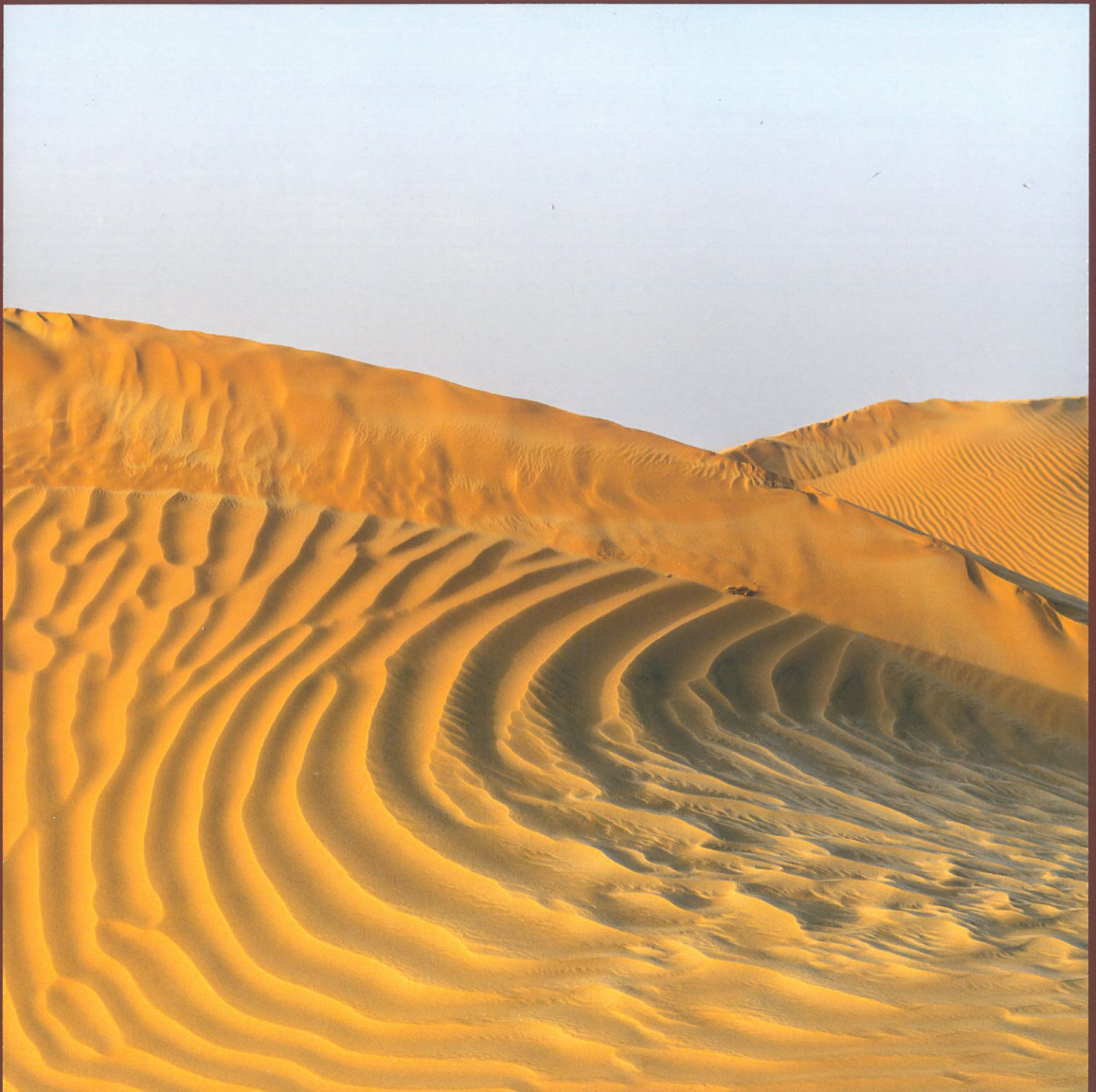


2016 Third-Party Logistics Study

The State of Logistics Outsourcing

Results and Findings of the 20th Annual Study



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Supporting Organizations:



Looking Back on 20 Years of Third-Party Logistics Insights

1996

Study launched with an eight-page report, which highlights that the most frequently outsourced service was **freight transportation** and that U.S. logistics costs were reportedly **\$773 billion** in the previous year.



1997

The use of third-party services continued to increase with the most frequently outsourced activity being **freight bill auditing** and **payment**.



1998

The study documented how **information technology** had become increasingly viewed as a key to the success of third-party operations with increased roles for information technology executives in the implementation stage of the third-party relationship.

1999

The market for **3PL services** grew by **18%-22%** annually with the percentage of companies using **warehousing services** growing to **63%** from **56%** in the previous year.



2000

Shippers began to meaningfully involve **3PLs** as key elements in their ability to meet the needs of their own customers with businesses becoming global.



2001

Study began asking shippers which 3PL characteristics stand out – **multiple activities, integration of activities** and **provides solutions to logistics/supply chain problems** top the list.

2007

Top five countries where 3PLs were expanding activities included **China, India, Russia, Brazil** and **Poland**.

2006

Researchers expanded their scope and added workshops in **Chicago, Illinois; Paris, France; and Shanghai, China**. For the first time, the study looked at the use of 3PL services in emerging markets, particularly China.

2005



The survey celebrated its **10-year anniversary** and the study continued to expand its global reach, adding respondents from **South Africa**.

2004

Study added respondents from Latin America. U.S. logistics costs were reportedly **U.S. \$1,015 billion**.



2003

Study added respondents from Asia-Pacific. Security began to take on greater importance with nearly half of respondents citing **security** as “very important.”



2002

Study expanded to include respondents from Western Europe in addition to North America with 3PL users reporting reductions in their **cash-to-cash** cycles, suggesting 3PL involvement may lead to reductions in this supply chain metric.

2008

Having a green supply chain takes on more importance with **98%** of respondents saying that **green supply chain initiatives** are somewhat or very important to their companies' futures.



2009

- ▶ The report began surveying 3PLs in addition to shippers. The economic downturn challenged shippers to contend with **unpredictable demand**, excess inventory, and volatility in fuel costs and currency valuation.
- ▶ Shippers report using the downturn to assess their supply chains' strengths and weaknesses and make changes designed to increase agility, be more responsive and reduce costs.

2010

3PL global revenues reached **\$542 billion**. (As reported in the 2013 study). Nearly half of shipper respondents report consolidating the number of 3PLs they use.



2011

- ▶ 3PL global revenues reached **\$616 billion**. (as reported in the 2013 study).
- ▶ Economic losses from supply chain disruptions increased 465% between 2009 and 2011.



2015

- ▶ **Omni-channel** continued to grow in importance, but **33%** of respondents said they have no capability to handle omni-channel retailing.
- ▶ **Supply chain talent** remained a concern, with **44%** of respondents saying they experienced difficulty in finding or attracting talent.
 - ▶ A number of companies turned to **Mexico** as a near-shore manufacturing destination.
- ▶ Innovative mobile and cloud technologies helped to align 3PL-customer relationships.

2014

- ▶ Shippers and 3PLs identified the increased volume of cross-border trade with international companies that are increasingly investing in Africa.
- ▶ Opportunities in omni-channel increased, with customers demanding a **seamless experience** across retail sales channels.
- ▶ 97% of shippers and 93% of 3PLs agreed that improved, data-driven decision making is essential to the future success of their supply chain activities and processes.

2013

- ▶ Analysts declared 2013 to be the start of the **Big Data era in supply chain**.
- ▶ Near-shoring—shippers' moves toward rebalancing supply chains—suggest that global economic conditions change preferred sourcing locations.
- ▶ The study found 3PLs offer more services than most shippers use.

2012

Electronics products increased in popularity, increasing demands for a fast and nimble supply chain. 80% of shippers and 77% of 3PLs reported doing business with or within an **emerging country**.



Current State of the 3PL Market

The 2016 20th Annual Third Party Logistics Study shows continued collaborative and positive relationships between shippers and third-party logistics providers, which have been developing since the study began 20 years ago. This year's survey suggests 3PLs and their customers are becoming more proficient at what they do, individually as well as together, which is improving the quality of their relationships. Both parties—93% of 3PL users and 94% of 3PL providers—reported that their relationships are successful and that their work is yielding positive results.

The 2016 3PL Study showed that 70% of those who use logistics services (shippers) and 85% of 3PL providers said the use of 3PL services has contributed to overall logistics cost reductions, and 83% of shippers and 94% of 3PL providers said the use of 3PLs has contributed to improved customer service. Moreover, the majority of both groups—75% of shippers and 88% of 3PL providers—said 3PLs offer new and innovative ways to improve logistics effectiveness.

Gainsharing and collaboration remain important to many relationships, and 46% of shippers and 81% of 3PL providers agree that collaborating with other companies, even competitors, to achieve logistics cost and service improvements holds value.

As seen in recent years, the most frequently outsourced activities continue to be those that are more transactional, operational and repetitive. Activities that are strategic, IT-intensive and customer-facing tend to be outsourced to a lesser extent.

Although relationships between shippers and 3PLs are successful overall, there are some areas in which they could improve. Many shippers are still working to shift management structures to better reflect the role supply chains play in the business.

Shippers continue to rely heavily on the IT services 3PLs provide, and the ability to manage the provision of IT-based services is a necessary core competency of 3PL providers. While the IT Gap—the difference between what shippers feel is important and their ratings of their 3PLs' current IT capabilities—has stabilized, further opportunities for improvement remain.

Aligning 3PL Relationships

Relationships are central to the success of 3PLs and their customers, and 3PLs may be thought of as having two critical responsibilities—managing customer relationships that focus on the availability of capable supply chain services and providing or managing the provision of these services. For 3PLs, this means they are not only managing relationships with their direct customers but also with those organizations that have the assets to provide the needed services.

Of relevance to how these relationships are structured and how they progress is whether the shippers view themselves as strategic or tactical buyers of logistics services, or some combination of both. Tactical buyers have developed solutions but utilize 3PLs'

operational services and fulfillment. This year's survey shows 43% consider their organization to be a strategic buyer, 37% to be a tactical buyer and 20% to be a combination of these.

For partnerships between 3PLs and shippers to be successful, both parties are expected to invest in the relationships. Information, services and financial resources central to these relationships must flow back and forth between the two parties. When asked whether they had a formal plan for managing relationships with their 3PLs, 74% of shippers indicated they have a formal plan, but 26% said they did not. Among this year's respondents, 87% of shippers and 96% of 3PLs have agreed-upon performance expectations, and 80% of shippers and 81% of 3PLs have formal performance reviews, including the measurement of and feedback on results.

Participants at this year's workshops identified key elements for the successful onboarding of new relationships, including mapping out a clear process, creating a formal plan for managing relationships, drafting mutual agreements, and understanding the roles and relationships with asset-based service providers. They also identified key strategies that can optimize the 3PL relationship, including control, risk mitigation, regular business reviews and a continuous improvement process.

There are a number of established and emerging strategies for improved communications between 3PLs and shippers, including real-time customer access to 3PL administrative responses, real-time 3PL news feeds, email, and a focus on people, process and technology. A key indicator of the extent to which customers

and 3PLs are aligned is the frequency of interaction between these two parties—73% of shippers interact with their 3PLs on a daily or hourly basis, while 80% of the 3PLs responded similarly.

As we look to the future, we should also be thinking about the impacts on 3PL-shipper relationships that may result from disruptive innovations, such as drone deliveries, driverless vehicles and next generation cloud-based collaboration solutions. Also, as we review the evolution of technologies, it is apparent that we are seeing a movement from CRM systems, many of which are of limited focus, to multi-enterprise collaboration systems that have much more pervasive capabilities.

3PL Competitive Landscape

Competition within the logistics industry is ramping up due to tightened capacity along with increased consolidation within the supply chain arena that has resulted in fewer partners for 3PLs and increased prices.

The changing landscape is altering how 3PLs and shippers work together. The majority of respondents—44%—have enhanced relationships to guarantee shipping lanes and on-time shipments, 40% have increased rates, and 29% said assets have not been available to move shipments when needed. Similarly, 29% have engaged with a larger number of 3PLs to get access to gain capacity.

3PLs are working to differentiate themselves by providing sustained value, innovative solutions and information to facilitate data-driven decisions. Information sharing between 3PLs and shippers is increasing, and shippers are more willing to make adjustments to improve carriers' efficiency and possibly obtain a better rate.

Logistics providers are driving innovation in a number of areas, particularly within the last mile. A successful last-mile fulfillment process utilizes route optimization, incentivized scheduling, and real-time electronic tracking



and communication. Globally, companies are turning to crowd-sourcing solutions, on-demand deliveries and value-added delivery services.

Technology is improving operations within the supply chain—60% of respondents are using technology to increase visibility within orders, shipments and inventory; 40% are using it for planning within transportation management and 48% are using it for scheduling within transportation management. 3PLs are also utilizing technology to choose the most profitable and efficient shipping lanes and modes.

To meet increasing customer requirements, 58% of respondents said they are investing in new capabilities for themselves, 40% said they are leveraging new capabilities from other companies in different industries, and 15% said they are leveraging new capabilities from competitors.

Workforce Innovation and Agility

The logistics industry is facing an unprecedented labor shortage, which will bring both challenges and opportunities. To meet demand, 3PLs will need to leverage their employees in a new way, providing added value to shippers and giving them a competitive

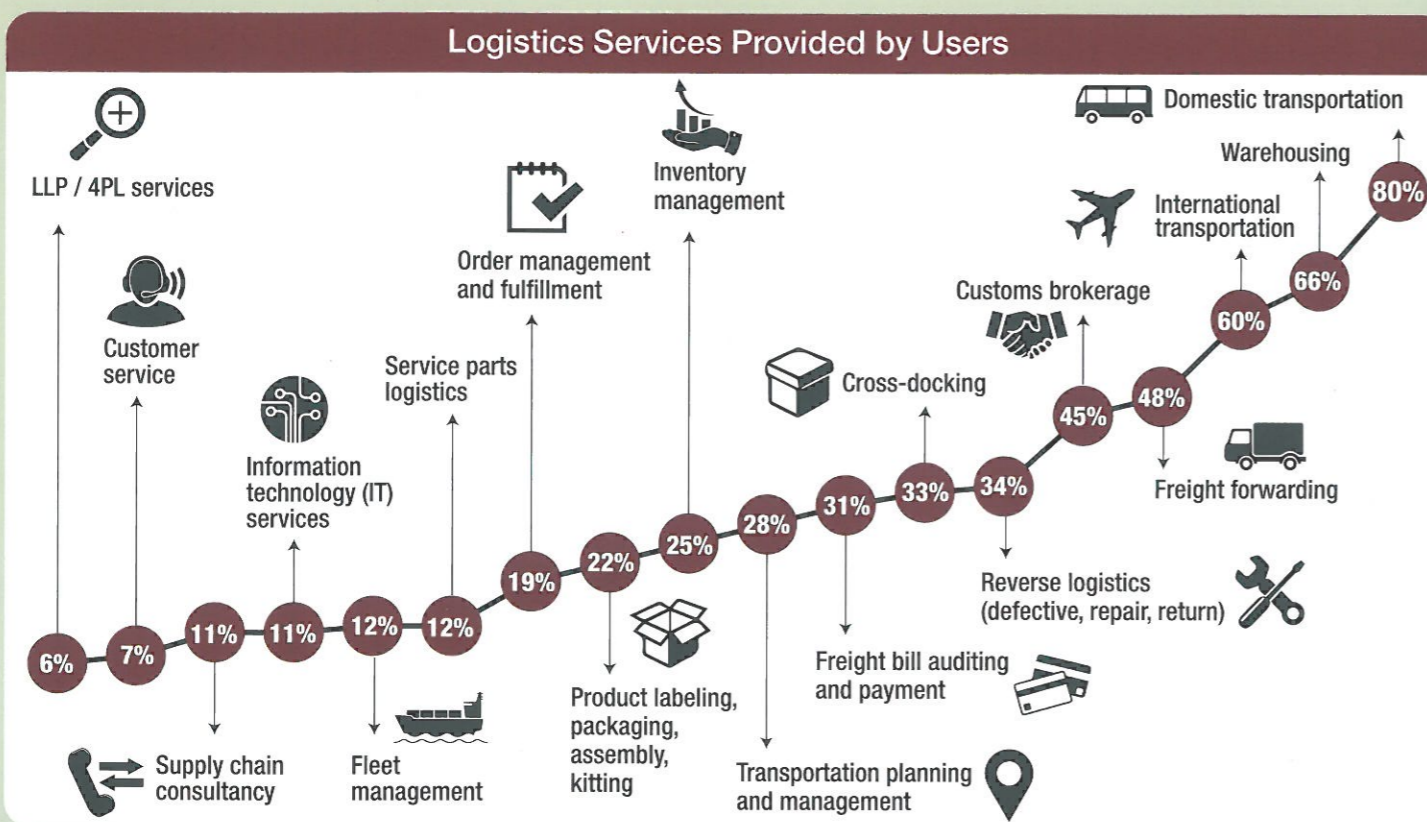
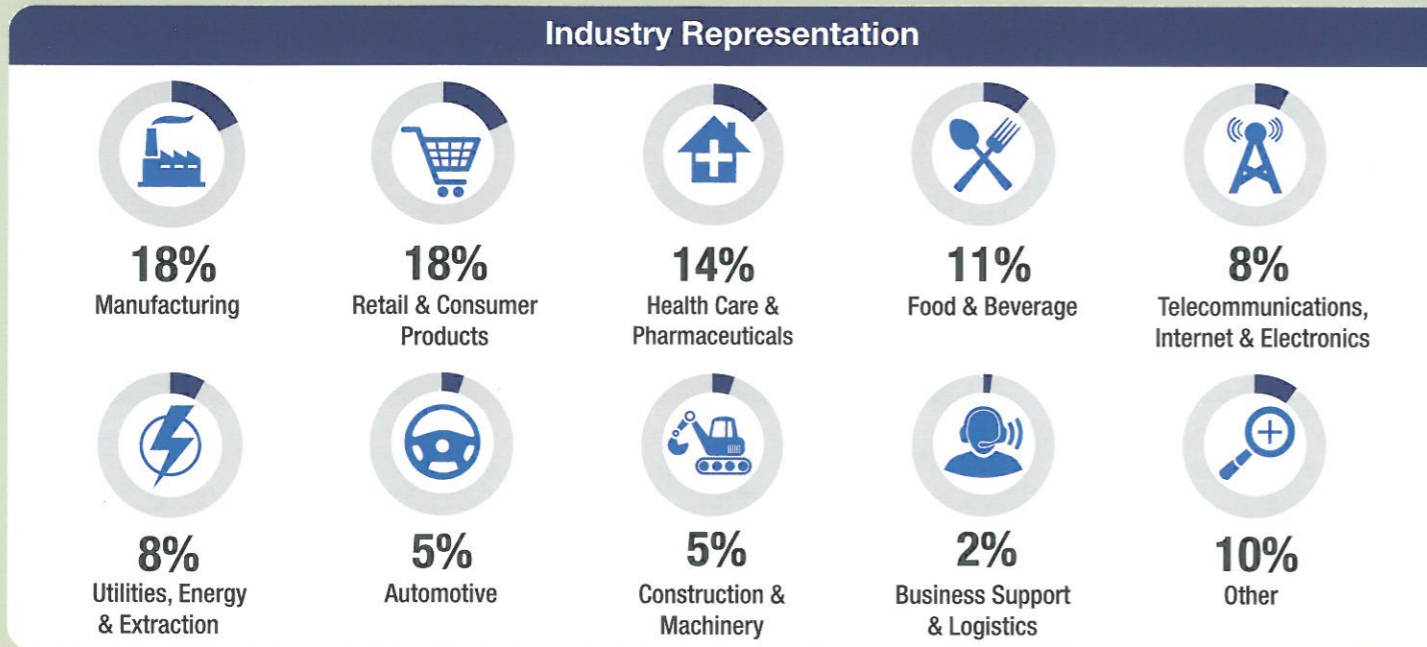
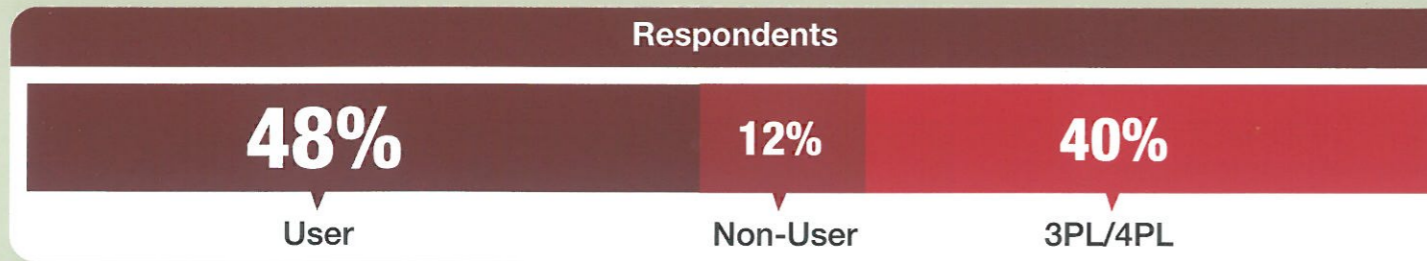
advantage. More than half of shippers—52%—feel they can rely on their 3PLs to address the labor shortage's affect on their business.

With 79% of 3PLs reporting that they feel unprepared for the labor shortage's impact on their supply chain, providers will need to re-think their strategy for attracting and retaining employees. Innovative and dynamic employee development and hiring strategies will play a critical role in most organizations' response to the anticipated labor shortage. Built-in succession programs and training programs will help employers develop their existing talent pool and cross training will take on greater importance.

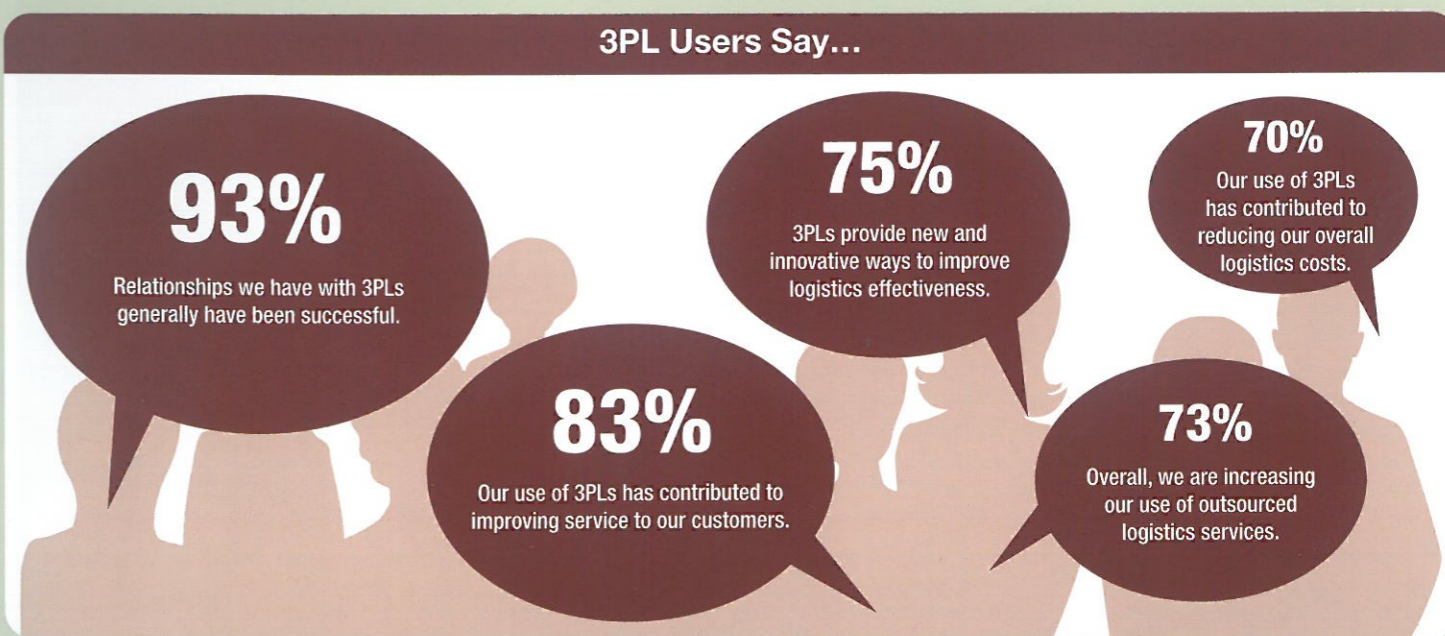
While the labor shortage spans the whole supply chain, shortages among warehouse workers and truck drivers are expected to be the worst. To help bridge the gap, the industry is already recruiting within several existing, under-represented labor pools, including women and military veterans.

Automation, both within the warehouse and on the road, could help lessen the impact of a workforce shortage, and the industry has looked at a number of technologies, including driverless trucks, drones and crowd-sourced package deliveries, as options.

2016 Third-Party Logistics Study About the Study Respondents...



2016 Third-Party Logistics Study Study Findings at a Glance...



Current State of the 3PL Market

3PLs and Customers Find They Must Be at the “Top of Their Game” to Succeed



Among the evolving areas where both 3PLs and shippers need to be core competent is change management. Currently, the global and domestic markets for outsourced logistics services are continuously changing, so it is essential that both users and providers of 3PL services arm themselves with the very best in terms of people, processes and technology.

In addition to diligence relating to costs, investments and service levels, everyone involved in either the supply or demand side of the 3PL business is focused on major concerns such as supply chain security, regulatory requirements, compliance and sustainability. They are also dealing with prevailing shortages of asset-based services that are needed to be an effective player in the industry.

On the global front, there continues to be great concern for the economies of certain countries and regions of the world and interest in comparative wage levels and the continuing evolution of emerging markets. There also is continued interest in global freight balances and imbalances due to trading patterns and available capacity, particularly of ocean and international air service as they may be needed.

Due to a number of factors, it is not difficult to identify volatility in certain economies, and users of 3PL services generally will need to deal with higher prices for the services they need. So, the imperative for 3PLs and shippers to be at the “top of their game” should be obvious.

Findings from this year’s *20th Annual Third-Party Logistics Study* reinforce the suggestion that both 3PLs and shippers are becoming more proficient at what they do to enhance the quality of 3PL relationships. Most 3PLs are achieving a better focus on what they do best, and on what core competencies they can provide to enhance the functioning of customers’ supply chains.

Conversely, customers generally exhibit a greater understanding of their organizations’ core businesses, and how improved supply chain capabilities can help to achieve overall organizational objectives. This includes the ability to determine when and for what reasons the use of outsourced logistics services may be desirable, and how best to work with commercial providers to create the best results for their organizations and their supply chains. These observations are supported by the fact that the 2016 study confirms that high percentages of 3PLs and shippers view their relationships as successful.

The results and findings of the *2016 20th Annual Third Party Logistics Study* provide current perspectives on the nature of these relationships, why they are generally successful and some of the ways in which they could be improved. Aside from these generally complementary perspectives, discussions at some of the global workshops conducted this year suggested that management structures in some shipper organizations have not yet been transformed to reflect how core the supply chain is to the business.

There is a clear path forward that will include the replacement of legacy systems and processes with greater use of leading-edge approaches. This is already evident in the adoption of transformative supply chain software, greater use of mobile technologies in key supply chain processes at both shipper and 3PL organizations, and greater movement toward the use of “cloud-based” systems to facilitate management of supply chain processes and activities.

This year’s *Third-Party Logistics Study* will provide useful perspectives and insights relating to the 3PL sector and how 3PLs and customers may position themselves to be as successful as possible in the future. For further insight into the details of the study and the key elements of the research process, please see the section titled “About the Study.”

3PL Usage Reflects Global Economic Trends

Global markets and global trade needs continue to evolve, and this translates directly into demand for logistics and supply chain services. Figure 1 provides global 3PL revenues by region for 2013 to 2014 from Armstrong & Associates, a summary of percentage changes in these revenues reported for 2013 to 2014 (along with the two previous years) and compounded annual growth rates (CAGR) by region for 2006 to 2014. While the CAGR figures for Asia-Pacific and South America are around or near 10%, results for North America are 4.3% and those for Europe are slightly in the positive. Looking at the percentage changes in global 3PL revenues by region from 2013 to 2014, and particularly in comparison with the percentage changes reported in the two previous years, positive growth rates were evident in North America, Europe and Asia-Pacific, whereas a decline of 6.7% was reported for South America. With the exception of the most recent results in South America, the growth rates in the other regions are consistent with modest improvement in other global economies.



logistics expenditures include transportation, distribution, warehousing and value-added services. Considering Armstrong & Associates' estimated and projected global 3PL revenues cited in Figure 1, these percentages reinforce the notion that the modestly improving global economic conditions have had a positive impact on aggregate shipper spending on 3PL services as a percentage of total logistics expenditures.

Increased Use of Outsourcing Continues to Outpace Moves to Insourcing

Two consistent observations throughout the 20 years of *Annual Third-Party Logistics Studies* are that some portion of shippers will report having increased their use of outsourced logistics services while others will indicate a return to insourcing some or all of these same services. Movements to either increased or decreased use of outsourcing may be measured in terms of funds expended on outsourced logistics services or the percent of overall logistics spend represented by outsourcing or number of activities outsourced.

Outsourcing: 73% of shippers indicate they are increasing their use of outsourced logistics services this year, which compares to a figure of 68% reported last year. In comparison, 85% of 3PL providers agreed their customers evidenced an increase this year in their use of outsourced logistics services. These figures are consistent with the generally positive growth rates for 3PL services in the global logistics marketplace, as discussed above.

Insourcing: Although only 35% of shippers indicate they are returning to insourcing many of their logistics activities, this figure is higher than the 26% reported last year. Also, the same number, 35%, of 3PL providers agree that some of their customers are returning to insourcing.

Reducing or Consolidating 3PLs: The ongoing trend toward strategic sourcing by many shippers is evident in the number who report reducing or consolidating the number of 3PLs they use, an average of 57%. This figure is slightly higher than the previous year's reported 53% and provides continuing evidence that more than half of shippers place a priority on tightening up their rosters of 3PLs.

One observation that we identified in recent years is that the percentage of 3PL users (shippers) reporting increased use of outsourced logistics services has outstripped the percentage of 3PL users indicating they have returned to insourcing many of their logistics activities by 3:1. This year, the ratio is closer to 2:1 (73% divided by 35%).

Shipper Experiences with 3PLs: Measures of Success

Among this year's survey findings is that 93% of shippers report their relationships with 3PLs generally have been successful, and this is mirrored by a slightly higher 94% figure from 3PLs that indicate their relationships with shippers have generally been successful. Looking deeper into these figures, several survey results are insightful:

- 75% of 3PL users and 88% of 3PL providers agree that 3PLs provide new and innovative ways to improve logistics effectiveness;
- 70% of 3PL users and 85% of 3PL providers agree that the use of 3PLs has contributed to reducing overall logistics costs; and
- 83% of 3PL users and 94% of 3PL providers agree that the use of 3PLs has contributed to improving services to the (ultimate) customers.

This year the study team did not ask shipper respondents about measurable benefits they have derived from the use of 3PLs. Examples typically include impacts on average logistics costs, average inventory costs and average fixed logistics costs, as well as improvements in order fill rates and order accuracy. The decision to at

least temporarily reduce the number of questions was based on shortening the survey and making it easier to complete. As the team begins the planning process for next year's *Annual Third-Party Logistics Study*, researchers will review the status of these questions to determine which are the most insightful to include.

Expectations in Shipper-3PL Relationships

In the seven years that this study has included both 3PL users (shippers) and 3PL providers in the survey process, researchers have found in most instances that 3PLs rate their own capabilities higher than do shippers, and 3PLs tend to have a lesser perception of problems in relationships, etc. Although there are likely a number of reasons for this disparity, the study is always seeking to better understand the extent to which 3PL users and providers are in agreement on matters of importance to the overall relationship.

One of the relevant concepts relating to 3PL-shipper relationships is that of alignment, in that 3PLs and customers need to be in agreement on the ways they view their goals and objectives, roles and responsibilities, and a wide range of strategic and operational matters. Among the key takeaways from this year's three global

workshops was reinforcement of the importance of openness, transparency and effective communication between 3PLs and shippers; and the ability of both parties to be sufficiently agile and flexible to accommodate current and future business needs and challenges.

Also, the use of "gainsharing" and "collaboration" are still thought of highly by 3PLs and shippers as being useful activities in many relationships. Survey results this year suggest that 46% of 3PL users and 81% of 3PL providers agree that collaborating with other companies, even competitors, can achieve logistics cost and service improvements.

Also related to the topic of alignment is the role of asset-based service providers that work with non-asset-owning 3PLs to provide needed supply chain services for customers. An example might be a company with trucking, rail, air or ocean capabilities where it is essential that the strategies and operations of the service provider be well aligned with those of the 3PL and the customer. This subject was selected as one of this year's special topics, and the section titled "Aligning 3PL Organizations" specifically addresses various dimensions of this subject.

Figure 1: Global 3PL Revenues Exhibit Modest Growth for 2013 to 2014

Region	2013 Global 3PL Revenues (US\$Billions)	2014 Global 3PL Revenues (US\$Billions)	Percent Change 2013 to 2014	Percent Change 2012 to 2013 ^a	Percent Change 2011 to 2012 ^b	CAGR 2006-2014
North America	\$ 177.3	\$ 187.6	+ 5.8%	+ 2.9%	+ 6.7%	+ 4.3%
Europe	158.1	174.4	+ 10.3%	+ .01%	- 2.6%	+ 0.7%
Asia-Pacific	255.6	269.6	+ 5.5%	+ 5.3%	+ 23.6%	+ 10.2%
South America	44.9	41.9	- 6.7%	+ 3.0%	+ 12.4%	+ 8.1%
Other Regions	69.0	77.2	+ 11.9%	- .01%	+ 6.4%	
Total	\$ 704.9	\$ 750.7	+ 6.5%	+ 2.7%	+ 9.9%	

Figure 2: Shippers Continue to Outsource a Diversity of Logistics Services

Outsourced Logistics Services	Percentages of Users	Outsourced Logistics Services	Percentages of Users
Domestic transportation	80%	Inventory management	25%
Warehousing	66%	Product labeling, packaging, assembly, kitting	22%
International transportation	60%	Order management and fulfillment	19%
Freight forwarding	48%	Service parts logistics	12%
Customs brokerage	45%	Fleet management	12%
Reverse logistics (defective, repair, return)	34%	Information technology (IT) services	11%
Cross-docking	33%	Supply chain consultancy	11%
Freight bill auditing and payment	31%	Customer service	7%
Transportation planning and management	28%	LLP / 4PL services	6%

What Shippers Outsource and What 3PLs Offer

Figure 2 shows the percentages of shippers outsourcing specific logistics activities. Essentially, and with some relatively minor variations, this year's results are numerically and directionally similar to those from recent years. Among the general observations are the following:

- Again this year, the most frequently outsourced activities are domestic transportation (80%), warehousing (66%), international transportation (60%), freight forwarding (48%) and customs brokerage (45%).
- The less frequently outsourced activities continue to be those that are more strategic, customer-facing and IT intensive. Examples include: service parts logistics (12%), fleet management (12%), IT services (11%), supply chain consultancy services (11%), customer service (7%) and lead logistics partner/4PL services (6%).

Although it is not fair to draw conclusions based on one year's supply of new survey results, we will need to look carefully at the reasons why

3PL users generally reported lesser percentages in terms of utilizing many of the logistics services and processes than they did in the previous year's study. Among the reasons that bear some relevance are: impacts of lagging global economies; decisions made by providers of logistics services that have impacts on pricing and availability of those services; responses to shippers feeling pressure to reduce costs wherever and whenever possible; and changing purchasing patterns among users of 3PL services.

3PL's IT Capabilities: Which Types of IT Capabilities Are Most Necessary for 3PLs?

Each year researchers ask shippers and providers "which information technologies, systems or tools a 3PL must have to successfully serve a customer in your industry classification." This question always produces interesting and insightful findings, and this year is no different. Overall, the most frequently cited technologies needed by 3PLs are those that have more execution and transactional-based capabilities. Examples include warehouse/distribution center management (WMS), transportation management planning and scheduling (TMS), visibility, EDI, and the use of web portals for

updates and relevant shipment information. Essentially, these types of technologies tend to parallel the types of logistics services that were profiled in the preceding section.

Alternatively, there are IT-based services that fewer 3PL users would suggest are "must haves" for 3PL providers. Typically, these tend to be more strategic and customer-facing. Some examples include network modeling and optimization, global trade management, transportation sourcing, customer order management, CRM and supply chain planning. Also in this category are some very contemporary services of interest to supply chain managers, such as advanced analytic and data mining tools, cloud-based systems, mobile phone apps, distributed order management and yard management.

Regardless of how many 3PL users rate these individual types of IT capabilities as ones that 3PLs must have, it is clear that they all are essential to the effective management of supply chain processes and activities. In a more general sense, it continues to be clear that the ability to provide or manage the provision of IT-based services is fast becoming a necessary core competency of 3PL providers.

For 14 years this study has tracked measurable differences between shipper's opinions as to whether they view information technologies as a necessary element of 3PL expertise and whether they are satisfied with their 3PLs' IT capabilities. This has been referred to as the "IT Gap." While Figure 3 reveals that over the long term this gap has narrowed significantly, recent years' data questions whether the IT Gap is narrowing or beginning to stabilize. As indicated, 93% of this year's shipper respondents agreed that IT capabilities are a necessary element of 3PL expertise and 59% agreed that they were satisfied with 3PL IT capabilities.

A white paper titled "Closing the 3PL Technology Gap," which was published in the summer of 2015 by JDA Software, drew on data from annual third-party logistics studies, including this report, and asked the question, "Why aren't 3PLs investing in information technology to close this IT Gap?"

As a result, JDA created a roadmap to guide 3PLs in their efforts to combine a vision of strategic partnerships to the realities of having the necessary capabilities in place. The steps, courtesy of JDA, are:

- First, gain as much information as possible about what systems, technologies and cloud platforms are available in the marketplace.
- Second, hold executive-level meetings with customers to learn what their strategic objectives are and not just their tactical needs. Look for synergies between their objectives and what you can potentially provide, and sound them out for their willingness to consider outsourced options to support their strategies.
- Third, do an honest assessment of internal capabilities and capacities and compare this with what is needed to support customers' strategic objectives. This assessment should include: processes, people, expertise, equipment and technology.

- Fourth, engage outside experts and/or technology vendors to identify options, costs and timeframes for filling the gap between current capabilities and customers' strategic visions. Include customers in these discussions to ensure proposed solutions will actually fulfill customer expectations.
- Fifth, implement the new solutions as quickly as possible, considering the best financial arrangements and deployment options, such as cloud platforms, that meet both your financial objectives and customers' strategic needs.
- And finally, repeat these steps on a regular basis, at least annually, to make sure your capabilities continue to support customers' strategic objectives.

Key Takeaways

Key findings about the Current State of the Market for the 2016 20th Annual Third-Party Logistics Study include:

- Although economic conditions vary significantly among countries and regions of the world, modest improvements have been experienced in many key areas. Armstrong & Associates reported aggregate global revenues for the 3PL sector grew by 9.9% from 2011 to 2012, 2.7% from 2012 to 2013 and by 6.5% from 2013 to 2014.
- Users of 3PL services report an average of 50% of their total logistics expenditures are related to outsourcing compared to an average of 36% reported last year. This increase helps to explain how improving economic conditions have impacted aggregate shipper spending on 3PL services as a percentage of total logistics expenditures.
- This year's Annual Third-Party Logistics Study reports that 73% of the shippers surveyed are increasing their use of outsourced logistics services, while 35% report a return to insourcing many of their logistics activities. This ratio of slightly more than 2:1 (73% increased outsourcing divided by the 35%

that indicated some return to insourcing) is modestly lower than we have seen in recent years. Also, 57% of shipper respondents indicate they are reducing or consolidating the number of 3PLs they use.

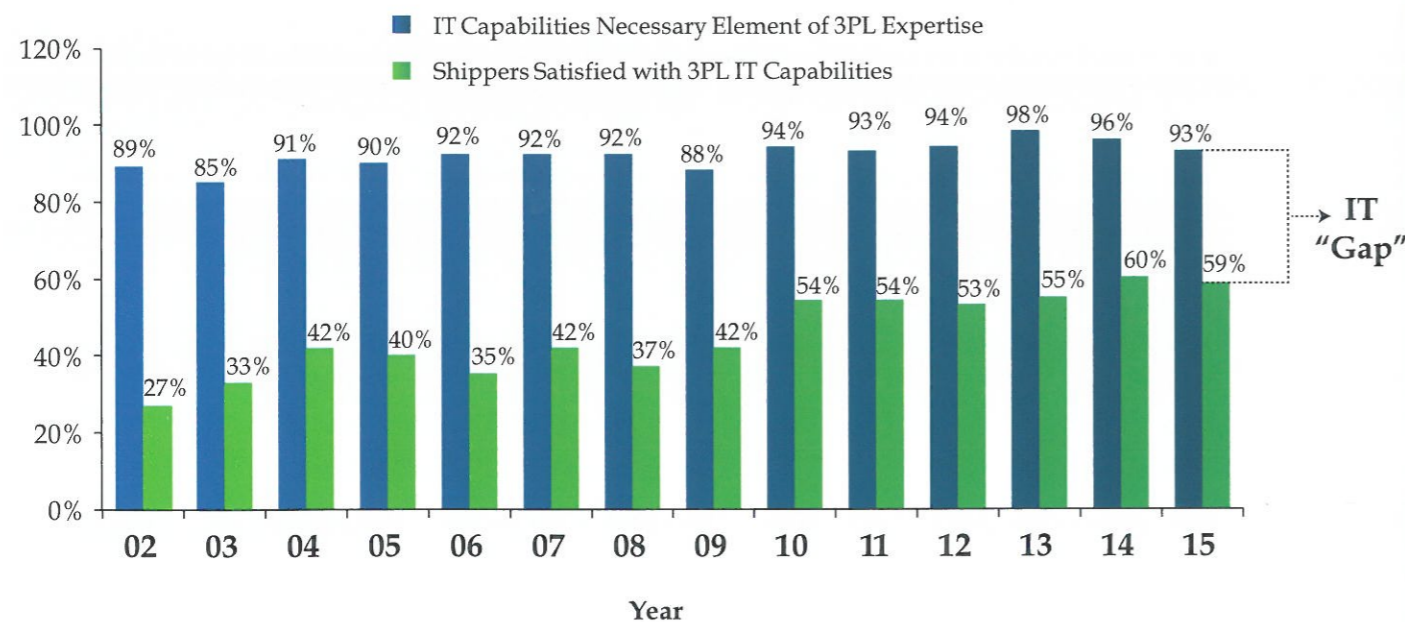
- Strategic and operational alignment between 3PLs, customers and asset-based service providers is viewed as essential to success of the overall 3PL supply chain. Relationships that meet this imperative also exhibit openness, transparency and effective communications between these parties, along with agility and flexibility to accommodate current and future business needs and challenges. Gainsharing and collaboration initiatives are also consistent with the objective of creating alignment between the organizations that are involved.

- Consistent with results from recent studies, transactional, operational and repetitive activities tend to be the most frequently outsourced, while those that are strategic, IT-intensive and customer-facing tend to be outsourced to a lesser extent. The ability to provide or manage the provision of IT-based services is fast becoming a necessary core competency of 3PL providers.

- For the past 14 years, this study has been tracking the "IT Gap," which is defined as the difference between the percentage of 3PL users indicating that IT capabilities are a necessary element of 3PL expertise (93% in the current study) and the percentage of the same users who agree that they are satisfied with 3PL IT capabilities (59%). The results from this year's study also raise a logical question as to where the IT Gap is headed in the future.

- Generally, the 3PL sector is growing on a global basis, and 3PL providers are refining and expanding their core competencies. Similarly, customers and potential customers are heightening their ability to effectively manage relationships with 3PL providers and to help achieve their supply chain objectives.

Figure 3: The "IT Gap" – Where Do We Go From Here?



Aligning 3PL Relationships

3PLs Have a Supply Chain Type of Responsibility



When viewed from a high level, 3PLs may be thought of as having two critical responsibilities. The first is to develop and manage customer relationships that focus on the availability of capable supply chain services and the second is to provide or manage the provision of these services. Considering that 3PLs commonly engage asset-based service providers to fulfill customers' needs, they need to be core competent in terms of managing relationships with these service providers.

With this in mind, Figure 4 provides a visual of the role and positioning of 3PLs with respect to their customers (shippers) and service providers, and also recognizes the flows of information, services and financial resources that are central to these relationships. This suggests a supply chain perspective on the provision of supply chain services where the 3PL identifies the needs of the customers and then selects appropriate combinations of service providers to fulfill those needs.

A primary objective of this special topic is to examine these relationships to learn about the extent to which "alignment" is apparent in the strategy and operations among 3PLs, shippers and service providers. The sections examine the types of relationships, optimizing 3PL relationships, aligning 3PLs and customers, aligning service providers with 3PLs and customers and the role of 4PLs in aligning 3PLs with needs of customers.

Strategic vs. Tactical/Operational Relationships

Of initial interest to the research team was to learn from users of 3PL services whether they thought of their organization as a strategic or tactical buyer of 3PL services, or some combination of the two. Respondents were asked to consider a strategic buyer as one who expects its 3PLs to provide solutions to its logistics/supply chain problems, whereas a tactical buyer already has developed its own solutions and is asking only for operational services and fulfillment from its 3PLs.

As indicated in Figure 5, 43% consider their organization to be a strategic buyer, 37% to be a tactical buyer and 20% to be a combination of both. Interestingly, when asked what percentages of their customers are in each of these categories, participating 3PLs indicated 31% are strategic, 26% are tactical and 43% are a combination of both.

When asked whether they had a formal plan for managing relationships with their 3PLs, 74% of shippers indicated they have a formal plan and 26% said they did not. Of those having a formal plan, 10% indicated the plan focused primarily on the strategic elements of the relationship, 41% on the tactical/operational elements and 49% on both. It is worth noting that whereas 43% of shippers consider themselves strategic

buyers, their management of the relationships with 3PLs generally focuses more on tactical/operational elements rather than strategic elements.

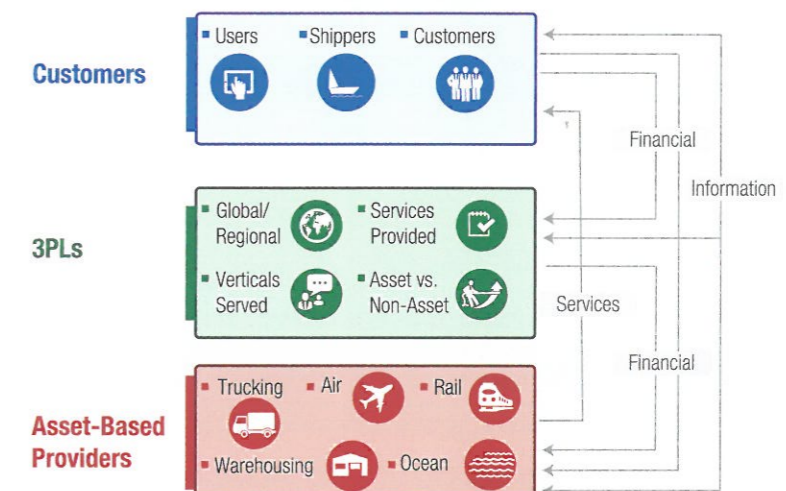
Figure 6 provides another perspective on the types of 3PL relationships. This approach suggests three ways in which 3PLs can work with their customers: tactical partner, service partner and strategic partner.

In the role of strategic partners, customers treat 3PLs as key strategic resources, and both parties are expected to invest in the relationship and share the returns on their investments. Additionally, shippers view their 3PL providers as critical elements of their businesses and competitive positioning, and are willing to share their long-term plans with 3PLs that manage the functioning of its supply chain. It is this type of relationship where both 3PLs and customers make sure there is alignment of business and operational goals.

Strategies to Help Optimize the 3PL Relationship

Successful 3PL-customer relationships do not happen by accident. Participants at each of the workshops, held in Chicago, Rio de Janeiro and Sydney, identified and discussed six key elements that help achieve this objective, as shown in Figure 7.

Figure 4: 3PLs Need to be Aligned With Their Customers and Service Providers



- Mapping Out a Clear Process.** Expectations of the relationship need to be discussed and agreed to by all parties. Both partners need to agree on what benefits or results are to be achieved and how to make decisions that are best for the relationship.
- Meeting with Senior Management.** There is a need for 3PL users to have internal alignment with senior management regarding value to be derived from the 3PL relationship. Meetings between senior management within the 3PL user and provider firms are essential to successful onboarding.
- Creating a Formal Plan for Managing Relationships.** There should be a clear understanding of what is to be expected by which party and when, along with plans and priorities for managing relationships between executive, management and operational representatives of involved parties.
- Having the Capability to Scale Operations to Demand.** Shippers need to test 3PLs' ability to scale their operations up and down based on demand. 3PLs with prior experience in scalability can produce great benefits for their clients.
- Drafting Mutual Agreements.** Non-disclosure agreements should be understood and agreed to by all parties, and dispute resolution procedures should be agreed to by all and used when necessary.
- Understanding Roles and Relationships with Asset-Based Service Providers.** Those using non-asset owning 3PLs need to fully understand how asset-based providers will be used to execute logistics activities that are central to the use of a 3PL. Ideally, 3PLs should have a formal plan for managing their relationships with asset-based providers.

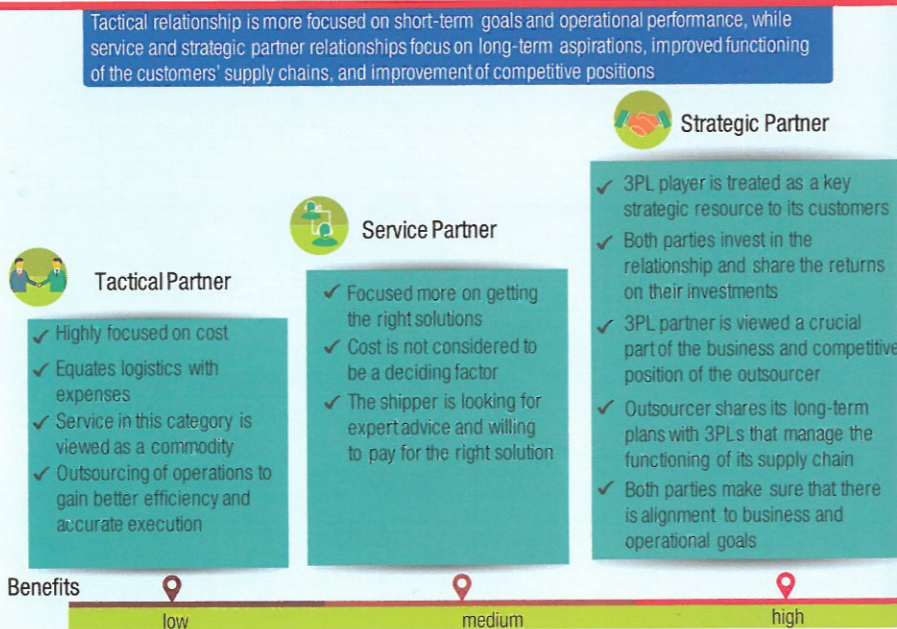
Figure 5: Strategic vs. Tactical 3PL Relationships



Do you have a formal plan for managing relationships with 3PLs?

	Responses by 3PL Users	Responses by 3PL Providers
Yes	74%	42%
No	26%	58%

Figure 6: Types of 3PL Relationships



Another perspective on optimizing 3PL-customer relationships and forging successful partnerships is illustrated in Figure 8, which suggests a high level of importance to four general types of capabilities.

- Control.** Over the years, research has supported the need for shippers to have control over their relationships with 3PLs and that the best relationships are guided by formal plans that are agreed to by both parties. Interestingly, some non-users of 3PL services have said they feel turning to 3PLs may result in a lack of control over their supply chain, whereas many current users suggest that a primary benefit of their decision to outsource is to gain control.

- Risk Mitigation.** This is a key area in which customers and 3PLs need to be aligned, particularly to facilitate collective responses, when necessary, to try to mitigate or eliminate the impacts of a particular risk factor. The development of response management plans also should be a key element of a sound risk mitigation process.
- Business Reviews.** Regular business reviews that provide a checkpoint to examine whether or not the relationship is proceeding as intended should be part of a formal plan, which will provide value to both parties. Effective business reviews include feedback from customers to 3PLs, but the most useful reviews also provide feedback from 3PLs to customers.



Figure 7: Suggested Elements for Successful Onboarding of 3PL-Customer Relationships



Figure 8: Key Strategies That Can Optimize the 3PL Relationship

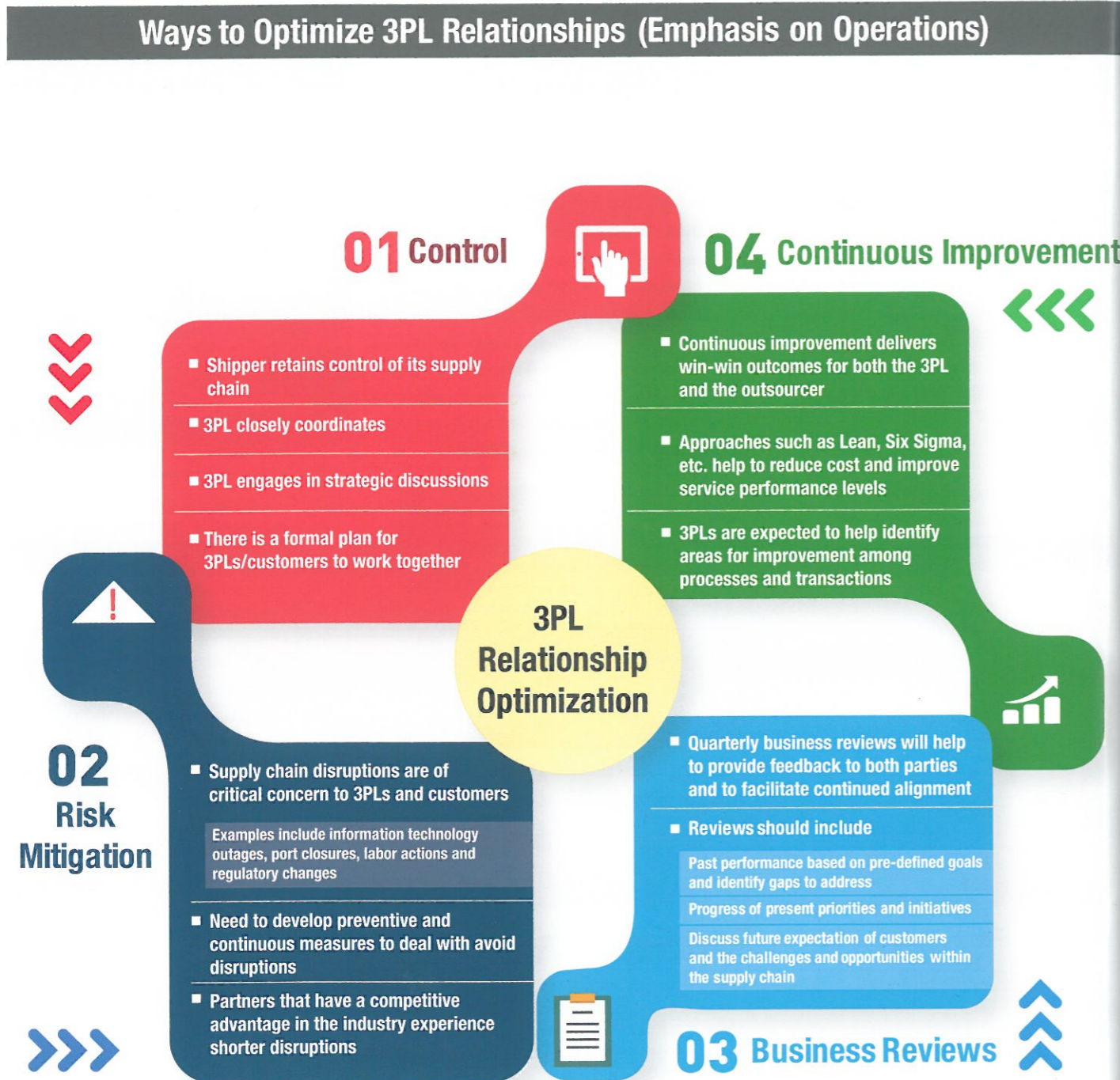


Figure 9: Facilitators of Alignment in 3PL-Customer Relationships

Elements	Clients	3PLs
Agreed-upon performance expectations	87%	96%
Formal performance reviews including measurement/feedback of results	80%	81%
“Dashboards” to help understand current progress and results of 3PL operations	63%	73%
Providing 3PLs with information relating to shippers' goals and strategies	53%	54%
Cultural fit with our 3PLs	43%	70%
Visibility by shippers and 3PLs into workflows and process management	46%	69%
Plans for how shipper and 3PL personnel at the executive, management, and operational levels need to work together.	37%	51%
Multi-enterprise collaboration systems, such as between shippers, 3PLs and service providers	25%	43%
Strategic plan for “succession” of the relationship when it may be appropriate	25%	36%
Pay for performance in addition to pay for services	16%	33%
Calendar visualization to facilitate scheduling meetings and activities	21%	30%

4. **Continuous Improvement.** Given the pace of change in today’s business world, nothing stands still for very long, and supply chains are no exception. This heightens the need for continuous improvement processes to be a regular part of 3PL-customer relationships.

While it is helpful to have a plan that takes into account the strategic and tactical elements of the relationship, it is also necessary that the plan be supported by systems and technologies that influence the daily workflows of both shippers and 3PLs. Essentially, shippers and their 3PLs need to collectively determine what types of resources are needed to meet the objectives of their relationships and then to jointly agree on them.

Aligning 3PLs and Customers

Included in Figure 9 are a number of elements that may facilitate alignment between shippers and 3PLs. The data shows the percentages of respondents from each of these categories who indicate their relationships generally include each of these elements. Not surprisingly, the most prevalent relate to having agreed-upon performance expectations (87% of shippers and 96% of 3PLs) and formal performance reviews, including measurement/feedback of results (80% of shippers and 81% of 3PLs). Next in terms of importance is the use of performance dashboards, the exchange of information between 3PLs and shippers, cultural fit, visibility into workflows and process management, and plans for how 3PL and customer organizations may work together.

Of great benefit to the accomplishment of these objectives is the use of KPIs and scorecards that are related to the shipper’s service-level agreements, and that may then be embedded in the 3PLs CRM systems.

Of particular note are the relatively low percentages of strategic plans related to the “succession” of the relationship when it may be appropriate (25% of shippers, 36% of 3PLs), and pay for performance in addition to pay for services (16% and 33%, respectively). Aside from these survey findings, results from the workshops indicated a growing importance of multi-enterprise collaboration systems, such as those between shippers, 3PLs and service providers, and the use of calendar visualization to facilitate scheduled meetings and activities.

Figure 10: Reported Frequencies of Interactions Among 3PLs and Customers

Which of the following best describes the frequency of your organization's interactions (e.g., phone, email, in-person, etc.) with a typical customer?

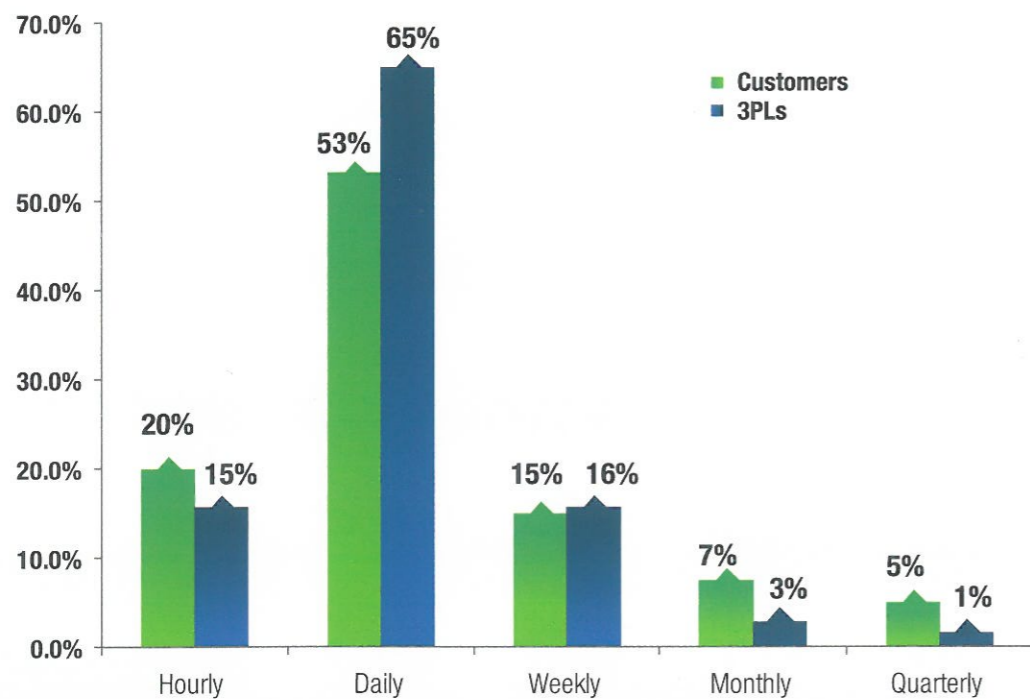


Figure 11: Communications Between 3PLs and Shippers

Initiative (Assessments by 3PLs and customers of helpfulness of specific initiatives)	3PL Providers	3PL Customers
Automated way for clients to log in and see requests from our 3PLs for approvals of decisions, activities, documents, and other "to-do's"	80%	84%
Real-time news feed (such as Twitter or Facebook) of everything that is happening across all 3PLs used by a client	49%	57%
In communicating with our 3PLs/clients, we find that most of the time email provides the needed types of functionality	59%	70%
Our plans for working with 3PLs/clients focus on people, processes, and technology	93%	91%

Another key indicator of the extent to which shippers and 3PLs are aligned is the frequency of interaction between these two parties. Figure 10 reports the results of a question that asked about the frequency of interaction, and the results suggest that 73% of shippers interact with their 3PLs on a daily or hourly basis, while 80% of the 3PLs responded similarly. While a small percentage of shippers indicate either monthly or quarterly contact with their 3PLs, this most likely refers to reporting and feedback activities instead of continuing operational coordination.

Referring back to the section of this report titled "Current State of the 3PL Market," it is clear that a very significant percentage of users of 3PL services agree that IT capabilities are

a necessary element of 3PL expertise. Since the selection of necessary IT capabilities is of critical importance to both shippers and 3PLs, the approaches and solutions need to be agreed upon by both parties. In essence, it is of great significance that both parties take whatever steps and diligence are needed to assure the likelihood that IT systems and capabilities will be well-aligned between the organizations involved. While internal IT departments at both shipper and 3PL organizations frequently have involvement in identifying and approving needed commitments and enhancements to information technologies, those who are leading and operating the 3PL-customer relationships should be key players in any decisions relating to needed technologies.

As the industry looks to the future, those within the supply chain should be thinking about the impacts on 3PL-customer relationships that may result from disruptive innovations, such as drone deliveries, driverless vehicles and next generation cloud-based collaboration solutions. Also, as we look at the evolution of technologies, it is apparent that we are seeing a movement from CRM systems, many of which are of limited focus, to multi-enterprise collaboration systems that have much more pervasive capabilities.

A topic of growing interest is the perceived helpfulness of a few types of communications initiatives to the objective of aligning customers (shippers) and 3PLs, as shown in Figure 11.



- Real-Time Customer Access to 3PL Administrative Requests.** A strong consensus of 3PLs (80%) and customers (84%) agreed that it would be helpful to have an automated way for shippers to log in and see requests from their 3PLs for approvals of decisions, activities, documents and other “to-do’s.” In effect, this would provide a means for real-time alignment between these parties, facilitating enhanced operational and strategic consistency. As CRM and workflow process technologies continue to become more prevalent, particularly with the use of mobile and tablet devices, the value of this capability will become increasingly apparent.

- Real-Time News Feeds.** This provides shippers with up-to-the-minute status reports on the activities of their 3PLs, and would enable significant improvements for shippers in the areas of visibility and responsiveness. As indicated in the phrasing of this initiative in Figure 11, the capability would be similar to a Twitter, Facebook or Google resource that could disseminate key information on a real-time basis. With 49% of 3PLs and 57% of customers expressing agreement, these mobile technologies are becoming increasingly well suited to help facilitate implementation of this concept, and it is one that should be viewed as having high potential.

- Use of Email.** When asked about the helpfulness of email, 59% of providers and 70% of shippers felt that most of the time email provides the needed types of functionality. Subtracting these percentages from 100% suggests there should be a great interest in the use of newer technologies to facilitate communications processes between 3PLs and shippers.

- Focus on People, Process and Technology.** It is reassuring to see that 93% of 3PLs and 91% of shippers indicate their plans for working with each other focus on people, processes and technology. While this triad is sometimes viewed as over-used terminology,

it suggests that both 3PLs and shippers understand that a wide range of resource types are needed to effectively work together to align the activities and processes of 3PLs and their customers.

Additionally, a major factor in improving overall communications will be the extent to which shippers and 3PLs invest in cloud-based collaboration solutions to speed response times and increase visibility with 3PLs and the extended supply chain. Ultimately, this is likely to eliminate much of the need for the use of email as primary means of communications between 3PLs and customers.

Aligning Service Providers with 3PLs and Customers (Shippers)

A critical issue to the success of 3PL - customer relationships is the extent to which asset-based service providers are aligned with the 3PLs and their customers. A look back at Figure 4 in this chapter provides a reminder of how essential it is that these three organizations be on the same page with respect to supply chain goals and objectives, and operational and strategic performance.

- Formal Plans.** Earlier in this section we addressed the importance of 3PLs and shippers having agreed-upon, formal plans for working with each other, and this same priority is apparent in the context of 3PLs working with their service providers. As reported in our global survey, and shown in Figure 12, 77% of the 3PLs and 91% of shippers agreed that 3PLs are expected to have formal plans to help manage relationships with their service providers.

- Selection of Providers.** Survey responses indicated that 80% of 3PLs and 63% of shippers agree that 3PLs either select or help to select service providers. This suggests a degree of collaboration by both 3PLs and shippers on these important decisions, and results in both parties experiencing a sense of accountability for acceptable performance by service providers.

- Sharing and Use of Information.** As discussed in the “Current State of the 3PL Market” section, the availability and use of capable information technologies is viewed as essential in most 3PL-customer relationships. Based on the content of Figure 12, 81% of 3PLs and 71% of customers agree that there is a meaningful sharing of information between customers, 3PLs and service providers.

- Operational Visibility.** Interestingly, 80% of 3PLs and 71% of shippers agree that 3PLs have visibility into the performance and daily status of the service providers. While these percentages suggest that operational visibility is present in a clear majority of 3PL-service provider relationships, of significant concern are those relationships where this may not be the case.

- Service Failures.** This observation is similar to the previous one in that 81% of 3PLs and 79% of shippers agree that a service failure by a service provider also represents a service failure by the 3PL. If there are instances where 3PLs are not thought to bear this responsibility, this needs to become a topic of discussion.

- Need for Improvement.** Aside from the positive aspects of some of the above results, 83% of 3PLs and 80% of shippers agree that improvement is needed in how shippers, 3PLs and service providers manage relationships with one another.

Now that we have addressed issues relating to the need for alignment between shippers, 3PLs and service providers, it is essential that these parties avail themselves of new technologies that are being developed. Examples of such technologies are the multi-enterprise collaboration systems that have been developed and refined by technology providers, such as Lanetix, to enhance collaboration and alignment between organizations involved in the use, management and provision of 3PL services.

Role of 4PLs in Aligning 3PLs with Needs of Customers

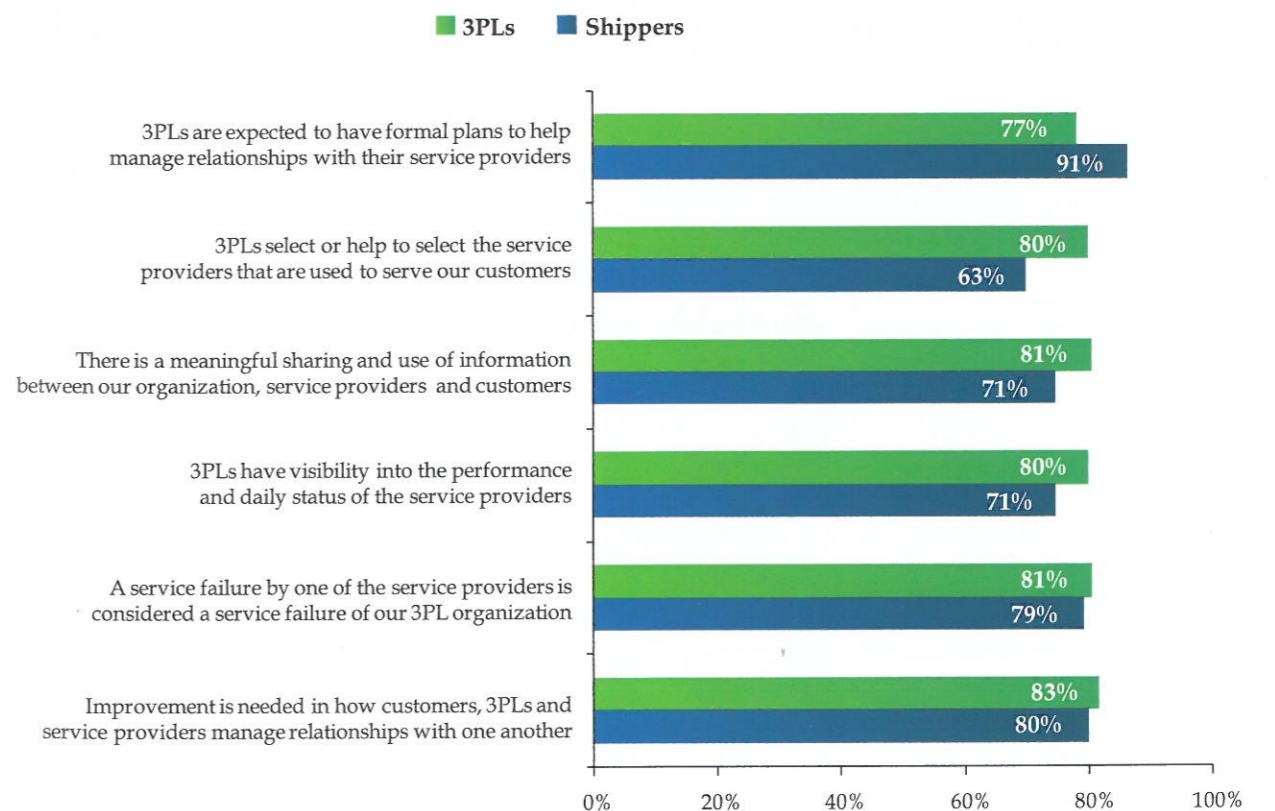
While the functioning of a 4PL/lead logistics provider may take on many different forms, the concept of a lead logistics provider (LLP) is one that can assist greatly with the objective of aligning 3PLs, shippers and service providers. Essentially, a LLP represents a single party in charge of a customer’s 3PL relationships that is responsible for managing the portfolio of 3PLs to help achieve the strategic goals of the customer organization.

Some of the capabilities of a 4PL/LLP organization include: integrating various operations and third-party engagements, responding to increased service demands, delivering value through new or additional service offerings, providing seamless supply chain services across disparate geographies, and addressing and responding to IT-based needs and problems that may be present in the relationships between shippers, 3PLs and service providers.

Depending on the availability of key resources relating to people, processes and technologies, some organizations elect to use internally-available capabilities to create the benefits of a 4PL. Considering the complexity and challenges of creating a viable 4PL capability, however, a preferred approach is to first consider the value available from commercially-available 4PL organizations that focus on being core competent in aligning themselves and their capabilities with the customer organizations and their 3PLs.

Figure 12: Relationships Between 3PLs and Asset-Based Service Providers

In the case that your organization engages service providers to physically provide services to your customers, please indicate whether you agree or disagree with each of the following.



Alignment and Collaboration – Disruptive Trends Abound

An article in the Harvard Business Review in 1996 suggested that “balanced scorecards” could be of significant value in aligning individual, team and departmental goals. While this approach was met with success, today’s supply chains are exponentially more complex and alignment is even more elusive. As a result, there has been increased collaboration among supply chain participants, such as shippers, carriers and warehouse operators. To further help with these efforts, a new wave of cloud-based collaboration technologies has become available.

“Success lies in understanding and constantly improving your internal processes, especially those that impact customers,” said Elijah Ray, executive vice president of client solutions at Sunland Logistics, a South Carolina-based provider of logistics services that does close to half of its business in the retail sector. “As Dr. W. Edwards Deming explained, you can’t manage what you can’t measure.”

Ray is one to know with his accomplishments including a Six Sigma Master Black Belt and extensive ASQ Certified Quality Manager training. “Sunland makes a point to align its processes with its customer commitments, so the customer is always first in every workflow, scorecard and process,” Ray added.

Bill Fisher, a board member at Gap Inc., diptyque and Lanetix, said, “With the costs of deploying cloud-based collaboration solutions lower than ever, shippers can work more closely with their logistics service partners to bring their common goals, plans and teams into even greater alignment.”

Many supply chain innovators, such as Sunland Logistics, rely on cloud-based scorecards that include individual and team key performance indicators modeled after customer service-level agreements. They publish operational dashboards on devices ranging from desktops to smartphones, which map tasks to individuals based on their expertise.

Ray said, “Our own ‘internal LinkedIn’ helps us identify the best person to work with our customers. This helps to assure the most relevant expertise is called upon to resolve a particular customer issue.”

Fisher applauds the early work of supply chain innovators. “The most successful retailers and manufacturers will be those that align their supply chains—from logistics service providers to carriers—in a unified plan, supported by agile, cloud-based collaboration apps.”

Key Takeaways

- The relationships between 3PLs, shippers and service providers may be envisioned as a supply chain for the provision of integrated supply chain services.
- Generally, 3PL-customer relationships may be termed strategic, tactical/operational or a combination of both. Most 3PL users indicate they have a formal plan for dealing with 3PLs.
- The process of initiating (or onboarding) 3PL-customer relationships includes several key steps. These include: mapping out a clear process, meeting with senior management, drafting a formal plan for managing

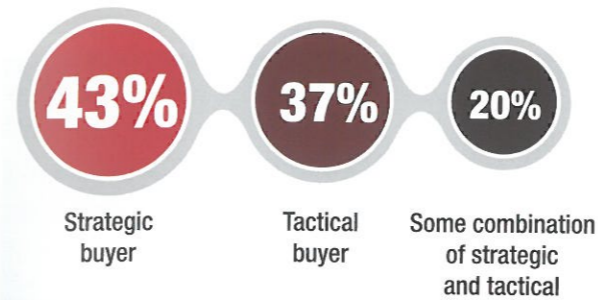
relationships, having the capability to scale operations to demand, reaching mutual agreements, and understanding roles and relationships with asset-based service providers.

- Although there are a number of factors that may lead to success in 3PL-shipper relationships, principal among these are: control over supply chain operations, risk mitigation, business reviews and dedication to continuous improvement.
- Regular communication between 3PLs and shippers is an attribute of successful relationships, and survey results evidence a high frequency of daily and/or hourly contact between these parties.

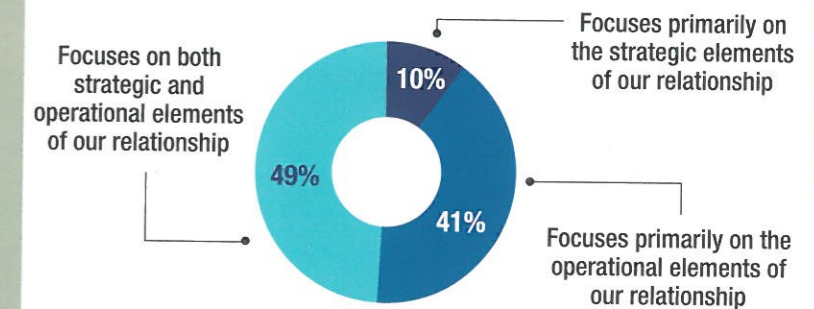
- There are a number of established and emerging strategies for improved communications between 3PLs and shippers. Among these are: real-time customer access to 3PL administrative responses, real-time (3PL) news feeds, use of email, and focus on people, process and technology.
- There is a growing importance of multi-enterprise collaboration systems between shippers, 3PLs and service providers.
- Both 3PLs and shippers agree that the challenges of strategic and operational alignment need to extend to the service providers.
- 4PLs represent a significant set of capabilities that may facilitate the aligning of 3PLs, shippers and service providers.

Aligning 3PL Relationships

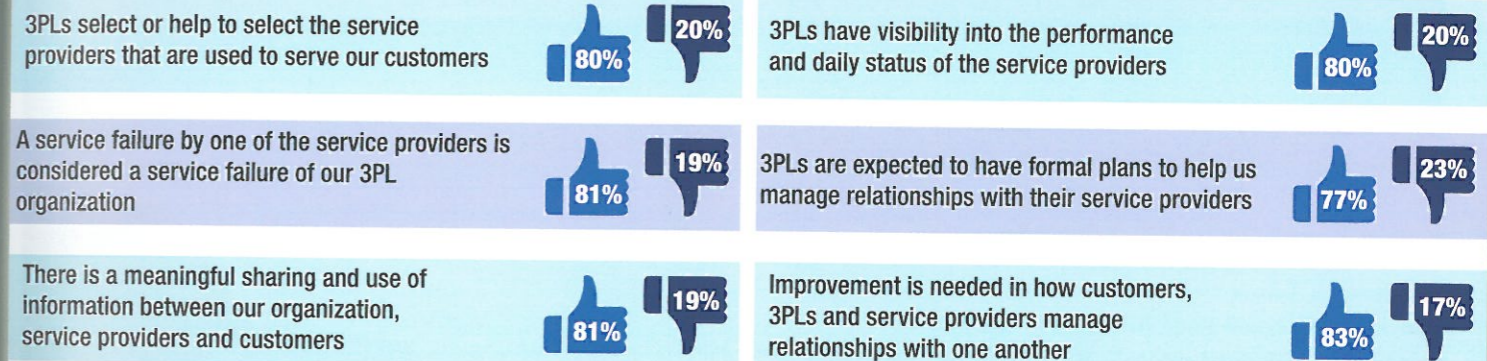
Types of 3PL relationships



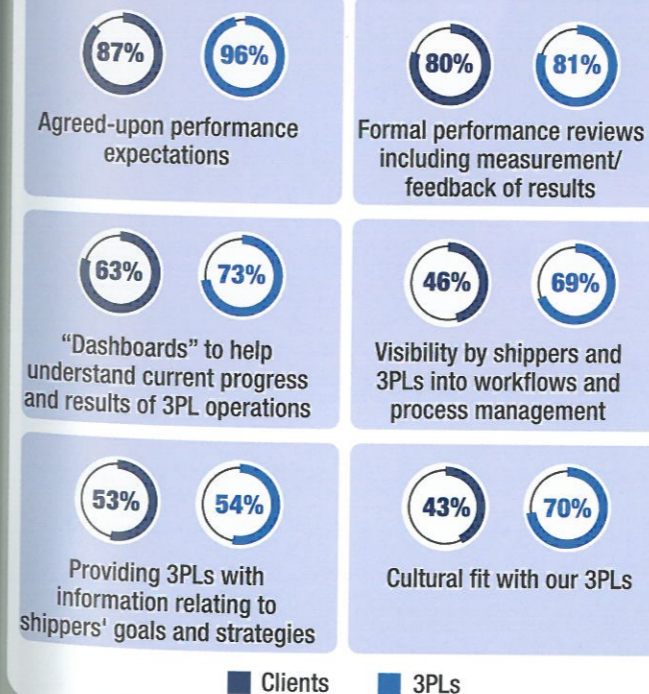
Focus 3PL relationship management plans



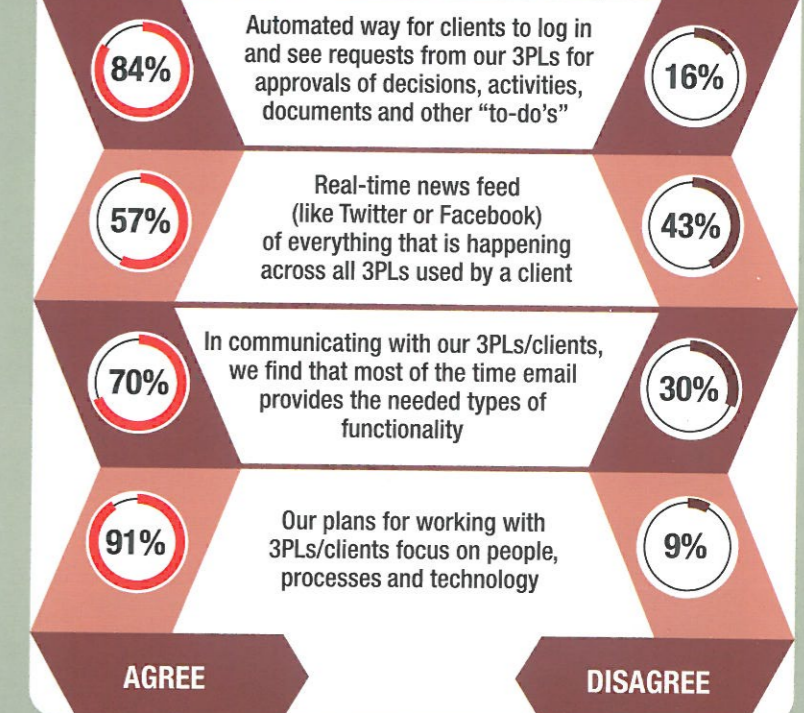
Service provider relationships



Elements of a 3PL relationship



Customer relationships



3PL Competitive Landscape



Competition within in the supply chain arena is increasing, and logistics providers are constantly working to differentiate themselves and provide added value to their customers. Successful 3PL relationships provide shippers with sustained value and information to power data-driven decisions.

Capacity challenges, changing technology and logistic innovations in other industries are all creating competitive opportunities for 3PLs and others looking to enter the industry. Providers are responding with increased collaboration, improved technology platforms and data-driven solutions.

Tightened Capacity

In the U.S., the trucking industry has functioned at a 95-97% capacity over the past three years. The tightened capacity is altering shippers' ability to move loads as well as how these shippers interact with their third-party logistics providers. The need for shippers to find alternate methods and providers is apparent. Among survey respondents, 29% said assets have not been available to move shipments when needed; the same amount—29%—has engaged with a larger number

of 3PLs to gain access to more capacity. The majority of respondents—44%—said they've enhanced relationships to guarantee shipping lanes and on-time shipments, and 40% said they've increased rates, as shown in Figure 13.

The average company outsources close to three different logistics services. As shown in Figure 14, respondents said they're outsourcing their logistics spend across a variety of providers, including large global providers, such as UPS, FedEx, DHL and Penske Logistics, regional full-service providers and specialized providers, such as freight forwarders, and testing evolving service providers, such as UberRush, Amazon and Google Express.

The fragmented logistics sector has witnessed growing consolidation, resulting in increasing prices and fewer partners for 3PLs. Mergers and partnerships are affecting multiple modes of transportation.

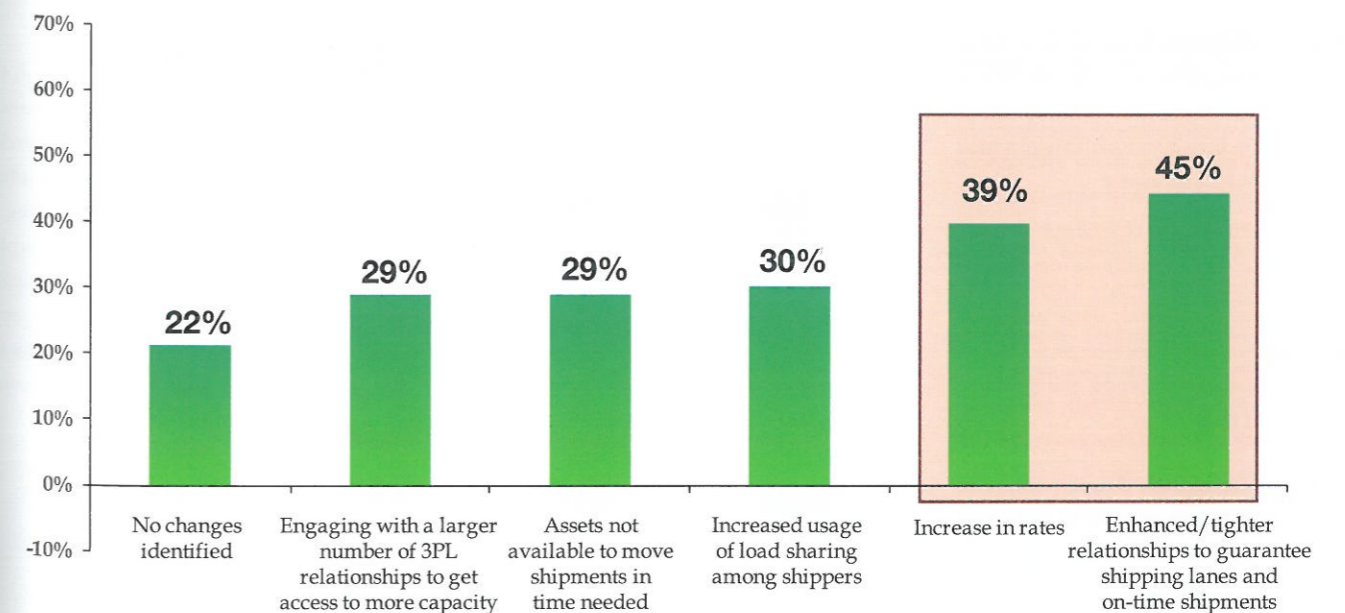
Among ocean carriers, the German shipping company Hapag-Lloyd and the Chilean shipping company CSAV merged, becoming the world's fourth-largest ocean carrier. Hapag-Lloyd said it anticipates annual savings of at least \$300 million due to network optimizations, improvements

to productivity and reductions in costs. In addition, A.P. Moeller-Maersk A/S and MSC Mediterranean Shipping Co., two of the world's largest container-shipping lines, entered into a 10-year pact, agreeing to share 185 vessels along Asia-Europe, Transatlantic and Transpacific routes. Maersk said the agreement would improve network efficiency and vessel capacity.

Mergers and acquisitions have dotted the third-party logistics market, both within the U.S. and abroad. Earlier this year, FedEx Corp. entered into an agreement to buy the Dutch parcel-delivery company TNT Express NV, which FedEx said would bolster its ground network. XPO Logistics has acquired several large providers, including Norbert Dentressangle and Pacer International Inc., making XPO Logistics one of the largest intermodal services providers in North America.

In Japan, Kintetsu World Express Inc. purchased Singapore-based Neptune Orient Lines Ltd.'s logistics business, which gets most of its revenues from the Americas, for \$1.2 billion (U.S.). Also in Japan, Japan Post acquired Toll Group, Australia's largest provider of transportation and logistics, giving Japan Post a reach that spans 55 countries.

Figure 13: The Effect of Capacity Consolidation on Shipper/3PL Interaction



This merger and acquisition activity within the logistics industry is expected to continue, increasing the need for providers to build and maintain customer relationships and adjust their strategies by region. One workshop participant noted that Japanese culture has deep loyalty and will be less likely to switch providers.

3PL-Shipper Collaboration

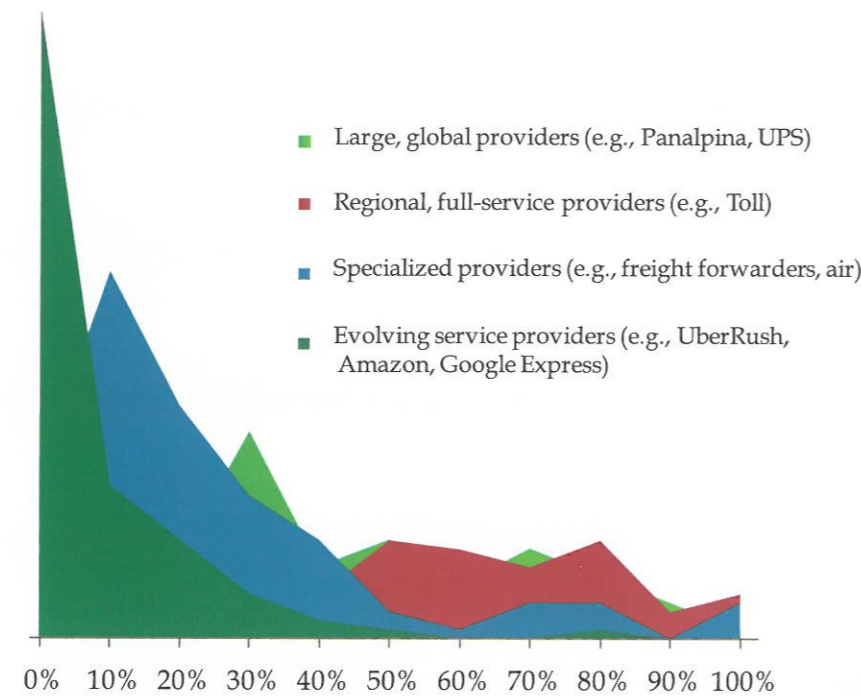
Shippers are more willing to collaborate on and adjust business practices to keep assets moving. Thus, shippers and 3PLs continue to share information. Successful shippers understand that being flexible can ensure reliable coverage and, possibly, a better rate. Some shippers no longer specify tight delivery windows and many within the industry are moving away from the pre-appointment concept. To maximize efficiency, shippers can specify what they need to move and when it needs to be delivered, but leave the rest up to the logistics provider.

3PLs have the advantage of looking across their customer base, aligning carriers and maintaining a continuous move and co-mingling freight from several customers, which provides a cost benefit for all involved. Among respondents, 30% have increased the usage of load sharing among shippers. Shippers with rigid pick-up and delivery times will pay a premium due to increased costs, but 3PLs are providing data to allow shippers to make informed decisions. Although flexibility is beneficial, providers said it is important to avoid being too broad, which can produce inefficiencies and tie up assets.

As capacity becomes a greater concern, increasingly 3PLs are serving as a middleman driving customer collaborations and also relying on a network of service providers to fulfill their customers' needs, particularly within the final mile.

Over the past decade, the delivery time has shrunk from a couple of days to the same day and, in some cases, the same hour. A

Figure 14: Outsourced Logistics Spend Among Service Providers



successful last-mile fulfillment process utilizes route optimization, incentivized scheduling, and real-time electronic tracking and communication.

The final mile is an area of competition within the overall portfolio of logistics services, and logistics providers are releasing innovative solutions. Uber has released a number of solutions, including UberRush, a bike messenger service for smaller items in New York City. Uber is also testing UberCARGO in Hong Kong, where users request van service, then either load the goods themselves or with the help of the driver. Deliveries can be tracked in real-time through the Uber app or the customer can ride along with the items. Rates are calculated based on time and distance.

Two similar companies, GoGoVan, which says it has 10,000 drivers, and Lalamove (called EasyVan) also operate in Hong Kong. Lalamove has raised \$10 million to ramp up expansion across Southeast Asia and mainland China.

The concept of drones has been growing as a final-mile solution, with Amazon first making headlines for the delivery method in 2013. Recently, the company proposed that airspace located between 200 feet and 400 feet from the ground be reserved for drones. Amazon said it expects that within the next 10 years, hundreds of thousands of small drones, both from Amazon and other providers, will be in use.

New logistics providers are breaking all the rules by asking individuals if they are interested in delivering packages through crowd-sourcing services. Shippers and retailers, including Amazon and Wal-Mart, are continuing to innovate crowd-sourcing solutions in which shippers or retailers reach out to their existing or in-store customer base to make deliveries near their destination location. In return for the delivery, customers would receive a discount on their shopping bill or a fee.

Managing the Final Touch Point

Third-party logistics providers frequently work with outside motor carriers to make the final delivery of goods. This puts the final touch point out of the 3PLs' control, so 3PLs must work with a trusted pool of providers and communicate their expectations with their partners so they understand how to provide a strong customer experience. As 3PLs work to differentiate themselves and provide greater customer service to shippers, they are requesting more from drivers, such as stocking shelves, rotating stock, making in-store deliveries before, during and after hours and educating the customer.

To manage expectations, 3PLs are documenting the rules of engagement so drivers know the expectations once they arrive. That can become more challenging for providers as they mingle freight, and technology is playing a key role in managing systems to ensure drivers are meeting each customer's requirements.



Opportunities for 3PLs

Shippers reported becoming more customer-service oriented, which is increasing the focus on 3PLs' value proposition, and shippers are ready to pay for high-quality services if they lead to improved customer service.

To meet more demanding customer expectations, such as same-hour, same-day or next-day delivery, an omni-channel experience and timely order visibility, 58% of respondents said they are investing in new capabilities for themselves, 40% said they are leveraging new capabilities from other companies in different industries, and 15% said they are leveraging new capabilities from competitors, as shown in Figure 15. Just 20% of respondents said they are choosing not to invest.

The Role of Technology in the Supply Chain

The industry is demanding innovation and technology while being cost conscious, and 3PLs are answering with cloud computing. Cloud technology is helping 3PLs and shippers reduce transportation costs, improve visibility, manage inventory and achieve regulatory compliance, addressing several of the top challenges shippers face, shown in Figure 16. Today, the majority of 3PLs offer in-house or third-party cloud-based services.

Figure 15: Investments to Meet Customer Expectations

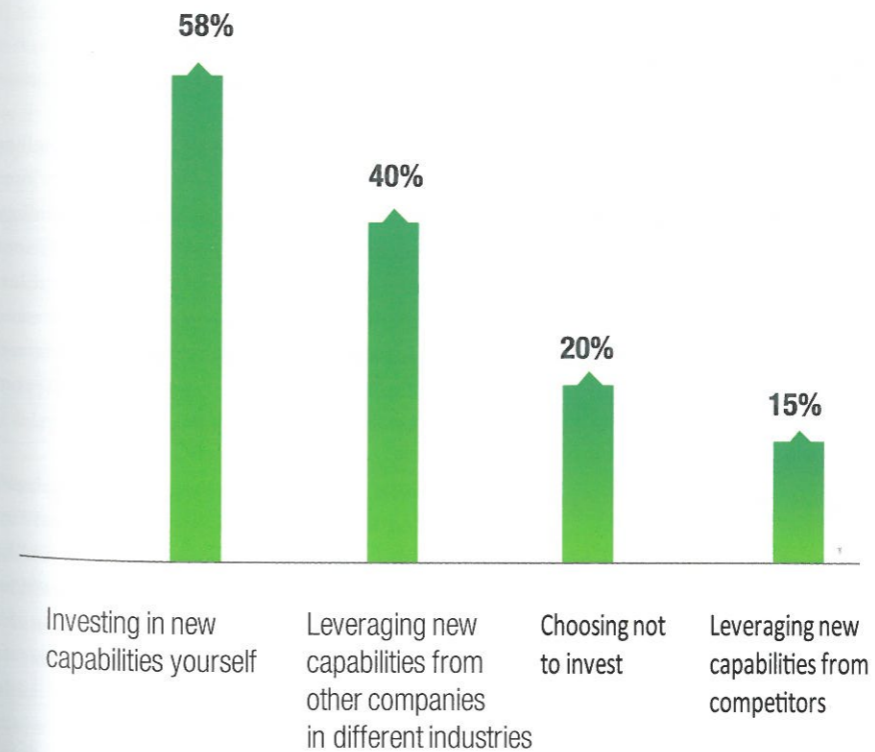


Figure 16: Challenges Faced by Shippers



Total survey respondents = 5,000 3PL users

Routing Technology in Action

One workshop participant noted that Caltex—a petroleum brand name of Chevron Corp. used in more than 60 countries in the Asia-Pacific region, the Middle East and southern Africa—relies heavily on technology for its constant routing changes. The company has no fixed delivery windows and instead focuses on just-in-time fuel deliveries as needed. The company relies on cross-docking and utilizes all of its trucks to minimize its need for fuel storage.

Cloud-based technology is fueling the growth of non-traditional competition in the 3PL space due to its ease of implementation, expense vs. ability and inherent data model. This has also caused capacity integration across Asia and more of Mexico along with merger and acquisition activity in North America.

The cloud also makes the integration of solutions from more than one 3PL player more feasible, which is important given the use of multiple providers throughout the supply chain. With shorter implementation timelines, lower cost of acquisition (often an expense versus a capital investment) and increased ease of use, cloud-based solutions are helping lower the barrier to entry into the logistics services industry.

Among respondents, the majority—60%—said they are using technology to increase visibility within orders, shipments and inventory; 40% are using technology for planning within transportation management and 48% are using it for scheduling within transportation management, shown in Figure 17.

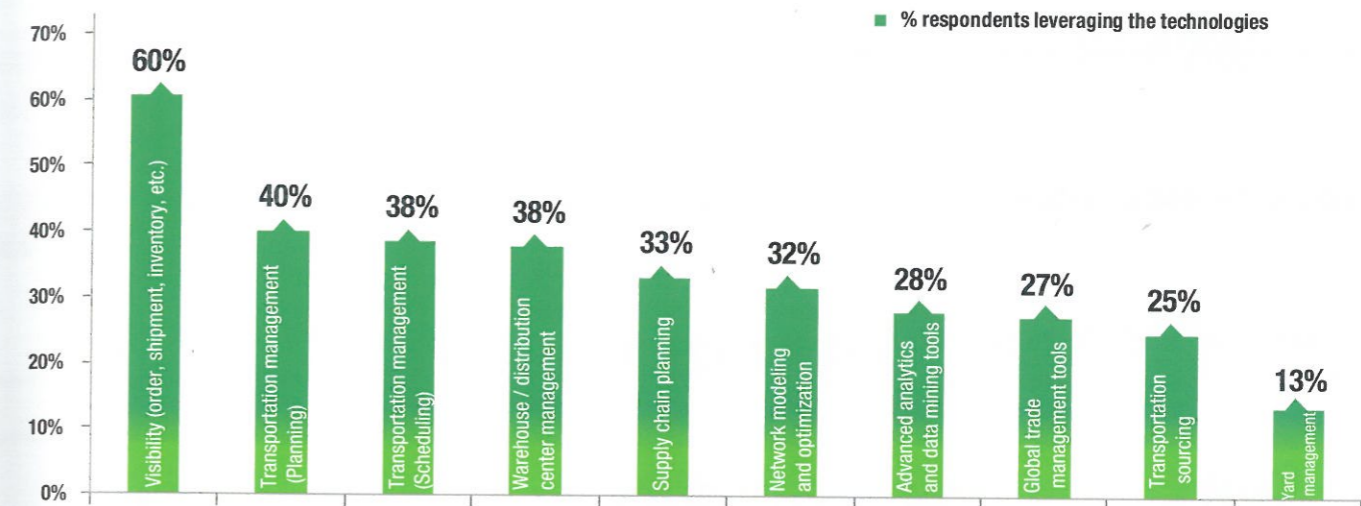
Data-Driven Solutions

As a result of tightened capacity as well as government regulations that make drivers' time more valuable, 3PLs are utilizing technology to choose the most profitable and efficient shipping lanes and reduce empty miles. Technology is allowing for continuous route optimization along with dynamic incentivized scheduling, electronic confirmation and proof of delivery.

Customers' networks change on a regular basis and 3PLs can maximize freight movement by using both static and dynamic routes. Unlike static routing, dynamic routing allows 3PLs to monitor real-time changes that alter the network, and adjust the route to maximize its efficiency and cost.

3PLs are utilizing their customers' data, supplementing it with their own and applying their expertise within one industry to another, such as using the just-in-time, just-in-sequence

Figure 17: Leveraged Technologies



delivery patterns perfected in the automotive industry within the food and beverage industry.

In some cases, 3PLs collect information as part of their deliveries and push it back to the customer, connecting the expectations of the receiving location with the back office and improving the overall experience.

Technology and data also aids shippers in selecting the right shipment modes to maximize efficiency and reduce costs. Technology allows providers to create 'what if' scenarios in which they alter routes, modes and pick-up times to determine what it means to shippers' cost and delivery times.

Shippers are increasingly looking for carriers and logistics service providers that offer multi-modal capabilities, and 3PLs have the benefit of taking an outside-in approach and obtaining an unbiased look at the network to create the most cost efficient solutions, which in the U.S. is leading to an increase in intermodal services. As a result, providers experienced service disruption at key points in the network, proving that today's answer may turn into tomorrow's challenge and requiring a continuous need to be flexible and creative.



Increasing container ship sizes further led to increased congestions at ports in the U.S. and Europe, leading to diversion of freight to other channels, creating challenges within the supply chain.

With the expansion of the Panama Canal, ports worldwide are widening and deepening channels to prepare for larger vessels, which will alter logistics lanes. This will allow larger ships to bypass U.S. West Coast ports that have struggled with congestion. The expansion of the Panama Canal is covered in greater detail within the "Strategic Assessment" section of the report.

Going Forward

As the logistics landscape continues to respond to more freight, capacity and regulatory issues, and increasingly demanding customers and consumers, the industry is more focused than ever on innovation. Some creative solutions are coming from relaxing the historical constraints of yesterday. Others are coming from leveraging new solutions from drones to "you and me" becoming last-mile service providers. In addition, cloud-based technologies are helping to lower the barriers to entry to an industry in which it can be difficult to establish operations. So the future looks bright for logistics services providers, whether they be the traditional companies shippers have come to rely on or new players that are beginning to send ripples across the competitive landscape.

Key Takeaways

- Capacity concerns have altered how a large number of shippers interact with providers, with 29% of respondents reporting that assets have not been available to move shipments when needed. The same amount—29%—has engaged with a larger number of 3PLs to get access to more capacity, 44% have enhanced relationships to guarantee shipping lanes and on-time shipments and 40% have increased rates.
- The fragmented logistics sector has witnessed increasing consolidation, resulting in increasing prices and fewer partners for 3PLs.
- Shippers are willing to be flexible with shipments and adjust business practices to keep assets moving, increasing the likelihood a shipper will not only obtain capacity but also a better rate.
- 3PLs are also using technology and data to aid shippers in selecting the right shipment modes to maximize efficiency and reduce costs. The majority of respondents—60%—are using technology to increase visibility within orders, shipments and inventory; 40% are using technology for planning within transportation management and 38% are using it for scheduling within transportation management.
- To meet more demanding customer expectations, such as same-hour, same-day or next-day delivery, an omni-channel experience and timely order visibility, 58% of respondents are investing in new capabilities for themselves, 40% are leveraging new capabilities from other companies in different industries, and 15% are leveraging new capabilities from competitors.

Figure 18: 3PL Cloud-Based Supply Chain Management Solutions

The use of new technologies has helped 3PL players to combat external challenges and improve internal operations

Cloud computing

- More than 60% of the leading 3PL players offer in-house or third-party cloud-based services
- These cloud-based solutions provide better supply chain visibility, quicker deployment and reduce the cost of operation

Cloud solutions, including transportation management systems, supply chain planning, factory management and others, will aid 3PL players as they face capacity challenges and innovation in other industries

Capacity Challenges

 Positive	Negative <ul style="list-style-type: none"> Port Expansion Growing Intermodal Freight Shipper-Carrier Collaborations Increasing Air Cargo
Positive	<ul style="list-style-type: none"> Consolidation in Logistics industry Stringent Regulations Port Congestion Shortage of Drivers

Innovations

- Continuous Route Optimization
- Dynamic Incentivized Scheduling
- Mobile and Telematics
- Electronic Confirmation and Proof-of-Delivery

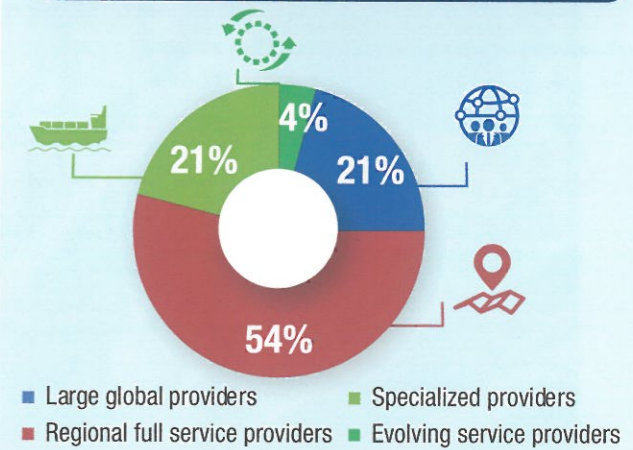
Free and same-day deliveries have increased pressure on fulfillment services

2016 Third-Party Logistics Study 3PL Competitive Landscape

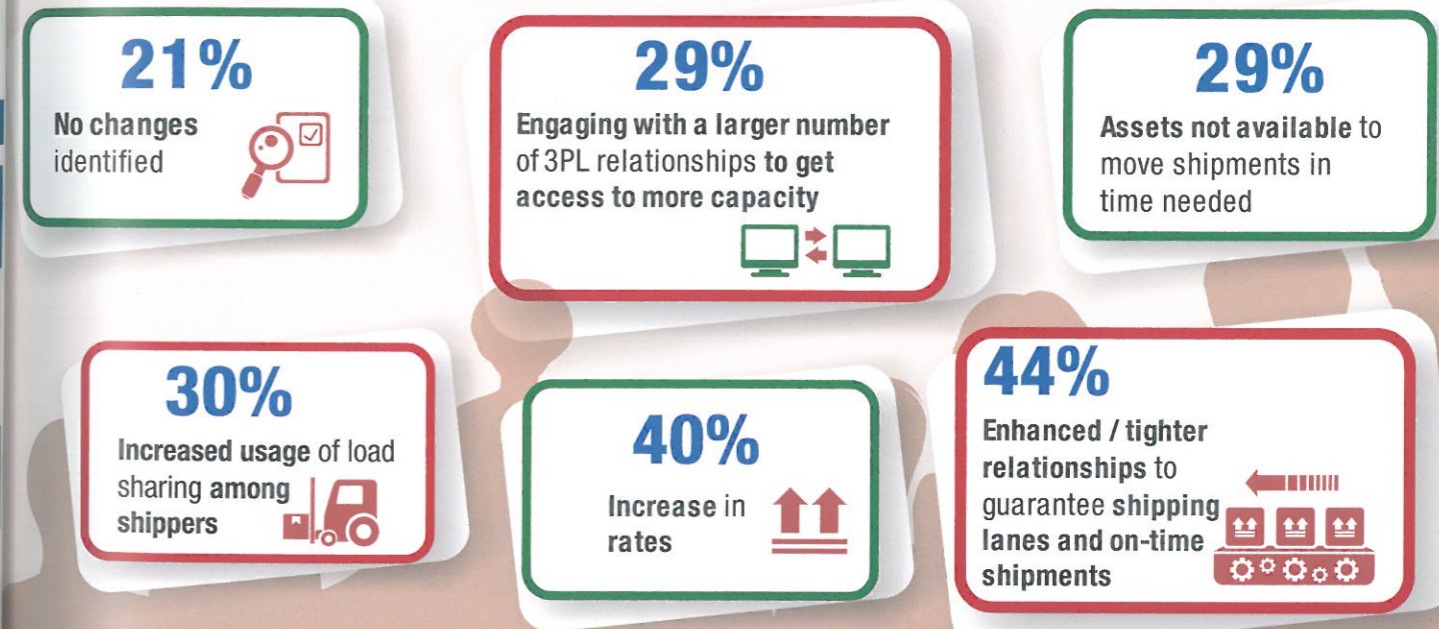
How the expectations of changing and more demanding customers are being met



Estimated percentage of outsourced logistics spend by provider type

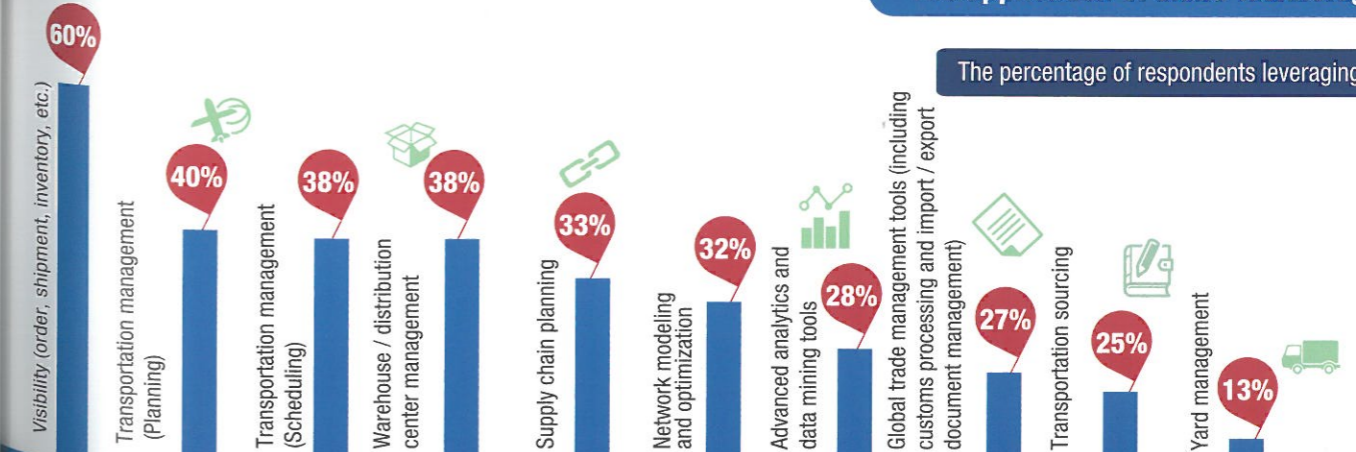


Impacts of capacity consolidation



The application of cloud technology

The percentage of respondents leveraging technologies



Workforce Innovation and Agility

Keeping Supply Chain Talent in Stock



The entire supply chain relies on people to make the system work, and the logistics industry is facing an unprecedented labor shortage. Not only is the supply chain industry struggling to find the right talent to fill positions, labor issues are expected to intensify in the coming years.

Although labor concerns pose a challenge, they also create a tremendous opportunity. 3PLs that are able to leverage their employees in a new way will provide added value to shippers and obtain a competitive advantage. More than half of shippers—52%—feel they can rely on their 3PLs to address the labor shortage's effect on their business, as shown in Figure 19.

Jan-Martin Witbreuk, a senior client partner in the distribution and logistics practice at Korn Ferry and a former executive with CEVA and DHL Supply Chain, said, "The 3PLs tackling the labor challenge have an outstanding planning capability for labor redeployment in combination with hiring talent ahead of the curve. This is today's recipe for outgrowing the market but it will require a willingness to invest in talent ahead of the curve."

To build and maintain a strong labor pool, 3PLs may need to take a lesson from the technology industry whose domain of expertise is reinvented every few years. To build ahead-of-the-curve talent in a rapidly changing industry, those within the technology field have had to pivot to and embrace a labor pool that values learning and can react quickly to shifting demands.

Currently 79% of 3PLs feel they are unprepared for the labor shortage's impact on their supply chain. To meet customer expectations, they will need to ramp up their efforts to attract and retain employees, increasing their focus on employer branding (covered in the "Strategic Assessment" portion of this report), training and workforce agility.

Going forward, the demand for supply chain jobs is likely to increase, however the supply of labor is expected to shrink. As reported in the *19th Annual Third-Party Logistics Study*, 60 million employees were exiting the supply

chain industry with only 40 million people joining the industry to fill the gap.

Worldwide, the labor shortage exists within blue-collar transportation functions along with middle management jobs in the warehousing and logistics industry, shown in Figure 20. The skilled labor shortage is expected to increase in the next five years, with the truck driver and warehousing staff shortage expected to surge the most. Moreover, supply chain jobs are expected to grow by 25% over the next decade and almost 25% of the current workforce in supply chain management was expected to retire by 2015.

As shown in Figure 21, shippers and providers said they expect difficulty in filling niche-talent positions along with an extended lead time when it comes to hiring.

To best address the difficulty the labor shortage will present, companies are identifying challenges and looking for solutions. As a result of the labor shortage, workforce challenges will shift. Currently, shippers and their logistics partners' top challenge is attracting the best talent, as shown in Figure 22, but in the future, they anticipate their top challenge will be not finding the right people fast enough.

Supply chain operations have become complex over the years, requiring employees at all levels with better analytic capabilities. Executive, management and non-management skills have drastically changed over the last 20 years. Currently, it is crucial supply chain leaders understand how to deal with a crisis, technology, and the increased complexity and transparency of the supply chain. Less than 20% of the current workforce in the industry has the new required skill set. The number of supply chain university courses has increased over the years, yet the academic curriculum still lags behind the current needs of the industry.

The Driver Shortage

While there are overarching workforce issues, the driver shortage remains a primary concern. Within the U.S., 70% of freight tonnage is moved on a truck, and without drivers, that freight is likely to stand still. The American Trucking Associations estimates a driver shortage of 35,000 to 40,000 in 2015, and that number jumps to 240,000 in 2020. Traditional driver recruiting became obsolete almost overnight with the trucking industry scrambling to find solutions or perhaps pursue the best recruiting method: a retainer strategy.

Figure 19: Shippers Rely on 3PLs to Handle Labor Shortage

The industry will likely depend on 3PLs to prepare for the labor shortage

52%



Shippers feel they can rely on their 3PL's preparation for the labor shortage's impact on their business

79%



3PLs feel their shippers are unprepared for the labor shortage's impact on their supply chain

Figure 20: Global Concerns Adding to the Labor Shortage



Almost 37% of the demand for drivers is to substitute the aging drivers, and the average age of a truck driver today is 55 years old or more. Even those now entering the industry are older than those entering in the past. A report by the American Transportation Research Institute (ATRI) shows that there has been a decline in the percent of the U.S. labor force under the age of 35 that works within the truck transportation industry.

“It is evident that over the past 20 years the 25 to 34 group, as a percentage of industry employees, has decreased significantly,” ATRI said. “If current trends continue the core trucking generation—persons 45 to 54—will retire with a significant deficit of younger employees behind them to take their place.”

To attract drivers, companies are turning to a variety of solutions. Within the trucking industry, a growing number of companies are offering signing bonuses, ranging from \$500 to \$12,000 depending on the region. Some companies are covering the cost of driver training and licensing in exchange for a commitment to drive for a fixed period. When

possible, carriers are investing in newer, more comfortable equipment in an effort to attract and retain drivers, including women and older drivers, and working to provide more benefits, such as flexible routes and work schedules.

Workforce Development

Innovative and dynamic employee development and hiring strategies will play a critical role in most organizations’ response to the anticipated labor shortage.

To meet the growing labor needs, companies will likely develop built-in succession or talent pipeline programs, identifying opportunities for high-potential workers and creating structured paths for advancement. Training programs will help employers develop their existing talent pool, and there may be an increased number of partnerships between providers and driver schools or other industry groups.

In Europe, the supply chain industry has focused on high school graduates as potential “captains of country roads,” and launched employment campaigns to reach younger workers.

Cross training will play a greater role within the workforce, as will workforce agility in which employers focus on hiring employees who are able to learn and adapt to shifting needs. Agility—a mindset and a behavior in which businesses and employees embrace unfamiliar situations—will allow companies to address the labor shortage and drive growth in new situations.

Logistics companies are trying to bring logistics curriculum up to par with current operational needs. Some companies are turning to paid internships, project sponsorship and consulting assignments. Employers are also offering on-site workshop sessions, professional monitoring and online courses to improve workers’ skill levels.

A number of companies, including Anheuser-Busch and Caterpillar, are embracing career development programs to attract graduates interested in pursuing a logistics/supply chain career. New hires can further develop their skills while rotating through various areas, including transportation, supply planning, wholesaler operations and warehouse logistics.

The industry may also increase its use of a mobile workforce and human resource outsourcing. There are several benefits associated with the outsourcing of warehouse labor management in particular, including improved productivity and reduced costs. Labor costs account for 50% to 70% of the total expenses of warehousing function.

Elevating an employer brand will also accelerate hiring. Companies that invest as much time and resources into their employer brand as they do into their customer-facing brand create a competitive advantage when labor is scarce. This topic is covered in greater detail within the “Strategic Assessment” section of the report.

Automation as a Solution

While employees will always be a crucial component within the supply chain industry, automation could help lessen the impact of a workforce shortage.

A number of advancements have been made toward driverless trucking in which a lead truck is operated by a human driver followed in close formation by a small fleet of driverless vehicles “tethered” by a series of sensors.

As detailed in the section “3PL Competitive Landscape,” several companies, including Amazon, have considered crowd-sourced delivery solutions that use individuals to deliver packages. These solutions can be powered by mobile apps that alert drivers to available packages.

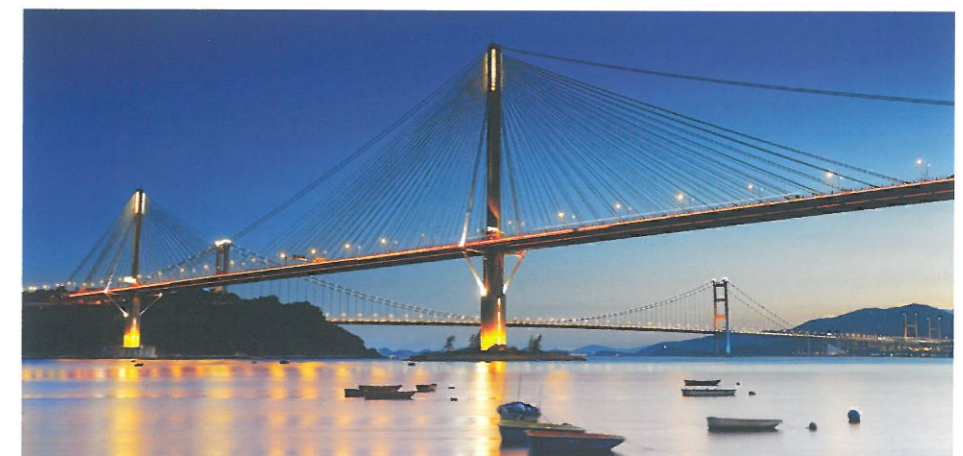
Automation is also a solution within the warehouse segment of the industry. Some logistics companies are trying to improve their current productivity to deal with the labor shortage. Companies are adopting real-time monitoring to increase labor productivity. They are also investing in technology to improve labor forecasting, planning and scheduling. The right tools can offer providers accurate forecasting of labor requirements and scheduling based on demand, therefore logistics companies are able to cater to more business with less capacity.

Figure 21: Current and Future Hiring Challenges

1	Hard-to-fill niche talent positions	Inability to offer competitive compensation package	4
2	Long time to hire	Underdeveloped or under-performing presence in new talent channels	5
3	Poor quality of labor pool	Absence of technology or technology deployed but not optimized	6

Figure 22: Current and Future Workforce Challenges

Today’s workforce challenges for 3PLs and shippers		Workforce challenges of tomorrow due to labor shortages	
1	Attracting the best talent	Not finding the right people fast enough	1
2	Developing leaders	Lack of continuity and thus quality of service or product	2
3	Retaining high performers	Growing turnover	3
4	Enhancing employee motivation and engagement	Decreased productivity and output	4
5	Reducing workforce costs	Inability to promote and accelerate careers of high potentials	5



Alternative Labor Pools

To help bridge the labor gap, the industry could tap into several existing labor pools, including women and military veterans.

Traditionally, women have had low representation in the logistics industry. Reaching out to women to increase their numbers in logistics education programs and the logistics workforce could help mitigate the shortage. Factors that appeal to women in the workforce include work-life balance, more career opportunities and gender equality in the workforce.

The trucking industry is already increasing its outreach to women. The Bureau of Labor Statistics reported that in 2014, 5.8% of truck drivers were women, lower than the percentage of female construction managers or mechanical engineers. The Women in Trucking Association, which has 2,500 members, is working to encourage women to become professional drivers. "As carriers advertise automated transmissions, air ride seats, drop-and-hook freight and regional runs, the industry becomes more attractive for female drivers as well as their male counterparts," the association said.

Women in Trucking is working with cab manufacturers to identify in-cab features that make cabs more adaptable for women's frames, such as adjustable seats and pedals for shorter drivers and lower steps for accessing cabs and freight. Adaptability can also appeal to aging drivers or team drivers that need to be able to adjust settings when transitioning from driver to driver.

The federal government has taken several steps to simplify the transition to the transportation industry for veterans, including expanding a program that gives states the authority to waive the skills portion of the commercial driver's license application for active-duty and recently discharged members of the U.S. armed services, the National Guard and Reserve and the U.S. Coast Guard if those individuals have experience driving comparable military vehicles.

Workforce Agility in Action

For one multi-billion dollar wholesale grocery distribution company that participated in this year's study, embracing workforce agility has maximized efficiency and helped the company meet its shifting labor needs.

The company delivers about 100,000 food and grocery items to thousands of retail locations in the U.S., making warehousing the foundation of the company. To meet demands, the company has 14,000 warehouse workers, including forklift operators and selectors. However, work within the warehouse is physical and typically appeals to those 40 or younger. Rather than lose employees, the company has found that transitioning warehouse workers to driving gives workers the ability to continue their career with the company while also cutting down on the company's driver recruiting costs.

In order to provide proper training and motivation, the distributor has partnered with local training programs and offers retention bonuses. The company estimates the overall cost to train seven students is less than \$6,000, whereas recruiting would cost \$20,000 to find two qualified drivers.

Employees who are interested in driving but don't want to travel over the road have the option to become yard jockeys, moving trailers around warehousing locations.

To ensure employees transitioning to driving are committed, the distributor requires trainees to put up \$1,000 through payroll deduction, which is reimbursed once drivers complete the training. Then they receive a one-year and two-year bonus.

A number of trucking companies have committed to the Chamber of Commerce Foundation's Hiring our Heroes campaign that helps veterans, transitioning service members and military spouses find employment. The industry expects to hire approximately 100,000 veterans by 2016.

Key Takeaways

- The demand for supply chain jobs is likely to increase, however the supply of labor is expected to shrink. The skilled labor shortage is expected to increase in the next five years, with the truck driver and warehousing staff shortage expected to surge the most.
- The labor shortage will create opportunities for 3PLs to be more innovative, leverage their employees in a new way and provide added value to shippers. More than half of shippers—52%—feel they can rely on their

3PLs to address the labor shortage's effect on their business.

- The majority of 3PLs—79%—feel they are unprepared for the labor shortage's impact on their supply chain. To prepare, logistics providers will need to increase their focus on employer branding, training and workforce agility.
- Innovative and dynamic employee development and hiring strategies will play a critical role in most organizations' response to the anticipated labor shortage, including workforce development, cross-training and improved recruiting.
- Automation, both within the warehouse and on the road, could help lessen the impact of a workforce shortage.
- Companies are expected to tap into new labor pools, including women and veterans which could also help bridge the gap.

2016 Third-Party Logistics Study Workforce Innovation and Agility

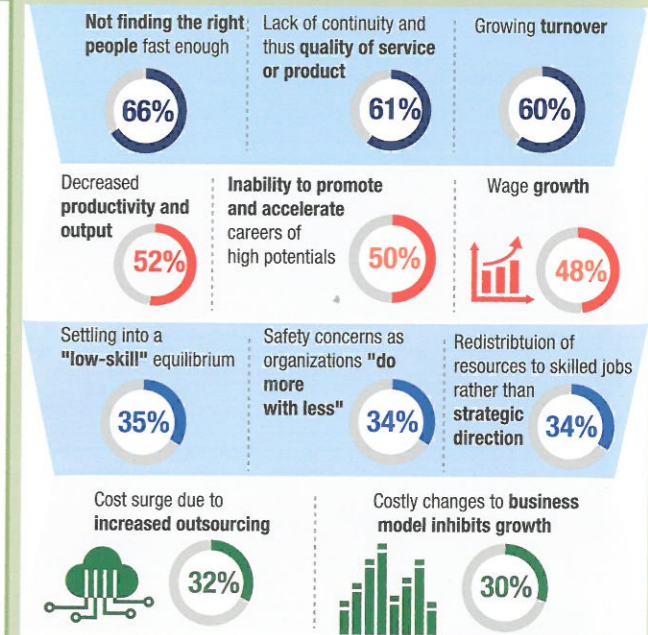
Top workforce issues



Recruiting and hiring strategies



Impacts of the labor shortage



Challenges attracting talent



Strategic Assessment



The Greening of the Supply Chain

Sustainability has taken on greater importance throughout the supply chain. As a result, companies are focusing on efficiency and including sustainability into business codes of conduct that drive increased responsibility. Codes of conduct often require active engagement through data reporting and third-party inspections or audits in all areas, including sourcing and distribution.

The use of public-private partnerships promoting sustainability has increased. The U.S. Environmental Protection Agency's SmartWay program—a voluntary effort designed to help the freight transportation sector of the supply chain improve efficiency—has grown to include 3,000 partners since it first launched in 2004. Similarly, the Canada SmartWay Transport Partnership also encourages sustainability initiatives.

Both programs have annual submission requirements 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.

EPA estimates the SmartWay program has saved 144.3 million barrels of oil and \$20.6 billion in fuel costs, along with eliminating 61.7 million metric tons of CO₂, 1,070,000 tons of NO_x and 43,000 tons of particulate matter emissions.

SmartWay member fleets, including Penske Truck Leasing, are proving to be industry leaders in the areas of spec'ing, operating and maintaining fleets of traditionally fueled

vehicles as well as alternative-fueled vehicles. Such alternative-fueled vehicles include natural gas, propane, electric and diesel-electric hybrids.

Penske's alternative fuels vehicle fleet, which is comprised of 600 vehicles, includes more than 400 compressed natural gas (CNG) tractors. Traditionally, fleets have waited to invest in natural gas tractors until they identified a fueling network, but that network is growing. The Department of Energy reports that there are 845 public CNG filling stations in the U.S. and 73 public liquefied natural gas (LNG) filling stations. Those numbers increase when including private facilities.

The growth in fueling stations has increased the ease with which carriers can add natural gas vehicles into their fleets. As the number of carriers utilizing natural gas powered tractors has increased, other companies have followed suit to avoid losing business.

Some large companies, UPS, have introduced Class 8 vehicles that run on liquefied less natural gas (LNG), which can cost significantly per gallon than diesel.

In an effort to increase efficiency, reduce fuel costs and lower emissions, the trucking industry and U.S. government have considered increasing the truck size and weight standards, which currently limit trucks to 80,000 pounds.

In 2002, the Transportation Research Board recommended nationwide operation of 33-foot double trailers, and in 2015 the Department of Transportation (DOT) issued a report saying increased size and weight limitations on heavy-duty trucks would increase productivity and reduce emissions. However, DOT said more research is needed before the agency can recommend a policy change. In mid-2015, both the U.S. House and Senate were considering measures to allow heavier, six-axle vehicles.

Proponents of the measure have said improved efficiency from longer combination vehicles can translate into the need for somewhat fewer drivers. One of the social/political problems with this issue is that there is strong social opinion and sentiment that added truck length equates to less safe operations. However, the experience of most industry representatives is that the move to 33-foot double trailers provides a more stable, and thus safer, ride than 28-foot doubles.

During construction, warehouses are focusing on increased efficiency and lessening their impact on the environment through a number of measures, such as more efficient equipment, water conservation efforts and the use of responsibly managed, plant-based source materials.

Warehouses have also increased their emphasis on sustainability by focusing on reducing the consumption of primary materials through re-use and recycling while also transitioning to naturally renewable components. Examples include purchasing cardboard with recycled content for packaging, utilizing energy efficient light bulbs and having zero landfill impact.

Globally, supply chain partners continue to look for ways to minimize noise pollution and improve on the safe transport of hazardous materials. The European Union's European Commission has released a strategy to curb CO₂ emissions from heavy-duty vehicles, which is the EU's first initiative to tackle emissions from trucks and buses, and the agency said it plans to take additional action.

What supply chain sustainability initiatives will we see in the near future? Which technologies will companies invest in to conserve resources and cut costs? Will carriers increase their utilization of alternative-fueled vehicles? How will government regulations affect efficiency?

Alternative Fuel Options

Carriers looking to embrace alternative fuels have a number of options, including natural gas and propane.

Natural gas is an odorless, gaseous mixture of hydrocarbons—predominantly methane (CH₄)—that can be either compressed or liquefied for use in vehicles.

Compressed natural gas (CNG) is produced by compressing natural gas to less than 1% of its volume at standard atmospheric pressure. It is stored onboard a vehicle in a compressed gaseous state within cylinders at a pressure of 3,000 to 3,600 pounds per square inch and can be used in light-, medium- and heavy-duty applications. A CNG-powered vehicle gets about the same fuel economy as a conventional gasoline vehicle.

Liquefied natural gas (LNG) is produced by purifying natural gas and super-cooling it to -260°F to turn it into a liquid. LNG must be kept at cold temperatures and is stored in double-walled, vacuum-insulated pressure vessels. LNG works well for longer ranges because liquid is more dense than gas, meaning more energy can be stored by volume in a tank. LNG is typically used in medium- and heavy-duty vehicles, and a gasoline-gallon-equivalent equals about 1.5 gallons of LNG.

Liquefied petroleum gas (LPG), also called propane autogas, is a clean-burning fossil fuel that can produce fewer emissions than gasoline or diesel. Propane is stored as a liquid in pressurized fuel tanks rated to 300 psi. LPG is used to power light-, medium- and heavy-duty propane vehicles. It has a higher octane rating than gasoline, but a lower Btu rating, so it takes more fuel to drive the same distance.

Securing the Supply Chain

Security is a crucial aspect of global supply chain management, yet the complex nature of supply chains creates a number of security challenges. To ensure the efficient and secure movement of goods, shippers, logistics providers and motor carriers are taking a layered approach to security, dedicating more time and resources to prevent theft, and working together to share information and increase visibility.

Fragmentation within the supply chain makes it difficult to ensure all parties involved treat security with the same sense of urgency. For this reason, a number of public-private voluntary programs were established to target theft, both domestically and internationally.

The United States and European Union have agreed to recognize each country's respective supply chain security programs—the U.S.'s Customs-Trade Partnership Against Terrorism (C-TPAT), which provides certifications to companies that voluntarily agree to adopt and integrate the program's security guidelines into their supply chains, and the EU's Authorized Economic Operator program that provides

certain benefits to certified traders that voluntarily agree to adopt and integrate the AEO program's security and other criteria into their supply chains.

To improve security, third-party logistics providers must have high security standards for the carriers they use in order to preserve the chain of command, with a number of companies choosing to work with C-TPAT-certified carriers.

Today, C-TPAT includes more than 10,000 certified partners, including U.S. importers, U.S./Canada highway carriers, U.S./Mexico highway carriers, rail and sea carriers, U.S. customs brokers and freight consolidators along with Mexican and Canadian manufacturers and Mexican long-haul carriers. These partners account for more than 50% of what is imported into the United States.

Within the U.S., several groups focus on information sharing to increase awareness of security threats. Companies use these groups to share law enforcement bulletins and warnings of high-theft routes. This is essential because theft is often location based for truckers with differing geographies requiring different security precautions.

Several groups, such as the Supply Chain Information Sharing & Analysis Center, CargoNet and FreightWatch, share security information, allowing companies to adjust their security strategies based on risk. Carriers, including Penske Logistics, often use more than one source as geographic challenges necessitate multiple tools to fill information gaps at the local, state and federal levels.

Once companies are aware of potential risks, they can take added precautions, such as limiting where drivers stop, avoiding rest areas and truck stops that have experienced recent thefts and creating geofencing alerts that will send a notice if a vehicle travels outside of a pre-set area. In addition to having telematics devices on the tractor, some carriers are using a variety of tracking devices that can attach to a trailer, a pallet or a specific box, which will make it easier to find a load if stolen. Not only does improved security ensure the timely delivery of goods, it can cut costs. CargoNet estimated that just under \$90 million in cargo was stolen in 2014.

Maritime theft is also a concern, with piracy costs in the billions annually. The International Chamber of Commerce Commercial Crime



Services estimated that in 2013, there were 264 pirate attacks recorded worldwide. The international police organization INTRPOL reported that there has been a significant increase in the number of attacks on vessels by pirates, particularly in the Gulf of Aden, Somali Basin and the Indian Ocean.

Air cargo security has been a concern since the September 11 terrorist attacks. The Department of Homeland Security has applied a multi-layered approach to air cargo security, including enhanced screening requirements for known and established shippers, explosive detection canine teams, and covert tests and

no-notice inspections of cargo operations. Other countries, including Canada and Australia, have similar programs.

In addition to adhering to applicable government regulations, parties within the supply chain are identifying best practices to improve global air cargo supply chain security. The International Air Transporters Association is piloting its Secure Freight program that provides practical guidance on how to move cargo and information through the secure supply chain. It is tailored for countries where supply chain processes do not exist or require enhancements.

To further enhance security, companies have added dedicated technology and personnel resources, including more screeners, security staff and employees at the corporate level to interpret the laws and develop instructions for workers in the field.

Cyber attacks have been identified as an increasing threat for the transportation and logistics industry. As part of a cyber-attack, hackers could steal information, re-route product in order to steal it or delay shipments to harm competitors. To minimize risk, supply chain partners need to identify vulnerabilities in their portion of the network.

Social Responsibility Within the Supply Chain

Not only are logistics providers working to secure the goods moved within the supply chain, new regulations could require action within supply chain partners' corporate social responsibility programs to protect the workers who produce those goods.

In mid-2015, U.S. Reps. Carolyn Maloney (D, N.Y.) and Chris Smith (R, N.J.) proposed legislation that would require public companies with sales of more than \$100 million to disclose within their annual reports the measures they are taking to prevent human trafficking, slavery or child labor in their supply chains.

Maloney said Congress has a moral obligation to address labor concerns. "This legislation simply requires businesses to publicly disclose what actions they have voluntarily undertaken to remove labor abuses from their supply chains. It is a good first step we can take to improve reporting and transparency so that we can enforce existing laws against labor abuses and allow consumers to make more informed decisions," she said.

The UK is planning a similar law.

As initially reported in the *2015 Annual Third-Party Logistics Study*, corporate social responsibility is growing in importance. Even without regulatory requirements, companies are voluntarily demanding more of themselves and their suppliers in terms of improved social and environmental standards. Shippers and their supply chain partners are increasingly concerned with human rights, labor practices, environmental impact, business ethics and corporate governance. As a result, providers are taking a proactive approach and placing a stronger emphasis on issue resolution, risk reduction and the ability to react quickly to problems.

Some companies have created information technology security groups to monitor their own network for cyber-attacks along with the feeds within the network, such as the customer systems that are utilized in a 3PL or lead-logistics partner role. Penske Logistics, for example, has a loss prevention director that leads a team of loss prevention practitioners to counsel field operators on best security practices. Greater investment to secure technologies from cyber attacks will increase in the upcoming years.

How can supply chain partners work together to improve security? Will the industry increase its investment in technology, employees and systems that can minimize risk? How will partners identify the most effective cyber defense strategy?

The Widening the Panama Canal

The lengthening, widening and deepening of the Panama Canal is scheduled to be complete in 2016. The expansion will double the capacity of the canal, having a direct impact on economies of scale and international trade. The inclusion of larger locks on both the Atlantic and Pacific sides of the canal and new channels to handle longer, heavier and wider ships will affect the supply chain industry. The increased capacity will alter shipping patterns, impact global shipments and improve the flow of commodities.

This is the first major expansion since the canal opened in 1917. In order to handle the larger ships that the Panama Canal will now be accommodating, ports will need to have deeper channels. Several U.S. ports, including those in New York/New Jersey and Norfolk, Virginia, are preparing to handle larger ships, and additional ports along the East Coast have said they intend to enlarge and deepen channels.

The expansion will also impact global trade. Several European ports, including Rotterdam, Hamburg and Le Havre along with Far Eastern

ports in China and Singapore, are already receiving larger ships. The Port of Melbourne in Australia and the Port of Rio Grande in Brazil are deepening channels to prepare for the larger vessels.

Currently, just over half of container ships traveling from Asia to the East Coast opt to travel the Suez Canal. However, intercontinental traffic may elect to use the Panama Canal once the upgrade is complete. Moreover, the expansion will open up trade between the West Coast of the U.S., along with the East Coast of South America, particularly Brazil, which is an important and emerging market.

Within the U.S., the expansion will shift freight to Gulf Coast ports and create an opportunity for shippers to utilize the middle of the country and take advantage of rail and highway networks that connect with ports. The increase of ships using the canal will also lead to greater volumes at North American East Coast ports. Shipping goods directly to the East Coast will reduce the transportation costs, transit time and overall inventory levels. It will also allow shippers to avoid choke points within the supply chain, such as the Ports of Long Beach and Los Angeles, that struggle with congestion.

To keep up with demand, the West Coast ports of Long Beach and Los Angeles are undertaking upgrades in an effort to maintain capacity. Long Beach has a \$1.3-billion plan to replace the Gerald Desmond Bridge, which is too low for the larger ships expected within the next five years, along with another \$1.3-billion plan to expand two port terminals, creating one of the most automated docks in the country. At the Port of Los Angeles, a \$510-million project to upgrade and automate one of its major terminals is underway.

Providers and shippers of specific commodities may see the largest benefits from the canal expansion. Energy providers require larger ships to transport oil and gas efficiently; therefore the new canal will have significant impact on the global energy system, particularly for the

liquefied natural gas fleet. Coal and iron ore shipments originating from Colombia and Venezuela and going to Asia are anticipated to grow as well.

In the agricultural market, grain originating in the Midwest within the U.S. will be able to reach Asian markets more readily, and the expanded canal will allow for the transportation of grains in vessels mass tonnage, generating economies of scale in shipping. Additional potential exists for the soybean originating from northern Brazil to Asia.

However, the canal will face competition. Canal tolls are increasing, which may incentivize exploring other options. What's more, anticipated growth of the Latin American market and near-shoring in Mexico could challenge the use of the canal. West Coast gateways in Mexico have created new land bridges that present growing competition.

What supply chain efficiencies will the longer, wider and deeper canal create? Can shippers mitigate risk by having the ability to switch from East to West Coast ports? Will the expansion of the Panama Canal alter the placement of distribution centers throughout the U.S.?

Building an Employer, Industry Brand to Attract Workers

Building a strong employer brand as well as an industry brand is taking on greater importance as the labor shortage within the supply chain industry worsens. Not only will individual businesses need to identify or strengthen their brands to attract employees, the logistics industry as a whole needs to look attractive, particularly to the next generation of workers who are considering their career options.

Studies show that potential candidates are more likely to engage with an organization if it has a strong employer brand, and almost half of businesses directly attribute increased employee engagement with investment in their employer brand.

Employer branding gained importance at the end of the recession of the early 1990s and was largely viewed as a recruitment tool. When the economy was going strong and attracting talent was a focus, employers worked hard to appeal to employees, offering flexible schedules, generous leave packages and other luxuries so they could be seen as the employer of choice.

Since then, workplace branding has evolved and emerged as a way for companies to differentiate themselves. Under the new model, employees are seen as valued customers with the job experience being the product they are buying.

Within the supply chain industry, potential hires may not realize the complexity logistics requires or that it necessitates a workforce that understands and is comfortable with advanced interactive technology. Traditionally blue-collar jobs, such as truck drivers and

warehouse workers, now require the use of technology and many of the once labor-intensive tasks have become automated. More outreach demonstrating the highly automated, complex delivery system could paint the industry in a new light.

Bringing an employer brand to the attention of top talent is vital when trying to attract the most sought-after candidates and new pools of workers, and a well-run talent community will provide companies with a strong pipeline of engaged talent.

When forming a brand, companies need to think strategically about the company's position, reputation and brand impact in the talent marketplace. Employers can create a compelling employer brand experience by defining an employee value proposition and creating the

messaging and tools that deliver a consistent brand experience across the employee lifecycle.

As part of branding, companies are identifying potential key hires, assessing what stage they're at in the recruitment process and understanding who they are prior to building a relationship with those potential employees.

Proper branding reduces expenses through increased direct recruitment, increased employee engagement and reduced attrition rates. It can also boost share price by linking to board objectives, and protecting and generating customer revenue.

How can shippers, logistics providers and industry suppliers work together to promote a strong industry brand? What type of education or employee benefits will increase the number of new hires in the logistics industry?

Employer Branding in Action

At The Home Depot, the need to attract supply chain talent is increasing. Not only is the company competing for talent in a market with a low inventory of labor, The Home Depot has narrowed down the number of 3PL partners it is using, moving many of its supply chain responsibilities in house.

To attract and retain employees, The Home Depot is focusing on its massive employer brand, recruiting on college campuses and emphasizing training, said Eric Schelling, head of global talent acquisition for the company.

The Home Depot sees every customer as a potential employee, and the company has an employer branding team, which is responsible for shaping the company's employer identity and creating advertising that will reach non-employees. The brand is carried over into all outreach the company does.

Attracting employees can be a challenge, particularly in rural areas where many of The Home Depot's warehouses are located. "The talent pools in those areas are smaller as it is. When you have turnover in those markets it is harder to recruit and train," Schelling said.

A critical part of its branding strategy is to treat employees well, pay a competitive wage and ensure employees "have the greatest life possible," Schelling said.

For new hires, The Home Depot engages in campus recruiting, and Schelling said the company sees growing interest in positions within the supply chain, which can often attract lines of 50 to 60 students.

Part of The Home Depot employer brand is its internal focus on developing an agile workforce, and it has an in-depth talent management program that focuses on training and retaining leaders, preparing them for their next role. "We try anything we can for any of our offerings to make sure we develop and engage people and don't lose the talent we have," Schelling said. "Within our retail and supply chain leadership, 90% of all jobs are filled internally."

About the Study



Members of the research team applaud the numerous industry representatives, supporting organizations and sponsor firms who have generously participated in the surveys, workshops and interviews necessary to sustain a 20-year cadence for the Annual 3PL Study. The *20th Annual Third-Party Logistics Study* is dedicated to those who have made all of this possible. We are immensely appreciative of their great contribution to the overall effort.

Throughout the past 20 years, the *Annual Third-Party Logistics Study* has documented significant transformation of the global 3PL industry. Since first publishing the study, the overall business environment and the logistics sector has experienced significant change, and their evolution continues.

Researchers have seen many 3PLs evolve from tactical service providers to collaborative partners delivering, in many instances, a comprehensive suite of integrated logistics services. Additionally, the study's authors have observed an evolution in which providers have become more proficient at the provision of 3PL services, and customers have become better buyers and users of 3PL services.

Supply chain executives continue to face new challenges in their quest to manage and adapt their operations to market conditions. Throughout the life of the study, researchers have seen ample evidence that solid relationships between 3PLs and customers render both even better equipped to address emerging issues, which change with time. In the last 20 years, issues have ranged from the greening of the industry to supply chain security demands to globalization.

Business in general, and the 3PL sector in particular, has become far more global than they were when the study launched, and the logistics sector has responded by expanding its services for customers having global logistics needs. Last year, the study reported on a number

of companies that were engaging in nearshoring, bringing production back to North America, with 3PLs working to make the shift seamless. No matter how the market has shifted, the study team has seen 3PLs work to help meet their customers' needs.

Dr. C. John Langley, Clinical Professor, Supply Chain and Information Systems and Director of Development, Center for Supply Chain Research at Smeal College of Business at The Pennsylvania State University, initiated this study to capture and measure this rapidly evolving industry.

The *Annual Third-Party Logistics Study* now serves as a vital tool for use by shippers and 3PLs, and as a widely anticipated, heavily referenced index on the state of the 3PL industry. In a year-round process, 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. The study has evolved in both reach and scope. Just as this study has evolved and changed, so has the participation rate among members and affiliates of the *Annual Third-Party Logistics Study's* partner organizations.

As part of this year's survey process, the study attracted 267 respondents. While researchers have seen a shift in total respondents throughout the years, this year's figure is lower than in previous years. The study team attributes the change to a variety of factors, from competing priorities to survey fatigue among prospective respondents, but it is interesting to note that this phenomenon is occurring in the use of surveys in other comparable research studies.

As a result, results included in the "Current State of the 3PL Market" chapter rely primarily on data gathered from respondents in North America (46%), Asia and Europe (15% each). Readers are asked to be cautious about comparing the data in this report to data from *Annual Third-Party Logistics Study* reports produced prior to 2014, since this year's base of respondents is more geographically limited.

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 Third-Party Logistics Study* supporting organizations for distribution to their members and affiliates. This year's survey circulated in mid-2015, yielding 267 usable responses, from both users and non-users of 3PL services. The study report and additional materials are also presented via its own Website, www.3PLstudy.com.

Topics: In addition to measuring core trends in the 3PL industry, the *Annual Third-Party Logistics Study* conducts in-depth examinations of contemporary supply chain topics that affected both users and providers of 3PL services. This year's topics include: Aligning 3PL Organizations, 3PL Competitive Landscape and Workforce Innovation and Agility.

Contributing Sponsors: The *Annual Third-Party Logistics Study* is jointly owned by Capgemini and Dr. Langley. Sponsors of the *20th Annual Third-Party Logistics Study* are Korn Ferry International and Penske Logistics.

Multiple Research Streams: A distinguishing feature of the *Annual Third-Party Logistics Study* is the multiple streams of research 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 Capgemini's Strategic Research Group, 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. Following the survey, the team conducts intensive, one-day facilitated shipper workshops that enable the team to work side by side with shippers to explore survey results in the context of overall industry trends to discover deeper implications.

This year the team conducted three such interactive workshops, held in Chicago, Illinois; Rio de Janeiro, Brazil; and Sydney, Australia. Events in recent years also have been held at selected Capgemini Accelerated Solutions Environment® facilities that are available throughout the world. (See <http://www.capgemini-consulting.com/acceleration-capabilities/accelerated-solution-environments> for more detail about ASEs.)



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), annual THINK! 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, executive education programs available through the Center for Supply Chain Research at The Pennsylvania State University and Penn State Executive Programs, and NASSTRAC (National Association of Strategic Shippers 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 *Industry Week*, *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. Please see the Credits page for a listing of these valued contributors.

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 which specific 3PLs they use.

2016 Third-Party Logistics Study Goals

Research and analysis for the **Current State of the Market** chapter 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.
- Update our knowledge of 3PL-shipper relationships, and to 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.
- 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 shippers outsource or elect not to outsource to 3PLs.

Goals for the **Special Topic** sections include:

- **Aligning 3PL Organizations:** This topic is timely considering the objectives of 3PLs and shippers to achieve great efficiencies and effectiveness in their relationships. A critical capability in achieving this objective is to make sure both parties are well-aligned in terms of both strategic and tactical/operational plans and actions. Of additional relevance is that many non-asset owning 3PLs work with asset-based service providers to see that the supply chain services needed by customers are provided as needed. This raises a number of questions and issues that have been researched in the *2016 20th Annual Third-Party Logistics Study*.
- **3PL Competitive Landscape:** Tightening capacity, mergers and acquisitions and industry innovations are affecting competition and service offerings among 3PLs. The study team sought to understand how providers are using technology and value-added services to enhance the quality of 3PL-customer relationships. The study also seeks to understand which 3PL services shippers are using and how that has changed from previous studies.
- **Workforce Innovation and Agility:** The 3PL Industry is facing a shortage of talent, affecting all aspects of the supply chain. The study seeks to understand how 3PLs will attract and retain employees as well as how providers will use technology to lessen the impact of a shortage. Researchers

also looked at how innovation and automation can improve services and mitigate the impacts of a labor shortage, as well as how specific labor pools—women and veterans—can address the industry’s needs.

- Based on what was learned from the study process, the team includes the section titled Strategic Assessment to take an introspective view of the future of the 3PL industry and shipper-3PL relationships.

About the Respondents

Shippers: Figure 23 reveals the percentage of shipper respondents to the survey, including both users and non-users of 3PL services and the percentage of 3PLs. The non-user responses are useful because they provide valuable perspectives on why they do not currently use 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.

Figure 24 reflects the nine most prominent industries reported by users of 3PL services, accounting for almost 89% of the overall respondents.

Figure 25 includes all shipper respondents’ anticipated total sales for 2015.

3PLs: 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 the shipper-respondent industries); and 3) a range of titles, from managers to presidents/CEOs. Approximately 41% of the 3PL firms expected 2015 company revenues in excess of U.S. \$1 billion (approximately €750 million), while about 50% reported revenues of less than U.S. \$500 million (approximately €375 million).

Figure 23: Distribution of Respondents

	Preliminary Distribution of Respondents
User	48%
Non-User	12%
3PL/4PL	40%

Figure 24: Distribution of Respondents’ Industry

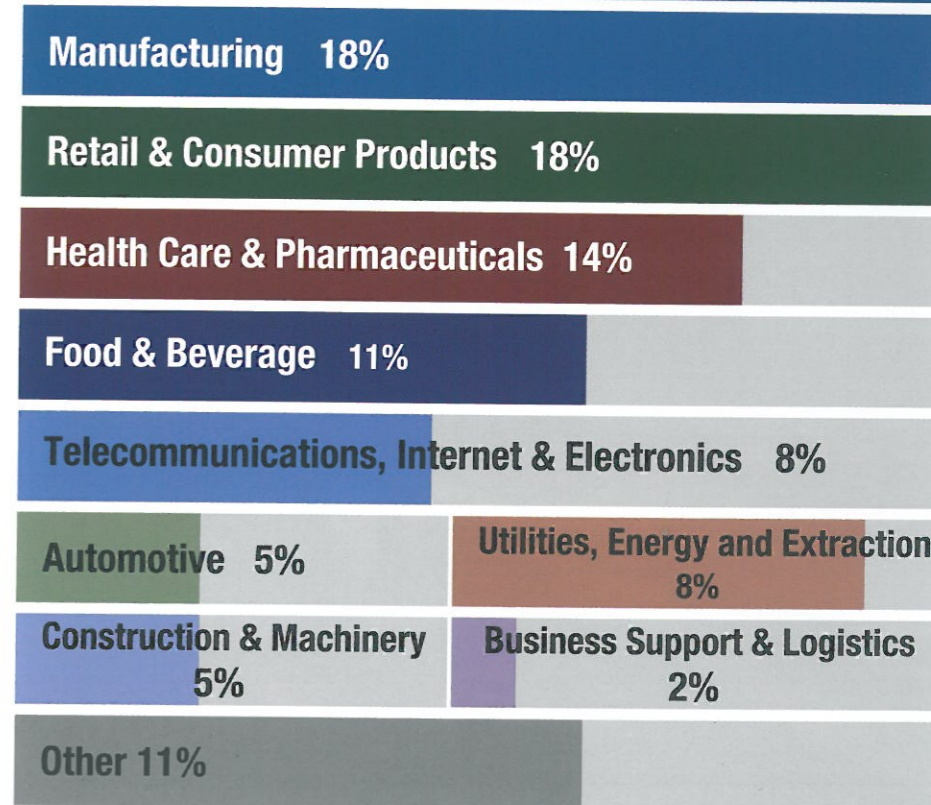
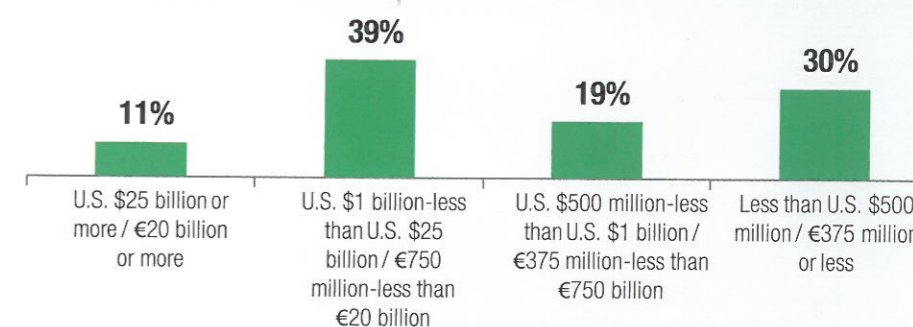
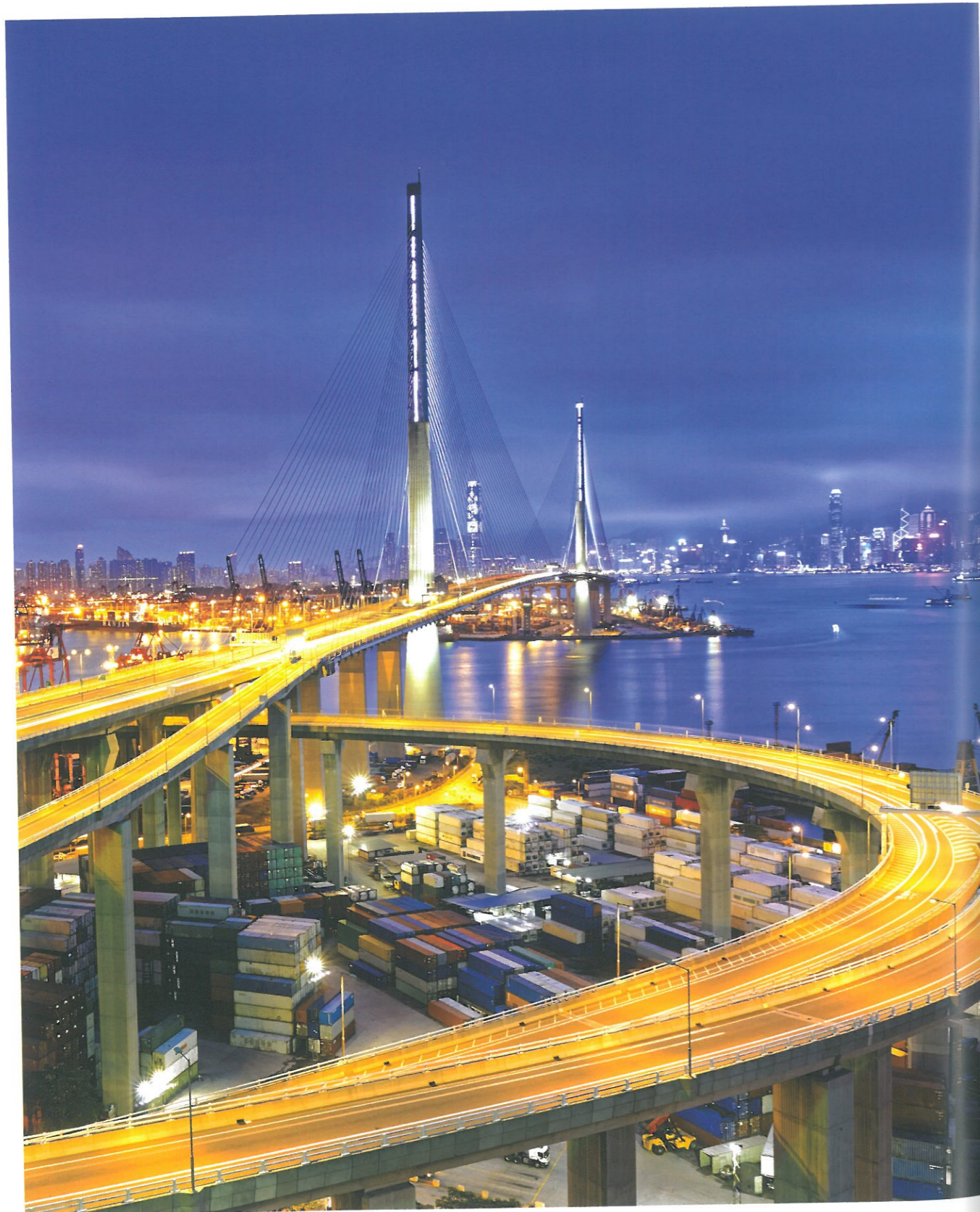


Figure 25: Shippers Anticipated Sales for 2015



About the Sponsors



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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 and the Center for Supply Chain Research (CSCR). With more than 30 faculty members and over 600 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 report from Gartner. For more information, please visit www.smeal.psu.edu/scis and www.smeal.psu.edu/cscr.



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