to be on the retail shelf and available for purchase by consumers in a timely manner.

Evolving Issues in Last-Yard Logistics

The changing landscape has led to traditional strategies becoming obsolete and has resulted in a number of evolving issues that are putting pressure on mail and package centers.

Last-yard logistics to get shipments or packages to the employees and residents who are the final recipients can be chaotic, particularly for companies with hundreds of employees across dozens of departments or a university with tens of thousands of faculty and students. The pain points are driven by the increased package volumes, and the ways in which volumes impact the time and space constraints that are becoming more difficult to deal with every year. Some of the impacted areas include:

- **Losses of staff productivity.** The need to properly staff central receiving points has been exacerbated by rising package/shipment volumes. In turn, this has placed additional pressures on staff to properly document shipments that have been received, notify intended recipients of shipment availability, sometimes deliver to recipients, and deal with status inquiries.
- **Storage capacity constraints.** Also driven by increasing volumes of shipments/packages, the physical storage capacity of many receiving locations has been stressed. Intended recipients do not always pick up their incoming deliveries in a timely manner, and so the central location becomes more of a storage point than a "cross-dock" type of operation.
- **Poor performance of mail centers.** This may become evident through long pick-up lines and significant wait times experienced by recipients who go to pick up packages, and then find that they have been misplaced, delayed or lost. In addition, mail centers or central receiving locations may not be adequately equipped to provide suitable accommodations for oversize shipments or temperature-control deliveries.

Potential Solutions

There are several example strategies that may help to eliminate or reduce the negative effects of last-yard problems. They include:

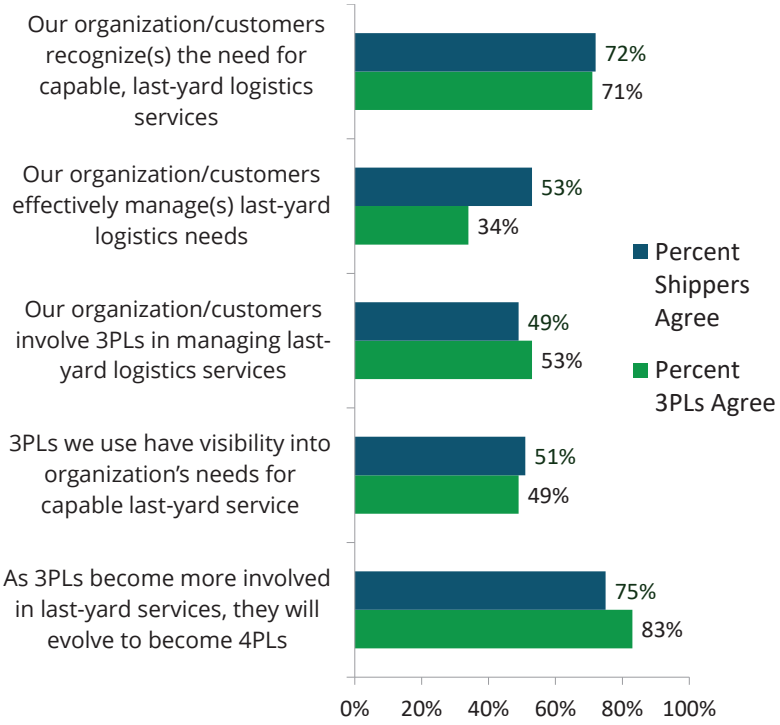
- Shippers improving their internal processes to see that delivered items are transferred efficiently and effectively to point of use
- Relying on 3PLs to take greater responsibility for facilitating and executing shippers' last-yard services.
  - » There are several "start-ups," as well as certain 3PLs, that provide logistics services to businesses that fulfill orders for the last mile and/or the last yard. A unique and value-added example is MonarchFx, a nationwide alliance of selected 3PLs, delivery managers and technologies that provide highly automated and distributed fulfillment and deliveries for multi-clients.

MonarchFx Ecosystem

MonarchFx focuses on "unichannel," whereby the customer or consumer experience is seamless, agile and completely fulfilled. Its order fulfillment operations are powered by patented sortation robots and optimized high-quality final deliveries, whenever and wherever desired by the customer. Its intelligent technologies include: best-in-class WMS and DOM, IoT within fulfillment centers, a WES that drives operations; and state-of-the-art delivery technologies by leading transportation providers.

The nationwide ecosystem of MonarchFx is special in that it relies on flexible and mobile robotics, and it can operate in any hybrid fulfillment network of multi-echelon facilities and fulfillment spaces. The integration of capable service providers and leading technologies, with flexible operations for either B2B or B2C, brings the future of eCommerce operations into the present.

FIGURE 19: SHIPPERS AND 3PLS HAVE SIMILAR PERSPECTIVES ON LAST-YARD LOGISTICS SERVICES



- Strategic consideration of alternative delivery models.
  - » **Hand-delivery model.** Includes staff intervention when carriers/3PLs drop off shipments/packages and receiving or mailroom personnel physically make them available for recipients to pick up. This model can be in the form of basic or automated mail and package centers.
  - » **Self-serve model.** Eliminates staff intervention when carriers/3PLs drop off shipments/packages that are subsequently accessed and retrieved by recipients. Typical forms of this model are parcel lockers, which range from traditional lockers to basic electronic lockers to smart electronic lockers, or package closets, which range from software-driven to smart systems.

Shipper and 3PL Views on Last-Yard Logistics

In addition to exploring some of the concepts and basic details pertaining to the last yard, this year's study also addressed various topics in our annual survey of users and providers of 3PL services.

Awareness and Involvement of 3PLs. **Figure 19** highlights some of the results of fundamental questions to learn more about shipper and 3PL perspectives on the last yard. These findings include:

- 72% of shippers and 71% of 3PL respondents agreed that shippers/customers recognize the need for capable, last-yard logistics services. These findings are interesting in that they support the idea that both types of respondents are aware of the need for these types of services. Also interesting is that shippers and 3PLs generally agree on this point.
- Just over half of the shipper respondents (53%) feel that they effectively manage last-yard logistics needs, while only 34% of 3PL respondents agree that their customers effectively manage these needs. Approximately half of the shipper respondents and just over half of the 3PL respondents indicated that 3PLs were involved in managing last-yard logistics services. A pertinent question here is the extent to which 3PLs are meaningfully involved at present in helping to manage shippers' last-yard activities.
- 51% of shippers and 49% of 3PLs agree that 3PLs have visibility into customers' needs for last-yard logistics services. This suggests that given opportunities to make last-yard suggestions for customers, 3PLs may have sufficient knowledge of customers' internal operations to contribute helpful ideas. One industry participant at the workshop held in San Mateo, California, said, "It is very important to manage [customers'] expectations, but also to adjust [our operations] to meet those needs better."
- 75% of shippers and 83% of 3PLs agree that as 3PLs become more involved in last-yard services, they will evolve to become 4PLs. This is a logical step forward for providers of outsourced logistics services that are focused on expanding the scope of services in order to create additional value for their customers and consumers.

Overall, 77% of shippers felt that last-yard logistics services will play a critical role in how 3PLs differentiate and add value for their customers. A slightly higher amount, 87%, of shippers felt that 3PLs can create a source of competitive advantage by extending their reach and fulfillment services beyond the receiving dock. Not surprisingly, 96% of 3PL respondents agreed with this latter comment. It seems to be clear that both types of respondents feel that significant last-yard business opportunities lie ahead for providers of outsourced logistics services.

Last-Yard Logistics Issues and Responsive 3PL Services. Listed in **Figure 20** are several last-yard logistics issues that may occur at delivery or drop-off locations, and which may be of concern to shippers and receivers. Respondents were asked to check all issues that apply, and it is apparent that each of those listed are of moderate or serious concern.

- Among the most frequently cited issues were delayed, damaged, misplaced and lost deliveries. These are typical concerns for any fulfillment or delivery process. Others included inefficient package receiving and processing, package storage capacity constraints, and lack of capability to accommodate special shipments (e.g., security, perishability, size of shipment, special handling needs, etc.). These last three examples specifically pertain to operational capability and effectiveness at delivery or drop-off locations.

- To the extent that 3PLs have responsibility for last-mile logistics services, they should be well-positioned to provide solutions to some of these problems that can diminish the effectiveness of last-yard capabilities. Obvious solutions range from having 3PLs and customers collaborate to improve hand-offs and improve the capabilities of delivery or drop-off locations to allowing 3PLs to take responsibility for actually managing these operations.

FIGURE 20: MOST CONCERNING LAST-YARD LOGISTICS ISSUES

FIGURE 21: VALUE-ADDED LAST-YARD LOGISTICS SERVICES

PERCENT SHIPPERS AGREE	LAST-YARD SERVICES
53%	Instant proof of delivery
47%	Rework/returns management
44%	Labeling and tagging
42%	Packaging services
42%	Kitting/pre-assembly
38%	Real-time delivery change options
35%	Consolidation, stockroom replenishment management
34%	Reducing quantity of unnecessary inventory
25%	Appliance/furniture delivery, installation and cleaning up
24%	Returns exchange service
23%	Moving stock to point-of-use
19%	Sequencing/line feeding
15%	Separating product by department
8%	Medical device/high-tech appliance demos from trained personnel
5%	Experiential marketing services at doorstep

Implementation Priorities within Last-Yard Logistics. As indicated in **Figure 21**, shippers have a relatively positive reaction to using 3PL capabilities for a number of last-yard logistics services. In more general terms, the examples included in Figure 21 relate to a number of key requirements that pertain to the availability of capable last-yard logistics services, including:

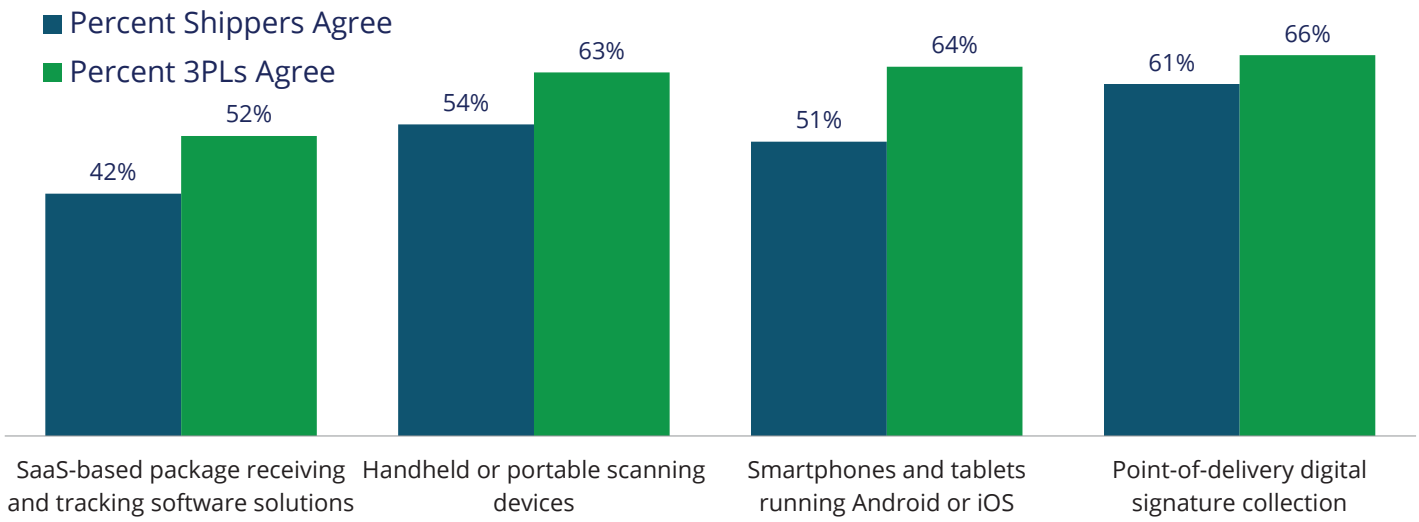
- Accurate shipment documentation
- Light assembly, kitting and returns management
- Value-added logistics services
- Effective management of receiving operations
- Moving items to the point-of-use
- Separating/segmenting product
- Technical support (e.g., appliance installation, medical device demos, etc.)
- Marketing and promotional services

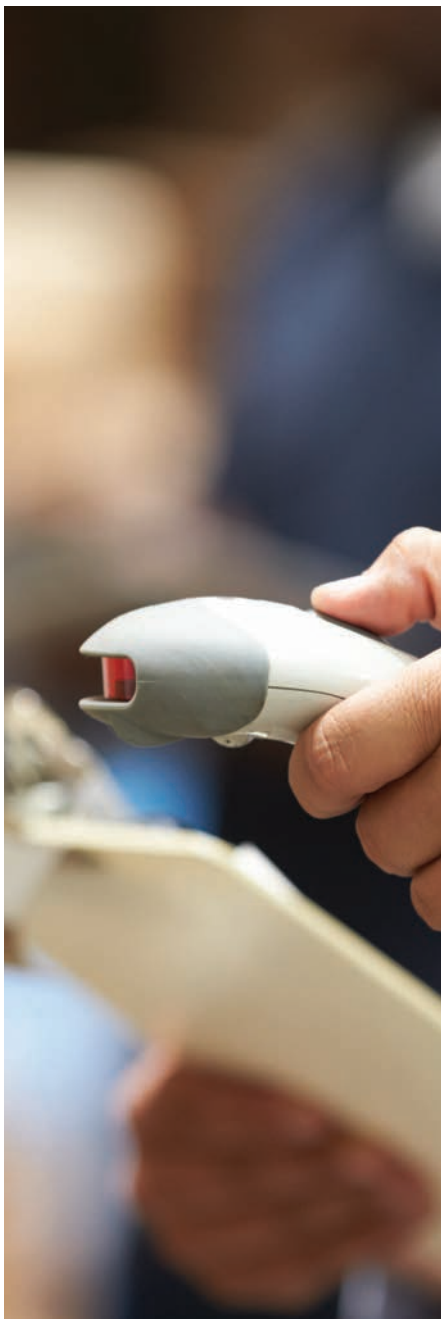
Last-Yard Logistics: Receiving, Tracking and Self-Serve Last-Yard Capabilities. Shipment receiving and tracking systems are increasingly observed to be cost-effective in terms of streamlining and automating last-yard logistics. **Figure 22** highlights several resources and capabilities that were felt by shippers and 3PLs to be among the most likely to be involved.

They include:

- Software-as-a-service (SaaS)-based package receiving and tracking software solutions, whether on-premise or hosted, with 42% of shippers and 52% of 3PLs indicating that these capabilities would be very helpful toward creating capable last-yard logistics services.
- Handheld or portable scanning devices that speak to the importance of capturing data related to incoming and outgoing shipments to facilitate downstream or upstream activities related to last-yard services.
- Smartphones and tablets running Android or iOS, which are conveniently available. These capabilities would provide real-time information regarding last-yard shipments, and also allow users to more effectively manage and make needed changes to last-yard services.
- Point-of-delivery digital signature collection, which is consistent with the overall priority on automating as much of the last-yard process as possible, and eliminating the need for paperwork to document and validate completion of key steps in the process.

FIGURE 22: RECENT PLANNED INVESTMENT IN RECEIVING AND TRACKING SYSTEMS





Other key areas of opportunity include the use of wireless barcode label printers, automatic electronic notifications (typically through the use of smartphones and tablets) and automated internal delivery routings.

As mentioned earlier, the "self-serve" alternative is one that is receiving significant attention and is increasingly receiving consideration as an effective solution for last-yard logistics. As a practical matter, this concept eliminates staff intervention in the conduct of last-yard activities and relies instead on some form of locker or central location where shipments may be picked up by recipients.

The survey question related to the "self-serve" concept focused on a number of alternatives and assessed the likelihood that shippers might engage in partnerships (with 3PLs, for example) to create such capabilities.

The most popular of these ideas was that of "carrier-designated auto self-serve lockers," which was preferred by 41% of shippers. Others that seemed to spark interest among shipper respondents included: the retailer designation of automatic self-serve lockers (33%), on-site digitally locked package rooms/closets (26%), and various other types of on-site capabilities to allow access to shipments by recipients without the need for staff intervention.

The Future

Based on the results of the study team's initial research into the last yard, both shippers and 3PLs recognize the importance of last-yard logistics services and agree that there are ways to work together in the interest of creating value for the ultimate recipients of products and shipments. Both are aware of the benefits that may arise from the capable execution of last-yard services, and many of the challenges and issues that must be recognized and understood, and then mitigated or eliminated.

The concept of the last yard is also a reminder of the complexity of supply chains and the need for supply chain participants (e.g., 3PLs and their customers) to work together to identify and implement appropriate solutions.

Labor Needs in the Last Yard

The labor shortage facing much of the supply chain industry is also hitting those involved in the last yard. The grocery and retail industries are facing huge workforce challenges and many have not been able to automate quick enough.

One solution may be increased use of independent contractors. Some companies have vast networks of independent contractors to deliver packages, which is also creating alternative streams of income.

One of the most important perspectives from this special topic is to recognize the need for supply chains to focus on creating value all the way through to the ultimate recipient, user or consumer.

Although the term last yard may be viewed as a logical extension of last-mile responsibilities, the most basic study finding is the critical need to manage the provision of capable supply chain services through to the point where the product or shipment is actually used and customer value is created.

Key Takeaways

- The last yard refers to what happens to a shipment once it is delivered to a customer, and then how it is routed within the customer organization to the specific location where it may be needed or used. The concept extends to both B2B and B2C situations, as the principal question is how well do incoming shipments or packages make their way to recipients who actually will use or benefit from receiving what has been delivered.

- The concept of last yard may be thought of as an extension of the last-mile concept or perhaps a step or process beyond the conclusion of last mile. While either definition should be fine, the important point is that the capable execution of last-mile and last-yard responsibilities is essential to the creation of value for the customer and overall success for the supply chain.

- A number of key trends are responsible for significant interest in creating new and innovative last-yard capabilities. Of greatest consequence are changing business and consumer buying practices, declining use of physical mail and rising package volumes, as well as the enhanced value, criticality and uniqueness of many products being shipped today. Also, it has become apparent that traditional resources for managing last-yard services such as mailrooms, receiving departments, etc., are in need of improvement and modernization.

- Overall, both shippers and 3PLs recognize the need for capable last-yard logistics services. Both types of survey respondents have a measurable level of confidence that there is a role for 3PLs to collaborate with their customers to develop and benefit from such capabilities.

- The study highlighted a number of issues 3PLs and customers who are trying to make progress on resolving last-yard issues will likely face. Also, the survey results identified a number of example capabilities that can facilitate the success of last-yard initiatives.

- There are significant needs for capable technologies to complement the development and successful execution of last-yard services. Included are shipment receiving and tracking software solutions, handheld or portable scanning devices, the use of smartphones and tablets, and "self-serve" alternatives that eliminate the need for staff intervention to facilitate the handoffs of shipments and products from 3PLs to customers, and then to intended recipients who ultimately will benefit from timely fulfillment of their needs.

- The focus on last-yard capabilities is 100% consistent with the idea of structuring supply chains to create maximum value for its customers and consumers. The central point is that supply chains do not end at the receiving dock or the central point where shipments are delivered but at the point of use where the intended value is actually created.

OMNI-CHANNEL REVISITED

The Changing Landscape of Omni-Channel Retailing

The retail landscape is evolving rapidly, and retailers are continuing to emphasize an always-on, always-open shopping experience that provides seamless interaction across all retail sales channels. As a result, today's supply chain forces shippers and their logistics partners to be fluid and move quickly.

Because today's brand interactions have become digital, nonlinear and include numerous touchpoints, retailers are required to create valuable customer experiences. Customers today want the brand to engage, grow, sell, inspire or delight, and now companies are starting to create memorable customer experiences across all channels in order to set themselves apart from the competition.

At the same time, personalization has become even more important to consumers, and shippers as well as their 3PL partners are reacting to the changing demands.

The Annual Third-Party Logistics Study last asked those within the supply chain about omni-channel retailing in 2015. While much has changed since then, this year's responses demonstrate that many shippers and 3PLs are still struggling to create a true, omni-channel retailing experience.

Figure 23 shows that just 4% of shippers rated themselves as high-performing in omni-channel retailing in 2019 (up from 2% in 2015), while 4% rated themselves as efficient. The highest percentage—38%—said they are inconsistent and 36% said they had no capability. Just 18% of shippers rated themselves as competent.

FIGURE 23: SELF-ASSESSED LEVEL OF ABILITY TO HANDLE OMNI-CHANNEL RETAILING IN 2015 VS 2019

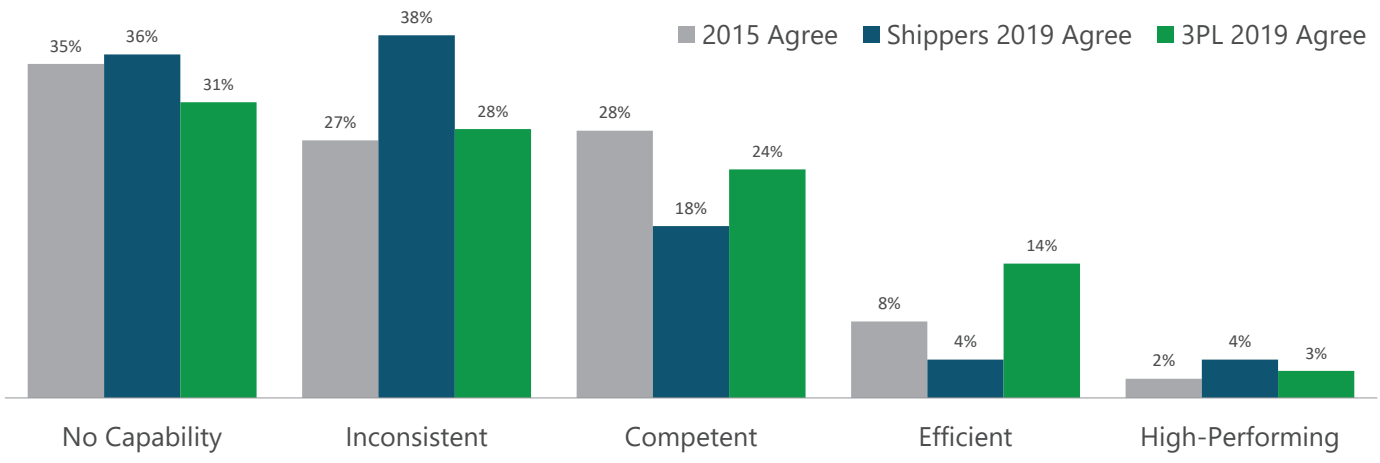


FIGURE 24: TOP PRIORITIES IN OMNI-CHANNEL FULFILLMENT IN 2015 VS. 2019

2015 % SHIPPERS	2019 % SHIPPERS	2019 % 3PL	CATEGORY
29%	26%	20%	Customer service
19%	25%	27%	Service levels
14%	14%	14%	Freight costs
11%	9%	14%	Fill rate
10%	9%	13%	Order cycle time
5%	4%	4%	Inventory allocation
5%	5%	2%	Replenishment efficiency
4%	5%	5%	Packing efficiency
4%	3%	2%	Minimized backorders

FIGURE 25: CROSS-CHANNEL FULFILLMENT IN 2015 VS. 2019

2015 % SHIPPERS	2019 % SHIPPERS	2019 % 3PL	CATEGORY
NA	60%	56%	Order online deliver to home
64%	40%	44%	Order online pickup at warehouse
32%	42%	46%	Order online pickup in store
41%	32%	38%	Order in store deliver to home
NA	33%	36%	Order in store pickup in store
22%	27%	31%	Mobile order pickup in store
NA	25%	51%	Mobile order, deliver to home
NA	22%	15%	Order in store pickup in vehicle
18%	18%	26%	Order online pickup in vehicle
30%	17%	28%	Mobile order pickup at warehouse
22%	18%	28%	Order in store pickup at warehouse
NA	8%	23%	Mobile order, in vehicle pickup

Among 3PLs, 3% rated themselves as high-performing, 24% said they are competent and 14% said they are efficient. The largest percentage—31%—said they have no capability, and 28% rated themselves as inconsistent.

However, shippers (26%) and 3PLs (20%) said customer service is a top priority and remains the driving force behind shippers' omni-channel efforts, indicated in **Figure 24**. Shippers (25%) and 3PLs (27%) also cited service levels, and 14% of both shippers and 3PLs cited freight costs as a top priority.

Varied Fulfillment Options

Instant gratification reigns supreme in today's retail environment, and retailers are working to meet more demanding customer expectations, such as same-hour, same-day or next-day delivery, and shippers and 3PLs are offering an increased number of innovative delivery options, indicated in **Figure 25**.

Brick-and-mortar stores remain a crucial component of the global shopping experience, but their role is changing in the omni-channel business model to act as 'fulfillment centers' serving as pick-up locations for online orders and fulfilling local deliveries. In this year's study, 60% of shippers and 56% of 3PLs said customers can order online and have products delivered to their home.

FIGURE 26: CHALLENGES WITHIN OMNI-CHANNEL REMAIN

SHIPPERS - THIRD-PARTY LOGISTICS: 2019 STUDY

WHAT IS YOUR LARGEST ISSUE IN FULFILLING ORDERS ACROSS MULTIPLE CHANNELS? (SELECT TOP 3)	
ANSWER CHOICES	Responses
Flexibility (last-minute order changes)	42%
Inventory visibility	35%
Inventory control (availability and allocation)	35%
Order management	35%
Technology (WMS/DOM/LMS/TMS)	33%
Inventory accuracy	31%
System integration	27%
Efficiency (availability of info and tools to sales assoc)	16%
Pick/pack efficiency (tools for warehouse workers)	16%
Picking and waving logic	13%
Expedited delivery (parcel/carrier agreements)	13%
Return management	12%
Long-term distribution center leases (non-optimal locations/ facility layouts)	12%

3PLS - THIRD-PARTY LOGISTICS: 2019 STUDY

WHAT IS YOUR LARGEST ISSUE IN FULFILLING ORDERS ACROSS MULTIPLE CHANNELS? (SELECT TOP 3)	
ANSWER CHOICES	Responses
System integration	42%
Flexibility (last-minute order changes)	40%
Technology (WMS/DOM/LMS/TMS)	31%
Inventory control (availability and allocation)	31%
Efficiency (availability of info and tools to sales assoc)	25%
Order management	24%
Pick/pack efficiency (tools for warehouse workers)	22%
Inventory visibility	20%
Inventory accuracy	20%
Return management	18%
Long-term distribution center leases (non-optimal locations/ facility layouts)	13%
Expedited delivery (parcel/carrier agreements)	13%
Picking and waving logic	11%

In addition, 33% of shippers and 26% of 3PLs offer the option to order in the store and pick up in the store; 25% of shippers and 51% of 3PLs said they offer mobile-order, deliver-to-home options; 22% of shippers and 15% of 3PLs offer order-in-store, mobile pickup; and 8% of shippers and 23% of 3PLs offer mobile orders with in-vehicle pickup, none of which was measured in 2015.

Challenges within the omni-channel sector remain (see **Figure 26**). The largest issues in fulfilling orders across multiple channels include flexibility/last-minute changes to orders, which was reported by 42% of shippers and 40% of 3PLs, inventory visibility (35% of shippers, 20% of 3PLs), inventory control (35% of shippers and 30% of 3PLs), and order management (35% of shippers, 24% of 3PLs).

FIGURE 27: SHIPPERS AND 3PLS UTILIZE VARIED FULFILLMENT STRATEGIES

SHIPPERS - THIRD-PARTY LOGISTICS: 2019 STUDY

WHICH OF THE FOLLOWING FULFILLMENT STRATEGIES ARE YOU UTILIZING/PILOTING/CONSIDERING? (SELECT ALL THAT APPLY.)	
ANSWER CHOICES	Responses
None	54%
Home delivery from local stores	20%
Sunday delivery	15%
Customer delivery (delivery by in-store customer for a discount on their purchases)	14%
Online order with one-hour pickup	14%
Locker pickup	13%
Drone delivery	11%
Bike/messenger delivery	4%
Other (please specify)	2%

3PLS - THIRD-PARTY LOGISTICS: 2019 STUDY

WHICH OF THE FOLLOWING FULFILLMENT STRATEGIES ARE YOU UTILIZING/PILOTING/CONSIDERING? (SELECT ALL THAT APPLY.)	
ANSWER CHOICES	Responses
None	46%
Sunday delivery	25%
Customer delivery (delivery by in-store customer for a discount on their purchases)	25%
Home delivery from local stores	22%
Online order with one-hour pickup	14%
Locker pickup	14%
Bike/messenger delivery	7%
Drone delivery	5%
Other (please specify)	3%

FIGURE 28: TECHNOLOGY INVESTMENTS BY SHIPPERS AND 3PLS

2015 % SHIPPERS	2019 % SHIPPERS	2019 % 3PL	CATEGORY
75%	72%	42%	ERP
54%	56%	67%	WMS
40%	38%	67%	TMS
35%	34%	48%	Supply chain visibility
23%	24%	34%	WMS add-ons (labor mgmt., analytics, slotting op)
19%	28%	18%	RFID
10%	17%	9%	Pick to light
12%	15%	18%	Pick to voice
20%	14%	37%	Mobile applications
5%	7%	21%	ePOD (electronic proof of delivery)
7%	9%	6%	None
18%	19%	10%	POS
NA	8%	10%	AI / VR
NA	9%	7%	Blockchain
7%	9%	6%	None

Many within the supply chain are utilizing, considering or piloting several fulfillment strategies (shown in **Figure 27**) to meet or exceed consumers' expectations. Strategies include Sunday delivery (15% of shippers and 25% of 3PLs), customer delivery in which orders are delivered by in-store customers for discounts on their purchases (14% of shippers 35% of 3PLs), and home delivery from local stores (20% of shippers and 22% of 3PLs). However, nearly half of respondents—54% of shippers and 46% of 3PLs—said they are not testing or considering fulfillment strategies.

The Role of Integrated Technologies in the Supply Chain

To better manage inventory and meet delivery expectations, shippers and 3PLs said they are continuing to invest in technology, shown in **Figure 28**.

Among shippers, the largest percentage—72%—are investing in enterprise resource planning software, followed by warehouse management systems (56%), transportation management systems (38%), supply chain visibility (34%) and WMS add-ons, such as labor management, analytics and slotting organization, etc. (24%).

For 3PLs, the largest percentage—67%—are investing in WMS. The same number is investing in TMS, followed by supply chain visibility (48%), ERP (42%), mobile applications (37%) and WMS add-ons (34%).

Penske's Carlier said that investments in ERP and WMS are often necessary if companies have grown through acquisitions. "From a planning perspective, if you don't have systems that are talking to each other, you can't ensure you have the right product in the right location," he said.

WMS technology can improve slotting and picking patterns and increase communication between transportation management and warehouse management systems, which improves efficiency and cuts costs. Newer systems can also communicate with labor management software, which helps companies optimize their workforce.

Warehouse operators today also are extending services beyond basic warehousing to provide on-site or in-warehouse evaluation of returns and advise the retailer or manufacturer on the best course of action. (See more about reverse logistics in the Contemporary Issues portion of the study).

Key Takeaways

- Many shippers and 3PLs are still struggling to create a true, omni-channel retailing experience, as just 4% of shippers and 3% of 3PLs rated themselves as high-performing in omni-channel retailing in 2019; 4% of shippers and 14% of 3PLs rated themselves as efficient; 38% of shippers and 28% of 3PLs said they are inconsistent; 36% of shippers and 31% of 3PLs said they have no capability; and 18% of shippers and 24% of 3PLs rated themselves as competent.

- Top priorities include customer service (reported by 26% of shippers and 20% of 3PLs), service levels (25% of shippers and 27% of 3PLs) and freight costs (reported by 14% of shippers and 3PLs).

- The majority of shippers and 3PLs offer cross-channel fulfillment with 60% of shippers and 56% of 3PLs allowing customers to order online and have products delivered to their home; 33% of shippers and 26% of 3PLs offering the option to order in store and pick up in store; and 25% of shippers and 51% of 3PLs saying they offer mobile-order, deliver-to-home options. Other options include order-in-store with mobile pickup and mobile orders with in-vehicle pickup.

- Those within the supply chain continue to see the advantage of integrated technologies. Shippers have already invested in enterprise resource planning software (72%), warehouse management systems (56%), transportation management systems (38%), supply chain visibility (34%) and WMS add-ons, such as labor management, analytics and slotting organization, etc. (24%).

- Among 3PLs, the largest percentage—67%—are investing in WMS. The same number is investing in TMS, followed by supply chain visibility (48%), ERP (42%), mobile applications (37%) and WMS add-ons (34%).

Case in Point: Consumer Engagement

Retailers are using omni-channel to create added convenience for customers. Several clothing retailers, including Ann Taylor Loft and Nordstrom, allow customers to pick up mobile orders in store. By getting customers to come inside, retailers increase their odds of an upsell as the customer walks through the bricks and mortar location.

Sephora, a national cosmetics retailer, is creating convenience through "My Beauty Bag" program, which allows customers to manage their beauty products and see purchase history.

The program is designed to make it easier for customers to add items to their shopping carts, view their browsing history and obtain savings on purchases and re-order items.

Customers can use their Beauty Bags on their mobile devices or computers to make online purchases and can use the Sephora app to enhance the bricks-and-mortar shopping experience.

The Amazon Effect on the Supply Chain

With its always-on accessibility and two-day shipping, Amazon has dominated e-commerce while also impacting shippers' decision making and driving change throughout the world of e-commerce and the supply chain in general, Penske Logistics reported. Today's consumers have gotten used to rapid fulfillment, and now the same timeliness is expected in a business-to-business delivery.

To enable faster deliveries, those within the supply chain are working to shorten lead times and provide more frequent, smaller deliveries. Instead of the truckload hub-and-spoke model, some providers are turning to less-than-truckload deliveries or zone skipping to speed the process.

The move to LTL and zone skipping can cost the same or less than a truckload delivery based on the density and the amount of volume going to a specific geographic location.

On the distribution side, the industry is seeing distribution centers and warehouses that are located closer to consumers and hold high-moving products.

In some industries, creating an Amazon model for production can be difficult, as many supply chains weren't set up to meet those kinds of demands. This is driving the need for greater communication and collaboration between shippers and their logistics partners as well as increased technology to provide visibility, optimize routes, improve slotting patterns and ensure goods remain in motion.

The Impact of Omni-Channel on the Workforce

As shippers and 3PLs work to create a true omni-channel supply chain, they will have to evaluate their labor needs. Similar to other sub-sectors of the supply chain, technology is changing expectations and needs. (See more in the Current State section).

Among survey respondents with omni-channel goals, 39% of shippers and 45% of 3PLs said they do not have the right talent to achieve their omni-channel goals this year.

Shippers looking to develop a workforce that can help them achieve their omni-channel goals said they plan to hire from the outside (31%), utilize internal training (26%), develop strategic partnerships and alliances (25%), and engage a 3PL with omni-channel expertise (23%), indicated in **Figure 29.**

Among 3PLs, the majority of those looking to develop omni-channel talent (34%), said they plan to utilize internal training. They also plan to hire from the outside (31%), form strategic alliances and partnerships (27%), and work with consultants.

FIGURE 29: WORKFORCE DEVELOPMENT TECHNIQUES TO HELP MEET OMNI-CHANNEL GOALS

HOW WILL YOUR ORGANIZATION DEVELOP THE TEAM WITH THE SKILLS/CAPABILITIES NEEDED TO ACHIEVE YOUR OMNI-CHANNEL GOALS? (RESPONDENTS COULD SELECT THE TOP 2)	
ANSWER CHOICES	Responses
Hire from outside	31%
Engage 3PL with omni-channel expertise	23%
Internal training	26%
Strategic alliance/partnership	25%
Consultants	19%
Not applicable/my organization has the talent to attain our omni-channel goals	13%
Not applicable/my organization doesn't have omni-channel goals	35%
Other (please specify)	1%

DEALING WITH DISRUPTION REVISITED

Mitigating Risk within the Supply Chain

Risk within the supply chain can come in several different forms, ranging from disruptions and delays to forecast and procurement issues.

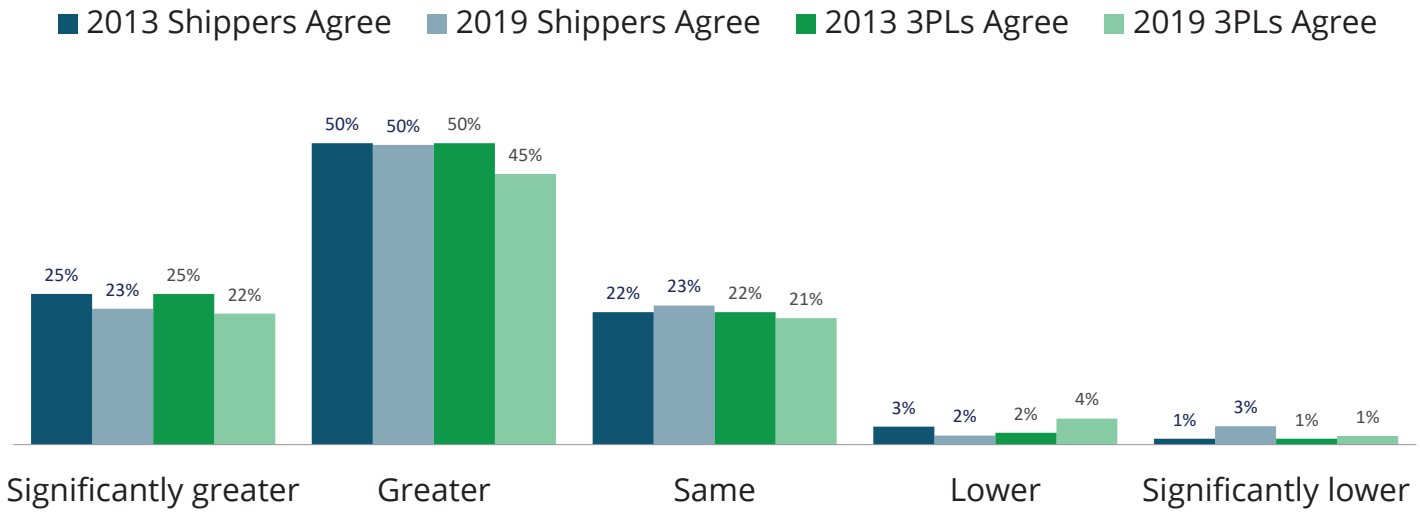
Regardless of the cause, any delay can have a large ripple effect, causing missed deliveries, downed production lines and excessive costs. How a company fares against such threats depends on the type of disruption and the organization's level of preparedness. With a clear understanding of the types of supply-chain risks, such as natural disasters, supplier bankruptcy or lack of capacity, those within the supply chain can create targeted, effective risk-reduction strategies.

The Annual Third-Party Logistics Study last visited the topic in 2013, and the study shows that the level of importance shippers and 3PLs place on mitigating supply chain disruption is much greater than it was five years ago, as shown in **Figure 30.**

The most common issues that shippers have faced, which are shown in **Figure 31**, have remained fairly constant. Among shippers, 77% reported increased transportation and logistics costs, up from 74% in 2013; 76% reported transportation and logistics network disruptions, up from 63% in 2013, and 67% reported an increase in supplier costs, which was the same in 2013.

Similarly, 83% of 3PLs reported an increase in transportation and logistics costs, which is the same figure reported in 2013. In addition, 74% reported transportation/logistics network disruption, up from 63% in 2013; 67% reported an increase in supplier costs, down from 69% in 2013.

FIGURE 30: LEVEL OF IMPORTANCE ORGANIZATIONS PLACE ON SUPPLY CHAIN DISRUPTION, MITIGATION AND RESPONSE IN 2013 VS. 2019



Other top issues include damage, loss or detention of inventory, loss or impairment of production capability, product recall/failure to sell/unforeseen return, and loss of a key supplier.

The causes of the disruptions, which are highlighted in **Figure 32**, also remained fairly consistent. The majority of shippers (58%) and 3PLs (64%) report that most disruptions were due to natural disasters, extreme weather or pandemics. Among respondents, 51% of shippers and 49% of 3PLs cited infrastructure issues (such as border delays, loss of roads or a rail strike), 51% of shippers and 46% of 3PLs cited extreme volatility in labor or energy prices, and 41% of shippers and 3PLs cited information/communication disruption.

In 2013, disruptions from social/public pressure or cyberattacks weren't measured, but today 13% of shippers and 10% of 3PLs cited social/public pressure as a cause of disruption, and 10% of shippers and 11% of 3PLs cited cyberattacks.

The number of shippers and 3PLs citing a significant change in export/import regulations/requirements as a disruption decreased, with 41% of shippers and 36% of 3PLs citing it, down from 41% and 42% in 2013, respectively. This could be because recent policy changes may not have yet had enough time to impact the supply chain, but this could change a year from now.

While there is no silver-bullet strategy for protecting supply chains, shippers are taking a multi-pronged approach to limit the ripple effect a disruption can have. There are several mitigation strategies shippers can utilize, and some can reduce certain risks more than others.

The top two tools that shippers and 3PLs use to mitigate and manage supply chain disruptions are supply chain visibility tools and partnerships, such as those with strategic partners, 3PLs and competitors, shown in **Figure 33**. Today, both parties are using predictive analytics, which wasn't the case in 2013.

Fewer shippers and 3PLs are turning to financial products to mitigate and manage supply chain disruption, dropping to 23% for shippers, from 28% in 2013 and to 21% for 3PLs, down from 32% in 2013.

Those in the supply chain know that there is a consequence of a supply chain disruption, such as a potential decrease in revenue or decreased customer service satisfaction, and 63% of shipper respondents said they have key metrics in place to quantify the impact of a disruption. However, the majority of 3PL respondents—57%—said they do not have metrics in place to measure the impact of a disruption.

Shippers said the most common reasons for not investing in supply chain disruption mitigation/response capabilities are a lack of executive support (52%), a lack of understanding about available tools for supply chain disruption response (48%) and a lack of available capital (44%).

Among 3PL respondents, the majority—50%—cited a lack of available capital as their top reason for not investing in mitigation/response capabilities. Other top reasons included the inability to build a business case for investments (48%) and a lack of understanding about available tools for supply chain disruption response (43%).

Just over one third of shippers (37%) and 3PLs (39%) said supply chain disruption mitigation/response capability has not been a problem and is therefore not a priority.

FIGURE 31: TOP FIVE MOST COMMON ISSUES IN 2013 VS. 2019

2013 % SHIPPERS	2019 % SHIPPERS	CATEGORY
74%	75%	Increase in transportation/logistics costs
63%	73%	Transportation/logistics network disruption
71%	66%	Increase in supplier costs
40%	41%	Damage, loss or detention of inventory
31%	24%	Loss of key suppliers
13%	14%	Loss of access to key buyer
43%	36%	Loss or impairment of production capability
10%	10%	Other
27%	25%	Product recall/failure to sell/unforeseen returns
16%	14%	Loss of access to key sales channel

FIGURE 32: TOP FIVE MOST COMMON CAUSES OF DISRUPTIONS IN 2013 VS. 2019

2013 % SHIPPERS	2019 % SHIPPERS	CATEGORY
56%	59%	Natural disaster/extreme weather/pandemic
53%	51%	Extreme volatility in commodity, labor or energy prices / supply
50%	51%	Infrastructure issues (e.g., rail strike or airport closure)
47%	41%	Information/communication disruption
48%	41%	Significant change in export/import regulations/ requirements
39%	35%	Unforeseen regulatory/legal change
34%	38%	Supplier/partner contingency (e.g., component recall or bankruptcy)
27%	22%	Political/social contingency (e.g., war or political unrest)
6%	11%	Other
NA	10%	Cyber attacks
NA	13%	Social/public pressure
11%	6%	Terrorism/piracy/organized crime/corruption

FIGURE 33: TOP FIVE TOOLS/STRATEGIES TO MITIGATE AND MANAGE SUPPLY CHAIN DISRUPTIONS

2013 % SHIPPERS	2019 % SHIPPERS	CATEGORY
57%	61%	Supply chain visibility tools
69%	72%	Partnerships (e.g., strategic partners, 3PL, competitors)
62%	58%	Business continuity planning (e.g., redundant production, diversified supplier base)
49%	44%	Employee training / talent management/ internal and external certifications
31%	30%	Decision support tools (e.g., scenario planning)
33%	32%	Supply chain mapping
41%	41%	Advanced enterprise risk management organization (internal aurot, logistics)
28%	23%	Financial products including Insurance
44%	42%	Supplier score carding (stress testing, supplier codes of conduct)
13%	13%	Disruption news feeds
NA	17%	Predictive analytics

3PLs (47%) and shippers (34%) said they are planning on investing in supply chain disruption mitigation/response capability within the next two years. When asked their level of planned investment in those capabilities, 34% of 3PLs and 32% of shippers said less than $1 million, 12% of 3PLs and shippers said $1 million to $10 million, and 4% of 3PLs and shippers reported $10 million to $50 million.

Key Takeaways

- The level of importance shippers and 3PLs place on mitigating supply chain disruption is greater than it was five years ago, with 23% of shippers and 22% of 3PLs rating it as significantly greater, 50% of shippers and 45% of 3PLs rating it greater and 23% of shippers and 21% of 3PLs rating it as the same.

- Shippers reported that the most common disruptions they have faced include those from increased transportation and logistics costs (77%), transportation and logistics network disruptions (76%) and increased supplier costs (67%). Among 3PLs, 83% reported an increase in transportation and logistics costs, 74% reported transportation/logistics network disruption and 67% reported an increase in supplier costs.

- The majority of shippers—58%—and 3PLs—64%—reported that natural disasters, extreme weather or pandemics were the leading cause of disruptions. Among respondents, 51% of shippers and 49% of 3PLs cited infrastructure issues; 51% of shippers and 46% of 3PLs cited extreme volatility in commodity, labor or energy prices; and 41% of shippers and 3PLs cited information/communication disruption.

- The top two tools shippers and 3PLs use to mitigate and manage supply chain disruptions are supply chain visibility tools (61% of shippers and 67% of 3PLs) and partnerships (72% of shippers and 64% of 3PLs). Both parties (17% of shippers and 33% of 3PLs) are using predictive analytics, which wasn't the case in 2013.

- Shippers said the most common reasons for not investing in supply chain disruption mitigation/response capabilities are a lack of executive support (52%), a lack of understanding about available tools for supply chain disruption response (48%) and a lack of available capital (44%). 3PL respondents cited a lack of available capital (50%), the inability to build business case for investments (48%) and a lack of understanding about available tools for supply chain disruption response (43%).

- 3PLs (47%) and shippers (34%) said they are planning on investing in supply chain disruption mitigation/response capability within the next two years.

Visibility Keeps Production Lines Moving

At manufacturing facilities, lost time is lost revenue, and in many cases, there are no make-up opportunities. Logistics providers are focusing on visibility so all parties know what is needed, what is coming and when it will arrive.

By quickly addressing the risk of a delay such as a slow down due to weather-related events or traffic, 3PLs can take action and get out ahead of a disruption by potentially re-routing a driver or utilizing a different warehouse.

Minimizing the risk of supply chain disruptions helps ensure production lines don't slow down while also allowing facilities to fine tune production schedules and schedule labor to maximize their resources.

Hedging Strategies in the Supply Chains

To mitigate risk, some shippers are engaging in various types of hedging, which can be tailored for specific business and market situations. The two primary types of hedging are operational and financial.

Financial Hedging

A company can share and even transfer risk by entering into financial hedging contracts with third parties. The obvious example of sharing risk is taking on insurance contracts. Financial hedging allows for financial protection against outside economic uncertainty. Types of financial hedging include:

Commodity Futures and Forward Contracts: These protect against price moves by locking in prices for a commodity at a specific point in the future. Producers, such as farmers, can sell futures and forwards in order to guarantee a price for their crop while consumers (the companies that buy the commodity) can buy futures and forwards in order to lock in a price. Futures are highly standardized and trade on big exchanges such as the Chicago Board Options Exchange (CBOE) while forward contracts can be individually negotiated and are thus less liquid.

Shippers would participate in the same way but would be betting that rates in the physical space will rise. Brokers, 3PLs and speculators could survey the physical market and buy in on either side of the transaction, making prices more efficient.

Truck Lane Futures: Rate volatility, which is a function of supply and demand within a lane, can be influenced by multiple factors, such as weather and fuel prices. However, no one knows exactly when those changes will occur. Within a trucking futures marketplace, futures contracts are designed to increase price transparency within a lane and give participants the chance to settle financial contracts at a pre-determined price. However, the use of truck lane futures is currently more of an innovative idea rather than an actual way to hedge.

Both carriers and shippers will be able to participate in truck lane futures. Carriers may participate in a freight futures contract because they believe rates in a certain lane are overpriced at that time.

Currency Swaps: With currency swaps, there is a two-party agreement to exchange cash flows denominated in one currency for those denominated in another for a predetermined period of time. These provide a hedge for shippers and 3PLs that are participating in markets with different currencies and want to avoid exposure to relative movements between different currencies.

Operational Hedging

There are three generic strategies to mitigate supply chain risks. Operational hedging strategies include:

Reserves and Redundancy: Reserves are a key tactic in operations management and can guarantee safety capacity, safety inventory, safety time and products in reserve. Reserves are well-understood and a key tactic in operations management: standard inventory and queuing models directly specify how risk-neutral decision makers should size safety capacity, safety inventory, and safety (lead) time as a buffer against uncertainty. Redundancy, in general, refers to an excess over normal requirements or duplication. As part of a redundancy strategy, shippers could carry excess inventory and engage in multi-sourcing with multiple locations and transportation modes to back-up assets and processes.

Reducing or Eliminating the Root Cause of Risk: Shippers can reduce their supply chain risk by creating strategies that enable a quick response when a disruption occurs as well as a deep dive and analysis into the root causes of delays, which enables shippers and their logistics partners to drive continuous improvement and identify future techniques to reduce the risk before it occurs. This strategy is based on the notion that in the long run, eliminating problems is better than mitigating their impact.

Risk Sharing and Transfer: Instead of bearing all the risk themselves, shippers can share it with partners, alliances or suppliers. Shippers can engage in various structured contracts, such as buy-back and revenue sharing contracts, that balance risk between a supplier and buyer.

Emerging Operational Tools to Minimize Risk in the Supply Chain

As time compressions continue to take place within the supply chain, shippers are working to move goods closer to consumers and shorten the supply chain, which can minimize the risk of a disruption.

The concept of 3D printing has the potential to alter the supply chain in several ways. The spare parts sector is one of the first areas expected to be disrupted by proliferation of 3D printing. Currently, hundreds of millions of spare parts are kept in storage worldwide to service equipment and products across several different sectors, but with 3D printing, companies could print parts on demand instead of physically storing spare parts in a warehouse. It is not only costly for companies to store stock but also inefficient.

In order to improve coverage and efficiency, a growing number of logistics providers are supporting companies in creating a dense network of 3D printers. By positioning 3D printers in strategic locations, shippers and their logistics partners could rapidly deliver items to customers. 3D printing could also increase customization while reducing production lead times. What's more, software databases are securely storing virtual print files of spare parts, which allows them to act as 'virtual warehouses' that are managed by 3PL providers.

By delaying final assembly to the point of demand, companies can give their customers access to a wide variety of customization options. Customers could select aspects of the design, material, shape and size, packaging and product functionalities, giving retailers a competitive advantage for the organization.

In this service model, local distribution centers hold stock of almost-finished goods as well as 3D printers that execute a variety of customization functions before product is delivered to the customer. Whereas current customization might include an engraved name on a smartphone or a personalized message inside the packaging, 3D printing would allow companies to deliver the smartphone, for example, in a truly personalized, one-of-a-kind protective case in an incredibly short timeframe.

The healthcare industry could also leverage 3D printing technology, with medical companies collaborating with logistics providers to create end-to-end printing service. Examples could include personalized prosthetics or custom-fitted knee replacements.

The logistics providers are making investments to ensure fast, safe and secure delivery of each part to the right location precisely when required.

Case in Point: 3D Printing in Action

Several retailers and logistics providers are turning to 3D printing as a way to improve customer satisfaction and cut delivery times.

Adidas has launched a sneaker with a 3D-printed sole. The company said new 3D printing methods will make be useful for smaller production runs as well as limited edition shoes. The technology could also make it affordable for customers to purchase custom-designed soles that fit an individual's weight and gait.

UPS has partnered with Fast Radius, which has located a 3D printing factory just minutes from the UPS global air hub in the United States, to speed shipping of 3D printed parts. UPS customers can have parts printed at the Fast Radius factory or at one of 60 UPS Stores equipped with 3D printers and then shipped to them. The proximity to the air hub would allow orders to be manufactured up to the 1:00 a.m. pick-up time and be delivered anywhere in the U.S. the next morning.

DHL has also tested the concept of 3D printing by printing replicas of spare parts that the organization currently stores for automotive and technology customers.

Labor Struggles within a Digital Supply Chain

For those looking to create a digital supply chain, a lack of talent is keeping firms from achieving a game changing impact. "None of the senior executives surveyed indicated that their supply chain was fully digitized, suggesting that their businesses are not well enough prepared for the challenges to come," said Bernhard Raschke, a Korn Ferry senior client partner and author of the new report, "The Supply Chain Digital Disruption."

Digitization creates a disruption and requires companies to rethink the way they design their supply chain. At the same time, customer expectations are growing. The online-enabled transparency and easy access to a multitude of options regarding where to shop and what to buy drive the competition of supply chains. This applies to business-to-consumer as well as business-to-business companies.

The Korn Ferry report surveyed 100 senior supply chain executives, and although every executive said a digital supply chain had the potential to revolutionize the business, 74% said their firms have a long way to go before that happens.

Supply chains have gone through transformations in the past. What was once a purely operational logistics function that reported to sales or manufacturing has shifted to an advanced planning process going across corporate functions. Now, due to technical innovations such as the Internet of Things, a firm's supply chain could become a driver of better, cheaper products and services.

However, Korn Ferry has found that a lack of a clear digital strategy has been a major obstacle, as indicated in **Figure 34**. *"I hope in the future we will have a mindset that every function in the supply chain is primarily focused on digital," said Mark Tusveld, Nike's senior director, global supply chain for digital, in the report.*

There are issues on the talent side as well. Of those surveyed, 41% said a key barrier to digitizing the supply chain was the availability of digital talent. Just 53% of executives surveyed said their firm had a formal role to lead the supply chain digitization movement. The next generation of chief supply chain officers have to be learning agile, highly analytical, and have the ability to spot trends and provide resources, Raschke said.

Furthermore, the executive has to be able to influence the CEO. "A supply chain leader who cannot get the CEO's ear, however technically savvy, has little chance to meet the challenges ahead," Raschke said.

At lower levels, many firms haven't assessed the digital readiness of their own workforce. Raschke said firms can develop profiles identifying the traits and competencies supply chain leaders should have, which will make it easier for firms to go out and recruit new talent.

To develop digital capabilities in the supply chain, companies are focusing on hiring people with the needed skills as well as providing internal training, shown in **Figure 35**.

With digital disruption changing markets everywhere, top executives around the world are changing their priorities. Korn Ferry predicts that the war for supply chain talent to drive digital transformation will continue to intensify, with the war spanning all industries and living at the forefront of most CEOs' agendas.

FIGURE 34: MAIN BARRIERS TO A DIGITAL SUPPLY CHAIN

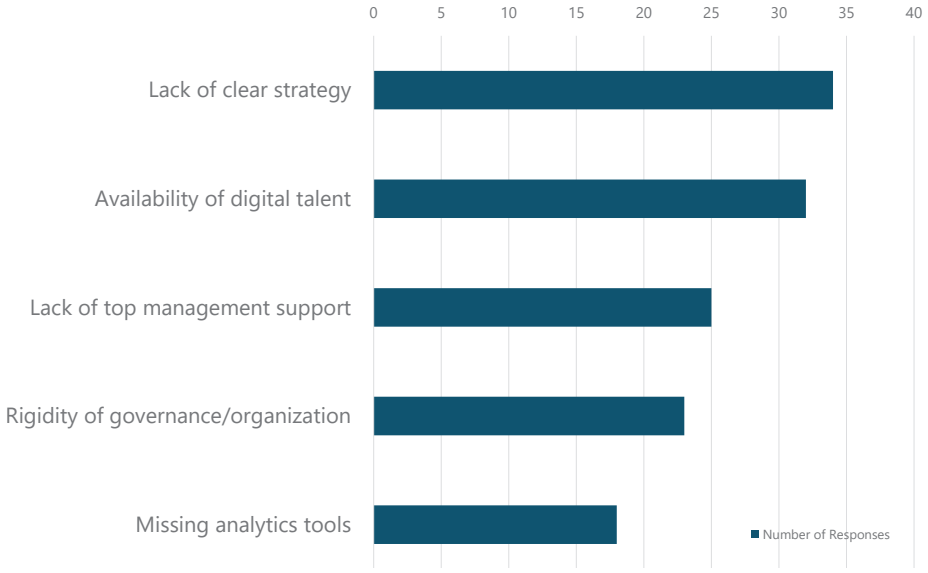
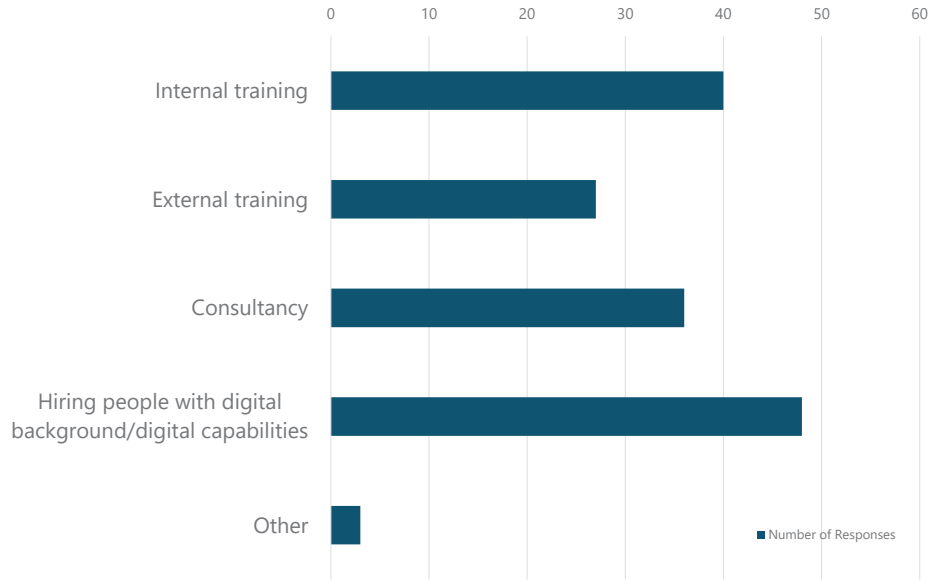


FIGURE 35: HOW COMPANIES DEVELOP DIGITAL CAPABILITIES WITHIN THE SUPPLY CHAIN



Source: The Supply Chain Digital Disruption, Korn Ferry

Examples of Common IoT Cases

Predictive Maintenance. A host of industries, including manufacturing, transportation and logistics, energy, and health care, can benefit from predictive maintenance, which can identify problems before they occur, maximizing uptime and reducing disruptions.

Asset Performance Management. APM is a software application designed to increase asset reliability and availability while reducing unnecessary maintenance.

Self-Optimizing Production. Connected factories and plants can use IoT to monitor and optimize production processes in real time.

Automated Inventory Management. IoT can provide much greater insight into the status of inventory and the supply chain, allowing companies to track inventory location and condition.

Track and Trace. IoT sensors are ideally suited for increasing systems' efficiency. The sensors can be used in the assembly area to identify the status and location of products.

With digital disruption changing markets everywhere, top executives around the world are changing their priorities. Korn Ferry predicts that the war for supply chain talent to drive digital transformation will continue to intensify, with the war spanning all industries and living at the forefront of most CEOs' agendas.

Digital and Internet of Things is Transforming Industrial Companies

The Internet of Things (IoT) is revolutionizing a wide range of industries, including manufacturing, by creating an interconnected network that uses streams of data to continuously learn, adapt and produce new solutions. The IoT is allowing companies to connect their physical products in new ways by leveraging the internet, shifting to cloud-based platforms and using analytics to drive business value, Korn Ferry reported.

The increased use of analytics and the deployment of new technologies can significantly improve efficiency, safety, quality and the customer experience, but it won't be possible without the people in the workforce. The majority of executives—63%—believe their digital transformation efforts are stalled because of difficulties in "changing company culture to be agile," 39% of executives see "resistance to new ways of working" as a primary challenge to digital transformation efforts, and one in five executives secretly believes digital transformation projects are a waste of time, Korn Ferry reported.

Manufacturers seeking to become a smarter factory must establish a construct that allows them to evolve with the changing needs of customers, expand into new markets, develop new products and services, and approach operations in fresh and flexible ways.

This places enormous pressure on these organizations, revealing multiple gaps in skills and capabilities. For example, building an IoT stack requires knowledge of embedded processing, wireless communication, cloud computing, big data analytics, AI and machine learning, and new business services. This leaves companies working to identify the right transformation strategy.

As attractive as a single solution might seem, there is no prescription for what is right, Korn Ferry reported. Instead there are many choices. For instance, some organizations distribute their capabilities, having each division build its own IoT expertise. Others configure a central IoT accountability through which all digital services and products flow. Still others recast the role of a central IoT organization as building the foundation and then coordinating IoT groups across the different organizational units.

However, it is clear that the critical talent need is digital leadership, which could be a challenge. A Korn Ferry Report, Leaders for a Digital Transformation, found that the qualities, traits and competencies that comprise digital leadership are scarce. This creates an imperative to accurately identify the right leadership talent for the organization, plus develop existing leaders and high-potential leaders of the future in the right ways.

While leaders of industrial companies are typically wired to drive continuous innovation and incremental improvement, the new digital world makes different demands. Digital requires leaders to embrace agile methods and innovate in new ways. They must be curious about new technologies, feel comfortable taking and tolerating risks, be ready to empower their employees to try new ideas, and be capable of driving breakthrough innovation.

Organizational leaders must collectively share a vision of digital transformation and remain in alignment, even as the forces of change exert pressures. This type of alignment goes beyond effectively coordinating and integrating goals, or even budgets. It requires applying transformational principles at deeply personal and team levels, which in turn may plumb the depths of professional relationships, strain commitments and alter careers.

Culture is also taking on a critical role, and a culture that advances a transformation requires a thoughtful and comprehensive approach, according to the Korn Ferry Digital Sustainability Index.

Ultimately, the people within the workforce will drive the digital transformation. Korn Ferry research has revealed four digital transformation talent categories that consistently correlate with transformation success or failure:

Accelerators: Talent that is already digital and is willing to try new ideas and can help accelerate a company's IoT and digital journey.

Learners: Talent that is interested in joining the digital journey but has some skills gaps. Such people need to be trained for specific skills.

Blockers and Derailers: Talent that does not believe in the digital journey and tries to throw curveballs to stop progress. Such talent needs to be identified and removed from the organization.

New talent: Talent with skills and competencies that do not exist in the organization. Such talent needs to be brought in from the outside. There are multiple ways to import such talent, including traditional hiring approaches and, as a trending practice, through strategic partnerships with technology firms and other companies.

The industrial manufacturer needs to assess the current workforce in terms of these categories to more confidently predict transformational outcomes, Korn Ferry reported.

With the right people and processes in place, IoT positions industrial manufacturers to seize the benefits of digital transformations that lead to new opportunities, build new interconnected ecosystems, and enable new reach, products and services.

SHIPPER-3PL DATA SHARING

An Example of the RFP Process

In the normal course of business, shippers may have the need to procure the services of a 3PL. Typical steps that take place between the issuance of a request for proposal (RFP) and ultimately the involvement of the 3PL in providing service to the shipper include:

1. **Request for Proposal** – Shipper issues the RFP to 3PL
2. **Response** – Initial review by the 3PL of the RFP and a decision to respond to the shipper's RFP
3. **Evaluation** – Intensive analysis by the 3PL to identify solutions to the shipper's request and to prepare formal service and the cost proposals to be sent to the shipper
4. **Contract** – Negotiation, award and contracting
5. **Implementation** – Onboarding and operations
6. **Continuous Improvement** – Performance measurement and feedback to drive improvement

A thorough RFP process helps shippers communicate their needs and expectations to prospective 3PLs and ensure they find the right partners to meet their short- and long-term goals. It also helps logistics providers understand their role, identify solutions and project accurate pricing. Joe Carlier, senior vice president of sales for Penske Logistics, said successful RFPs typically include four crucial elements.

- **A problem that needs to be solved** – This suggests the RFP will highlight the problem the company is trying to solve and will indicate what it would like to achieve from an execution standpoint and any relevant technology requirements.
- **Complete data** – A useful RFP will include data that is not only complete and accurate, but which also is aligned with the problem the company is trying to solve.
- **True assumptions** – All details provided to potential bidders should be verified and scrubbed, so that prospective suppliers can develop a meaningful proposal based on facts.

- **Operational insight** – The inclusion of someone from the shipper's operations department on the RFP development team will help to make sure that the content of the RFP is as accurate and realistic as possible.

While there are numerous ways to outline the key steps in this type of process, there are many points where useful information needs to be shared between shipper and 3PL, and also between the various people/departments within the 3PL that will be responsible for understanding and analyzing the shipper's request and developing a suitable response. Key players that ensure the process occurs in a valid and useful manner include:

- The shipper's procurement team
- The 3PL's RFP and global tender team
- The 3PL's business development/sales team
- The 3PL's solution design/delivery team
- The 3PL's account management team
- The shipper's operational management personnel

The sharing of information between and among the types of parties indicated above may be likened to the objectives of a track-and-field relay team, which involves the passing of the baton from runner to runner to try to win the race.

Any disruption to the efficiency and effectiveness of these handoffs is problematic and may lead to less than desired performance. These same principles also apply to the flows of relevant information in the shipper-3PL RFP process. Simply stated, all involved individuals and departments need to be well-aligned with the goals and objectives of the process. A key determinant of success is knowing that the available information is accurate, relevant and useful, that it is used judiciously, and is handed off efficiently and effectively between the parties involved in the process.

Developing Further Understanding of Shipper-3PL Data Sharing

To gain insight into this topic, the research team included several questions in this year's global survey, and discussions were held with participants at the study workshop held in the spring of 2018. Study respondents indicated interest in several areas, including the overall RFP process, areas for improvement and the impact of data sharing issues.

Shipper and 3PL Views of Overall RFP Process

Shippers and 3PLs were asked similar questions about the effectiveness of the RFP process and some of the responsibilities of both parties. There was significant agreement between shippers and 3PLs on most of the matters of interest. The following highlight some of the key findings:

- 90% of shippers surveyed indicated they are familiar with the steps taken by 3PLs to receive, analyze and respond to shippers' RFPs.
- Although 86% of 3PLs agreed that they diligently deal with their pipelines of bids, RFPs and tenders, only 65% of shippers agreed that 3PL responses to RFPs, bids and tenders are consistently prepared on-time and in full, with feedback and buy-in from the 3PLs' supporting functions.
- 3PLs have a consistently higher evaluation than do shippers of how well their business development/sales teams are aligned with their organization's bid desk/global tender management processes.
- Interestingly, 78% of 3PLs felt that their business development/sales teams were consistently aware of the shippers' requirements as stated in the bid, RFP, or tender, while only 68% of the shippers surveyed were in agreement.

Areas of Greatest Need for Improvement

In the interest of improving their relationships, both shippers and 3PLs were asked to identify areas within 3PL operations where the sharing of data was in greatest need of improvement. Perhaps the most striking finding is that 43% of shippers felt that 3PLs needed to improve the ways in which their solution design/delivery teams shared pertinent data with account management. In contrast, this was identified as an area for improvement by only 25% of 3PL respondents.

Among respondents, 36% of shippers and 35% of 3PLs agreed that there were opportunities to improve the sharing of insight and data collected by the sales team with account management. Also, 37% of shippers and 35% of 3PLs agreed there was a need for improving the hand-off of bid, RFP and tender data with solution design/delivery.

An additional suggested area for improvement related to the sharing of insight and data collected by the sales team with the contracts/legal department of the 3PL organization. Among respondents, 22% of 3PLs felt this was an issue of importance, whereas only 15% of shippers had similar thoughts.

FIGURE 36: CONSEQUENCES OF DATA SHARING ISSUES BETWEEN SHIPPERS AND 3PLS

CONSEQUENCES	% Shippers	% 3PLs
A decline in shipper customer satisfaction	61%	54%
Shipper did not renew a 3PL's contract at conclusion of service	30%	16%
Late payment to the 3PL for services rendered	25%	38%
Negative word-of-mouth (other 3PLs learned about our experience)	23%	N/A
Contributed to a violation of a contractual service-level agreement requiring remediation	22%	22%
Negative word-of-mouth (other shippers learned about experiences)	17%	24%
Shipper terminated service before conclusion of contract	13%	12%

"Most 3PL's have done a very good job of investing in people and processes," added John Golob, president and founder of Lanetix, a software developer based in San Francisco that develops collaboration and CRM solutions for logistics service providers. "But up until now, too many 3PL teams have had few technology options other than spreadsheets. It's no surprise the data tells us there's room for improvement."

While there were other figures that could have been reported regarding areas for improvement, it was notable that the perspectives of shippers and 3PLs were generally similar. Overall, the consensus of shippers and 3PLs was that there was room for improvement within each of the types of data hand-off and sharing that were examined.

Impacts of Data Sharing Issues on Shipper-3PL Customer Satisfaction

Respondents said data sharing can add to customer satisfaction. Shippers and 3PLs also provided insight into the ways that data sharing issues may negatively impact customer satisfaction and shipper-3PL relationships, as shown inz **Figure 36**.

Overall, the majority of shippers (61%) and 3PLs (54%) agreed that data sharing issues lead to declines in customer satisfaction. About 20% of shippers and 3PLs said another consequence is negative word-of-mouth, which translates into some awareness of these issues extending to other parties beyond the shippers and 3PLs.

Other consequences included late payments to 3PLs for services rendered; violations of service-level agreements requiring remediation; non-renewal of a 3PL's contract at the end of the contracted term; and, occasionally, shipper termination of service before conclusion of the contracted term.

"There are real and lasting consequences to 3PLs that don't make data sharing a priority across their commercial operations," cautioned Chuck McDaniel, a 28-year veteran of Procter and Gamble's International Supply Chain Planning and Logistics department. "It would seem irresponsible not to explore the innovation that we're seeing from Silicon Valley, that's transforming the efficiency of the RFP process."

Overall Learnings About Shipper-3PL Data Sharing

This research underscores the importance of effective and efficient data hand-offs to the development and sustainability of successful shipper-3PL relationships. Within a structured process that identifies typical steps between the issuance of an RFP by a shipper and ultimately the involvement of the 3PL as a supplier, there are many opportunities for hand-offs or sharing of data between shippers and 3PLs, or within the 3PL business organization.

Both shippers and 3PLs have a relatively high level of confidence that they each have knowledge of and visibility into the process elements that are unique to each type of organization. Aside from a few differences, both parties generally agree on specific types of data hand-offs where improvements in efficiency and effectiveness could be improved. There is common recognition of a number of consequences that may result from problems with faulty sharing of data pertaining to shipper-3PL relationships.

Perhaps the most important finding is the continuing need for shippers and 3PLs to improve their practices relating to people, processes and technologies. These are all facilitated by the effective and efficient sharing of data between shippers and 3PLs, which resonates as a common denominator in effective shipper-3PL relationships.

Key Takeaways

- A meaningful and thorough RFP process is central to the development and sustainability of successful shipper-3PL relationships.
- Four crucial elements for an effective RFP process include: a problem that needs to be solved, complete data, true assumptions and operational insight.
- Aside from the obvious importance of effective data hand-offs between shippers and 3PLs, there are other relevant data hand-offs between various functional areas within the 3PL organization. Any disruption to the efficiency and effectiveness of these handoffs is problematic and will affect the quality of the overall RFP process.
- While there are a number of specific areas that may be in need of greatest improvement, the use of spreadsheets by shippers and 3PLs needs to evolve to the use of more capable and robust technologies.
- Faulty hand-offs of data anywhere in the RFP process may contribute to customer satisfaction issues as well as a number of related consequences that may affect overall shipper-3PL relationships. The majority of shippers (61%) and 3PLs (54%) said issues with data sharing between the two parties contributed to customer satisfaction issues. Other consequences include late payments, not renewing a contract and negative word of mouth.
- Overall, there is a continuing need for shippers and 3PLs to improve their practices relating to people, processes and technologies. These are all facilitated by the effective and efficient sharing of data that is central to the RFP process and the ongoing relationships between these parties.

CONTEMPORARY ISSUES

The Growing Role of Reverse Logistics

Reverse logistics is a complex and expensive process, but it is becoming more relevant as e-commerce sales as well as returns continue to increase. The U.S. Postal Service (USPS) estimates that between $113 billion and $132 billion of e-commerce purchases were returned in 2017, and online purchases are three times more likely to be returned than those made in a physical store.

The ability to return items is a key component of customer satisfaction. In its Pulse of the Online Shopper report, the United Parcel Service found that 79% of online shoppers rate free shipping on returns as important when selecting an online retailer. Shoppers expect not only free and easy returns but also quick refunds of the purchase price.

The returns process creates a challenge for those within the supply chain, given that "sending products back through the supply chain is like swimming up a river, with waterfalls to climb up and dozens of tributaries that make it unclear which way to go," USPS said in its report, Riding the Returns Wave: Reverse Logistics and the U.S. Postal Service.

There are several challenges within the reverse logistics sector. For example, retailers don't know when a product will be returned, the condition it will be in or how much labor will be required to process returns either within the store or at a warehouse on any given day.

Logistics providers may be able to help shippers as they work to streamline the returns process and reduce the costs associated with reverse logistics. Today's 3PLs are offering a range of services within the space, including product consolidation, product evaluation, warehousing and transportation.

In the *2019 Annual Third-Party Logistics Study*, about one fourth of shippers—24%— said they outsource reverse logistics services with 44% of 3PLs reporting they offer the service.

Consumers like having multiple options for returning items, particularly in today's omni-channel shopping environment. Many retailers allow consumers to return online purchases in bricks-and-mortar stores, and the types of services shippers need can vary based on where returns come in.

UPS reported that 58% of ecommerce shoppers prefer to make returns at brick-and-mortar stores rather than ship them, but the majority continue to ship them in, which is likely driven by free returns shipping.

Age is a major factor affecting consumer preferences for how purchases are returned, UPS reported. Millennials are more likely to return packages in physical stores than non-Millennials. In-store returns allow retailers to save the cost of first-mile return shipping and can result in new in-store purchases. UPS found that 66% of online shoppers made a new purchase when returning in store, compared to 44% when returning online.

For those that do ship packages, USPS reported that Generation Xers and Baby Boomers are more likely to prefer dropping off their returns at the post office than Millennials, who, when they do mail their returns, are more likely than others to arrange package pickup at home or drop them in a collection box.

Shippers and 3PLs can work together by sharing data, tracking packages throughout the returns process and optimizing a return logistics network, all of which could optimize the process. Reverse logistics could also provide new opportunities for 3PLs as they work to develop value-added services that can benefit shippers while also driving customer satisfaction among shoppers.

How can the reverse logistics process differentiate retailers from their competitors? How will shippers and 3PLs continue to meet consumer's expectations for an easy returns process? What role will 3PLs play in optimizing shippers' reverse logistics supply chain?

The Role of International Trade on the Supply Chain

Supply chains have become increasingly global, and the World Trade Organization expects merchandise trade growth to remain strong in 2018 and 2019. However, continued expansion depends on robust global economic growth and governments pursuing appropriate monetary, fiscal and especially trade policies, WTO reported.

"The strong trade growth that we are seeing today will be vital for continued economic growth and recovery and to support job creation. However, this important progress could be quickly undermined if governments resort to restrictive trade policies, especially in a tit-for-tat process that could lead to an unmanageable escalation," said WTO Director-General Roberto Azevêdo.

Changes in trade policies and political uncertainties can shift the global demand of product overnight, which happened in the spring of 2018. China canceled several shipments of U.S. soybeans in response to the mere suggestion of soon-to-be imposed duties by the Trump administration. Chinese purchases of American soybeans fell for three straight weeks in the spring, but that inventory was able to move to countries in the European Union, the Americas and Southeast Asia. Chinese companies increased soy bean purchases from Brazil, creating additional shifts in the supply chain.

To remain successful, shippers must consider the role political uncertainty can play within complex, cross-border supply chains and be prepared to manage the changes it can bring. To help mitigate risk, companies can identify potential risks and opportunities and the appropriate response, and shippers are reaching out to 3PLs for help in navigating cross-border trade.

Among respondents, 42% of shippers and 37% of logistics providers said 3PLs must have global trade management tools, including customs processing and import/export document management; 40% of shippers said they currently outsource customs brokerage and 42% of 3PLs said

they offer customs brokerage services; and 42% of shippers and 37% of 3PLS said supply chain partners are used for country specific expertise as part of supply chain design activities.

Continued changes to trade policies, such as new tariffs on steel and other goods and the renegotiation of the North American Free Trade Agreement between the U.S., Mexico and Canada, could continue to create changes to the supply chain. In Europe, the Brexit vote is over, but uncertainty remains surrounding what will happen when the UK leaves the European Union.

To help mitigate risk, shippers and their logistics providers will need to be nimble. Creating a flexible supply chain with contingency plans will allow shippers to react quickly when supply and demand shifts.

As reported in *The 2018 Annual Third-Party Logistics Study*, risk, resilience and recovery are the three key elements of the continuous cycle that help those within the supply chain understand, quantify, mitigate or eliminate, and then recover from certain types of risk.

Successful shipper-3PL relationships often include processes for solution design and delivery, timely protocols to resolve problems, reduced cycle times and process variability, and effective communication using state-of-the-art capabilities. In addition, the rapid sharing of complete, accurate and consistent information can help speed supply chain decisions, which can enable a fast response when disruptions occur.

These attributes may take on greater importance as uncertainties around international trade increase and shippers and 3PLs try to operate in a fluid environment.

What role will trade policies play in the international supply chain? What role will technology play in mitigating risk in a complex global supply chain? How will shippers and 3PLs manage political risks to the supply chain?

Artificial Intelligence in the Supply Chain

Customers are demanding better and faster performance, and higher levels of efficiency will be needed for the supply chain to deliver the value, quality and speed customers and shippers expect. Intelligent automation and artificial intelligence is poised to create more dynamic, flexible and interconnected supply chains. In addition, creating a network of networks creates a single view of demand while also improving the integrity transactions, which is taking on greater importance with the introduction of blockchain.

The latest consumer trends have major implications for the supply chain, making connectivity more important. The digital path to purchase is leading to increased personalization and the mass market of one as well as a more interactive and collaborative customer experience. Delivery times are shrinking and retailers as well as their shipping partners need to react quickly to minimize the risk of supply chain disruption.

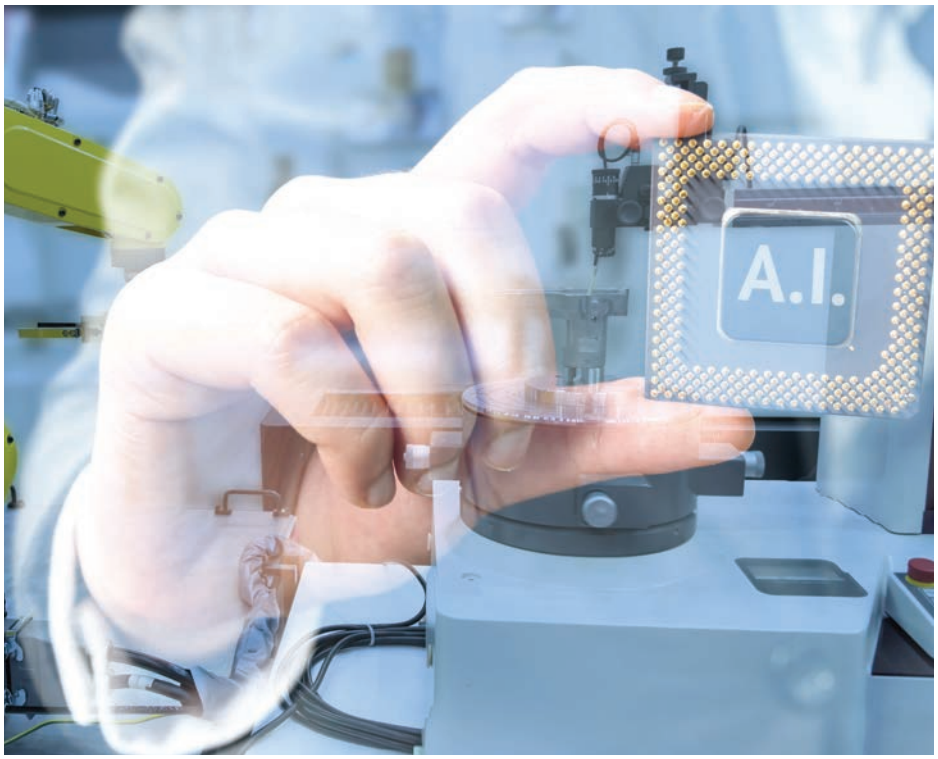
The vast amounts of data and information made visible through increased connectivity can enable shippers to obtain deeper insights into their supply chains, reduce costs and improve agility. Automation, analytics and AI are key disruptors transforming global supply chain functions, and utilizing multiple avenues of automation will drive maximum benefits. It can improve not only supply chain visibility but also master data management, simulative planning and collaborative planning.

Intelligent automation could be used to predict events and to improve efficiencies by eliminating repetitive tasks and leveraging AI in end-to-end supply chain planning. AI also facilitates the assessment and prioritization of change initiatives and allows shippers to leverage show-and-tell pretotypes for potential solutions.

AI also facilitates a rapid response to changing conditions and unforeseen situations as functional silos become connected and transparent and data is centralized. While supply chain planning has historically been a data-driven practice, AI is contributing to the decision making process through machine-human collaboration. Consolidating and connecting information can lead to more intelligent choices.

To create efficiencies, AI can automate select supply chain and predict key supply chain events in a way that improves supply chain decision making as well as performance metrics.

How will 3PLs identify the right processes in supply chain for automation? How will they address people impacts of automation? How will shippers and 3PLs align the roles and responsibilities? How will they prioritize between demand, supply and execution processes?



CONTINUING THE CONVERSATION

The *2018 22nd Annual Third-Party Logistics Study* covered several issues that remain relevant today. As part of a new section within this year's study, researchers are providing an update on blockchain and the greening of the supply chain.

The Evolving Role of Blockchain

Blockchain technology, which breaks each movement down into a block and documents transactions every time a shipment changes hands, is continuing to make headlines with some saying it could revolutionize the future of trucking and logistics by creating a new system of documenting transactions, tracking shipments and managing fleets.

The increased desire for visibility within the supply chain and reliable data is driving sustained interest in blockchain technology. Capturing information on each movement and linking the blocks together creates a record of all the parties involved in the process and provides specific details associated with each movement, which all parties can access.

Blockchain remains in its early stages. In this year's study, 9% of shippers said they're investing in blockchain technology, compared to 7% of 3PLs. In addition, 8% of shippers said 3PLs must have blockchain capabilities to successfully serve them, compared to 15% of 3PLs that said it was necessary.

Shippers, logistics providers and carriers have come together to form the Blockchain in Transport Alliance. BiTA provides a forum to promote and educate, while encouraging the development of blockchain application, within the transportation industry. Some of the key areas BiTA plans to address include smart contracts, freight payments, asset maintenance and ownership history, grey trailer pools, and transparency and chain of custody of freight.

The Continued Greening of the Supply Chain

Sustainability within the supply chain has continued to improve, and green initiatives are affecting everything from surface transportation to warehouses. A large portion of energy savings are a result of improved fuel efficiency in today's light- and heavy-duty trucks.

The Department of Energy's 2018 Energy Outlook reported that domestic consumption of petroleum products generally decreases through 2035, mainly because of vehicle fuel efficiency gains.

DOE estimates that fuel economy of the heavy-duty vehicles will improve across all weight classes as the second phase of heavy-duty vehicle efficiency and greenhouse gas standards takes full effect in 2027. In addition, fuel economy of light-duty vehicles from 2017 to 2050 is expected to increase by 66% for cars and by 60% for light trucks, and the combined fuel efficiency is expected to increase by 68% by 2050 as newer, more fuel-efficient vehicles enter the market.

Participation within SmartWay, a voluntary effort designed to help the freight transportation sector of the supply chain improve efficiency, has also increased. As part of the program, freight shippers, carriers, logistics companies and other stakeholders have committed to reduce emissions.

In mid-2018, the partnership had more than 3,700 partners. Program participants partner with the EPA to measure, benchmark and improve logistics operations so they can reduce their environmental footprint. Participants supply the EPA with information on vehicle class, engine model year, body type, total miles, revenue miles, empty miles, fuel usage by class, average payload, average capacity volume, percent capacity utilization by class, average idle hours per truck, and use of particulate matter control equipment by truck class and engine model year.

ABOUT THE STUDY

In 1996, Dr. C. John Langley, clinical professor of supply chain and information systems and director of development at the Center for Supply Chain Research™ at Smeal College of Business at The Pennsylvania State University, initiated the Annual Third-Party Logistics Study to evaluate and document the ways in which the global 3PL industry was evolving.

Today, the study investigates leading trends in logistics and the supply chain and takes a deep dive into the ways in which shippers and 3PLs can collaborate to drive value. It looks at 3PL industry growth and development, what shippers outsource and what 3PLs offer, as well as why customers outsource to 3PLs and how well 3PLs respond. As part of the study, researchers investigate trends and issues that likely will be impactful for the future state of logistics outsourcing.

Throughout the year, the study team establishes topics of interest, develops the survey tool, 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, workshops, roundtables and focus interviews.

Industry representatives, supporting organizations and sponsor firms have contributed to the study, which has helped maintain and sustain the report for more than 20 years. Shippers and 3PLs have generously participated in the surveys and interviews needed to produce the *Annual 3PL Study*, and, once again, the *23nd 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, and it has become a widely anticipated, heavily referenced index on the state of the 3PL industry.

Throughout the past 23 years, the primary issues of interest have shifted, with past reports delving into everything from labor issues to ever-changing consumer trends and how they alter the expectations of the outsourced logistics sector. At its core, the report continues to focus on people, processes and technology, relationship management and the end-to-end supply chain.

Each year, the research methodology evolves in both reach and scope as has the participation rate fluctuated among members and affiliates of the *Annual Third-Party Logistics Study's* partner organizations has fluctuated. As part of this year's survey process, the study attracted 651 respondents, a 10% increase over the number of participants taking part last year.

Results included in the "Current State of the 3PL Market" chapter from current users of 3PL and 4PL services rely primarily on data gathered from respondents in North America (67%), Asia (13%) and Europe (9%).

Study Highlights

The 2019 Annual Third-Party Logistics Study digs deep into:

- *3PL service offerings and capabilities*
- *Expenditures on outsourcing*
- *How companies measure 3PL success and benefits*
- *The use of information technology*
- *The value created by effective 3PL-shipper relationships*

The Rise of Data-Driven Decision Making

Over the past 20 years, the supply chain has changed drastically, becoming not only a value driver, but also a differentiator. Shipping demands have increased and technological capabilities have grown, and conversations surrounding the supply chain have made their way to the c-suite.

Shipments in the e-commerce and business-to-consumer shipping sectors have grown significantly since the study launched 23 years ago, and the supply chain has continued to take on greater significance. Today's consumers are demanding two-day deliveries or even same-day or one-hour shipping. Additionally, shoppers want real-time visibility into shipments. Those demands have carried over into the business environment, and shippers and carriers demand greater visibility.

As a result, successful 3PLs are collecting and transmitting more data than ever before. The data can be used to facilitate overall network optimization and create a more agile supply chain. Shippers and their logistics partners can see information in real time, make timely decisions that keep the supply chain moving, and create checks and balances to ensure order and shipment accuracy.

This year's study proves that innovation is critical as expectations increase. Shippers and their logistics providers are testing and adopting new technologies and procedures that will improve service offerings and strategies that can give them a competitive advantage.

For a number of years, researchers have been aware that 3PLs have been evolving from tactical service providers to collaborative partners that are taking on greater accountability and control, and the trend continues again this year.

Third-party logistics providers are developing a comprehensive suite of integrated logistics services to address the overall network and create a lean, cost-effective supply chain that will meet shipper demands. They are also taking on more responsibility, providing add-on services that increase their value, such as replenishing shelves or making white-glove deliveries.

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 tool are circulated through Annual 3PL Study supporting organizations for distribution to their members and affiliates. This year's survey circulated in the spring of 2018, yielding 651 total 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 3PL Study conducts in-depth examinations of contemporary supply chain topics that affect both users and providers of 3PL services. This year's topics include: Keeping the Supply Chain Alive and Nimble, The Last Yard, Omni-Channel Revisited, Dealing with Disruption Revisited, Shipper-3PL Data Sharing

Contributing Sponsors: *The 23rd Annual Third-Party Logistics Study* is jointly owned by C. John Langley Jr., Ph.D., and Infosys. The sponsors of the study are Penske Logistics, Korn Ferry and Penn State University.

Multiple Research Streams: A distinguishing feature of the Annual Third Party Logistics Study is the incorporation of multiple streams of research that the study team undertakes 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 Infosys, which also helps to vet potential topics of interest. Survey topics and questions attempt to reflect key issues and trends facing both users and providers of logistics services. This year, the team led an in-person workshop with shippers and logistics providers in California's Silicon Valley. Researchers also connected with shippers electronically for intensive exploratory interviews following the survey to discover deeper implications.

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), as well as annual events conducted by The Logistics Institute – Asia Pacific at the National University of Singapore; the Gordon Institute of Business Science (GIBS), the business school of the University of Pretoria in Johannesburg, South Africa; and executive education programs available through the Center for Supply Chain Research™ at The Pennsylvania State University and Penn State Executive Programs and NASSTRAC (National Shippers Strategic Transportation Council).

- Analyst briefings, typically conducted annually in the weeks following the release of the annual study results in the fall.

- Magazine and journal articles in publications, such as Supply Chain Management Review, Logistics Management, Inbound Logistics, Logistics Quarterly, Supply Chain Quarterly and Supply Chain Digest.

- Webcasts conducted with media and publications, including Supply Chain Management Review, Logistics Management, SupplyChainBrain, Stifel Nicolaus and others.

Supporting Organizations: Each year a number of 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 out by enabling executives to participate in facilitated workshops and by lending subject matter expertise.

Definitions: Survey recipients were asked to think of a "third-party logistics (3PL) provider" as a company that provides one or more logistics services for its clients and 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 the specific 3PLs they use.

2019 Third-Party Logistics Study Goals

Research and analysis for the Current State of the 3PL Market section sets out to:

Understand what shippers outsource and what 3PLs offer.

Identify trends in shipper expenditures for 3PL services, and to recognize key shipper and 3PL perspectives on the use and provision of logistics services.

Determine how 3PLs add value to their customers' supply chains.

Update researchers' knowledge of 3PL-shipper relationships, and learn how both types of organizations are using these relationships to improve and enhance their businesses and 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, and planing/execution/implementation.

- Document what types of information technologies and systems are needed for 3PLs to successfully serve customers, and to assess the extent to which this success is being achieved.

- Examine why customers outsource or elect not to outsource to 3PLs.

The **Special Topic** sections provide 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.

Goals for the sections include:

- **Keeping the Supply Chain Alive and Nimble:** The study sought to understand the need for agility in the supply chain and the ways in which shippers and 3PLs are improving their flexibility.

- **The Last Yard:** This year's study looked at how shippers and 3PLs are addressing the very final leg in a shipment's journey to ensure it is routed to the specific location where it may be needed or used.

- **Omni-Channel Revisited:** Increased reliance on an omni-channel network is creating opportunities and challenges for retailers and shippers, and this year's study sought to understand the opportunities and obstacles associated with the omni-channel shipments. It compared the current findings to the findings of the 2015 study where this topic was addressed earlier.

- **Dealing with Disruption Revisited:** *The 2019 Annual Third-Party Logistics Study* looked at shipper-3PL relationships to see how prepared they are to deal with uncertainties that may arise, and how they can mitigate the risks associated with disruptions. Researchers compared current results with those of the 2013 study.

- **Shipper-3PL Data Sharing:** Increased visibility and greater access to data are improving shipper-3PL relationships, and this year's study looked at the ways in which sharing data can benefit operations as well as improvements that need to occur.

The **Contemporary Issues** section is crafted to take an introspective view of the future of the 3PL industry and shipper-3PL relationships. Topics this year included: The Growing Role of Reverse Logistics, The Role of International Trade on the Supply Chain and Artificial Intelligence in the Supply Chain.

The **Continuing the Conversation** section is a new addition to the 2019 study. It has been designed to provide a brief update on still-relevant topics covered in previous versions of the report.

ABOUT THE RESPONDENTS

Shippers

Figure 37 reveals the percentage of shipper respondents to the survey, including both users and non-users of 3PL services and the percentage of 3PL respondents. The non-user responses are useful because they provide valuable perspectives on why they do not indicate use of 3PLs at this time, as well as on a number of other relevant topics. Shipper respondents are typically managers, directors, vice presidents and C-suite executives. 3PL executives and managers responded to a similar, but separate version of the survey. 3PL respondents represent: 1) several operating geographies; 2) an extensive list of industries served (actually quite similar to shipper respondent industries); and 3) a range of titles, from managers to presidents/CEOs.

Figure 38 reflects the nine most prominent industries reported by users of 3PL services, accounting for almost 88% of the overall respondents.

Figure 39 includes all shipper respondents' anticipated total sales for 2018.

FIGURE 37: ABOUT THE RESPONDENTS

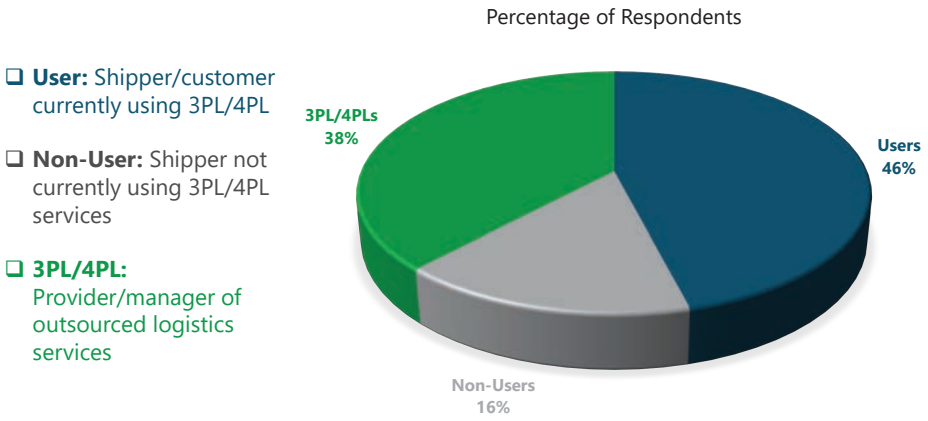


FIGURE 38: SHIPPER RESPONDENTS MAJOR INDUSTRIES

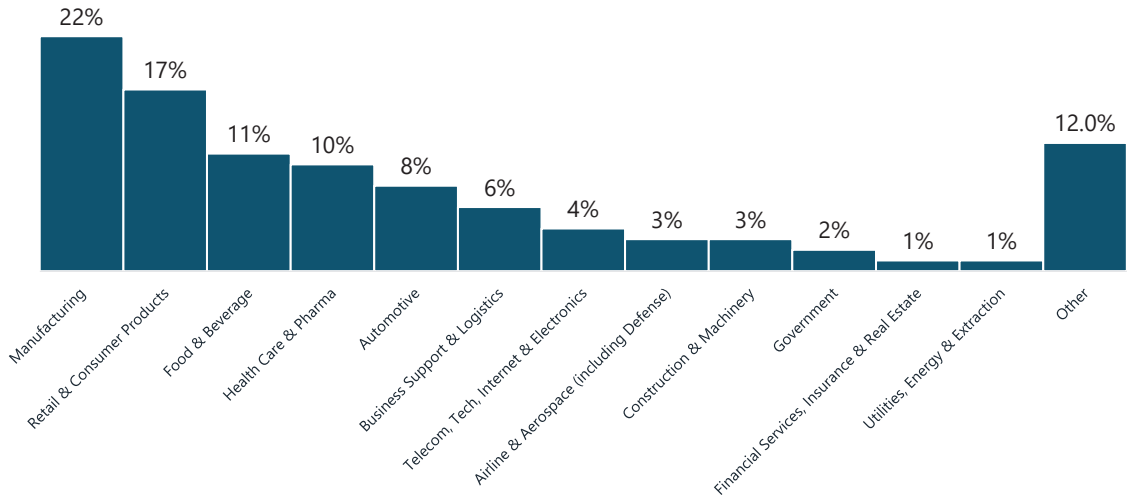


FIGURE 39: SHIPPER RESPONDENTS BY SALES

SHIPPER RESPONDENT ORGANIZATIONS' ANTICIPATED TOTAL SALES FOR 2018	
ANSWER CHOICES	Percentage Responses
US$25 billion or more / €20 billion or more	17%
US$10 billion – less than US$25 billion / €8 billion – less than €20 billion	13%
US$1 billion – less than US$10 billion / €800 million – less than €8 billion	29%
US$500 million – less than US$1 billion / €400 million – less than €800 million	7%
US$100 million – less than US$500 million / €80 million – less than €400 million	12%
Less than US$100 million / less than €80 million	22%

ABOUT THE SPONSORS

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Korn Ferry

Korn Ferry is a global organizational consulting firm. We help clients synchronize strategy and talent to drive superior performance. We work with organizations to design their structures, roles and responsibilities. We help them hire the right people to bring their strategy to life. And we advise them on how to reward, develop and motivate their people. Visit kornferry.com for more information.

Penn State University

Penn State is designated as the sole land grant institution of the Commonwealth of Pennsylvania. The University's main campus is located in University Park, Pennsylvania. Penn State's Smeal College of Business is one of the largest business schools in the United States and is home to the Supply Chain & Information Systems (SC&IS) academic department, Center for Supply Chain Research™ (CSCR™), and Penn State Executive Programs. With more than 30 faculty members and over 800 students, SC&IS is one of the largest and most respected academic concentrations of supply chain education and research in the world. SC&IS offers supply chain programs for every educational level, including undergraduate, graduate and doctorate degrees, in addition to a very popular online, 30-credit professional master's degree program in supply chain management. The supply chain educational portfolio also includes open enrollment, custom and certificate programs developed by Smeal's Penn State Executive Programs and CSCR™, which helps to integrate Smeal into the broader business community. Along with executive education, CSCR™ focuses its efforts in research, benchmarking and corporate sponsorship. CSCR™ corporate sponsors direct the Center's research initiatives by identifying relevant supply chain issues that their organizations are experiencing in today's business environment. This process also helps to encourage Penn State researchers to advance the state of scholarship in the supply chain management field. Penn State's Smeal College of Business has the No. 1 undergraduate and graduate programs in supply chain management, according to the most current reports from Gartner. For more information, please visit www.smeal.psu.edu/scis and smeal.psu.edu/cscr.

Penske Logistics

Penske Logistics is an award-winning leader in logistics and supply chain management. Founded in 1969 and headquartered in Reading, Pennsylvania, the company has offices and operations in North America, South America, Europe and Asia. The company offers a wide range of solutions including: dedicated carriage, distribution center management, transportation management, lead logistics, freight brokerage, and supply chain consulting. Market-leading companies around the globe rely on Penske Logistics to keep their businesses moving forward. Visit PenskeLogistics.com or call 1-800-529-6531 for more information.

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