



The Digital Logistics Provider

Delivering a New Level of Service in the Age of IoT



Abstract

If you're a modern Logistics Service Provider (LSP), you've got a lot on your plate. A job that was once as simple as moving goods around now involves managing countless vendors, juggling demanding customer expectations, and providing an all-around seamless experience. In response to this growing complexity, LSPs are embracing digital supply chain solutions, powered by new tracking technologies and data analytics. With a digital supply chain, today's LSPs are able to stay ahead of the game, informing their customers as soon as problems occur and leveraging data-driven insights to optimize from end to end.



Introduction

The role of the Logistics Services Providers, or LSP, grows more complex every day. As a 3PL or Freight Forwarder, LSPs are generally responsible for managing anything from a single segment of a shipment's journey to an entire supply chain, often without actually owning any of the assets involved. The LSP relies on carriers, facilities, and other external vendors to deliver as promised, but ultimately it's the LSP who's on the line as far as the customer is concerned.

In the past, if shipments got approximately where they were going, approximately on time, approximately in one piece, that was generally good enough. But as competition grows fierce and consumer expectations rise, many customers now expect their LSPs to do more than just move goods—they expect real-time information and insights into their in-transit goods.

To meet these rising expectations, forward-thinking LSPs are now investing in new technologies that make it possible to offer customers a digital supply chain, in which detailed data regarding the location and condition of every shipment is easily accessible. These new tools are eliminating the unpleasant surprises in supply chain, resulting in a significantly improved customer experience and a lot less headache for the LSP. That's why modern LSPs are embracing the digital supply chain and helping their customers to gain ever greater levels of visibility into the supply chain.



Expectations Are on the Rise

Historically, if an LSP got the goods from point A to point B, that might have been enough. Delays and damages were an unfortunate but inevitable part of many customers' experience. But as consumer supply chains become ever more optimized, things are beginning to change.

One driver for this change is that on-demand transportation services like Uber and Lyft are shifting consumer expectations for how long a wait is reasonable. If you can order a pizza for ten dollars and track it in real time from the oven to your doorstep, it seems only natural expect a similar level of visibility into a million-dollar commercial shipment. At the same time, the Amazon phenomenon has made two-day delivery standard practice, driving fierce competition with traditional transportation and delivery services.

Of course, manufacturers understand that the industrial supply chain is fraught with complexities and challenges that consumer services don't face. That said, these trends are still making their way into supply chain, as more and more manufacturers expect their logistics providers to offer something on par with Amazon, Uber, and your local pizza shop. According to Jonathan Ensign, VP Dedicated Business at Dallas-based LSP CargoBarn, "Expectations have changed. It has gotten very competitive, and customers today aren't just looking for a one stop shop, but rather a comprehensive supply chain visibility solution."

“Like individual consumers, industrial customers now expect to get shipments faster, more flexibly, and with more transparency at a lower price.”

The Future of the Logistics Industry, 2016 PWC Report

So what do these heightened expectations mean for the LSP? At a high level, they mean manufacturers are demanding that LSPs provide answers—not excuses. Everyone understands that problems will happen, but companies want to know what is happening, why it is happening, and what they can do to fix it in real time. And once they have that, they want insight into how to prevent the issue from reoccurring in the future. For example, a route might experience frequent delays because shipments are stuck



waiting for transfer due to driver shortages, or shipments may be prone to high damage rates because of poor handling at a particular location. It's not enough to just wait in the dark until the issue is (hopefully) resolved. Customers expect that their LSPs will work with them to understand and solve these problems quickly and intelligently.

This all sounds great in theory: more collaboration, more problems solved, and fewer angry customers. But how can LSPs be expected to solve real-time problems with in-transit shipments, all without direct ownership of the trucks these shipments are in or control over the ports and other bottlenecks in which they get stuck?

The key is data.

Access to New Data Sources

Data is the fuel that powers the modern supply chain. Today, LSPs have access to more data, coming from a greater variety of sources, than ever before. In general, there are three main types of data sources that are enabling new levels of visibility into in-transit goods: public, accessible private, and proprietary data sources.

Public Data

Public data refers to any information that comes from governments or other organizations with an interest in freely sharing access to that data. In the United States, the [Federal Highway Administration](#) provides free access to traffic data for all major roads in the country, as do companies like Google. Similarly, the [National Weather Service](#) provides real-time weather forecasting data.

These public data sources can be very helpful in providing some context to explain (and potentially even predict) in-transit damage or delays. For example, real-time traffic data can help an LSP predict delays for certain shipments, while weather data can indicate a potential temperature excursion.

Of course, on its own public data doesn't add all that much value to your customer. After all, your customer can check the traffic or turn on the Weather Channel just as easily as you can. In addition, many government data systems are not necessarily designed with usability in mind, so it can be inconvenient to rely on these sources alone. However, in combination with other types of data sources, public data can become extremely valuable.



Port data can shed light on exactly when a vehicle enters and departs a facility, making it possible to pinpoint the location of a shipment in real time.

Accessible Private Data

Accessible private data might seem like a contradiction, but what it refers to in this case is data sources that are controlled by a private entity but can still be accessed by people outside that organization. For example, accessing a private data source may require payment, special permissions, or be subject to other restrictions. Despite the occasional challenges in accessing these data sources, they can be extremely helpful in shedding light on in-transit shipments.

One of the most useful private data sources is ports. Airports, seaports, and truck or rail terminals all maintain data regarding everything that moves in and out of the facility. While many ports make it difficult to access this data (either intentionally or due to outdated processes), this is still a key data source for LSPs aiming to track in-transit goods. In addition, tools such as [MarineTraffic](#) make it possible to track most cargo ships via AIS (Automatic Identification System) data, which provides precise real-time GPS for vessels at sea.

Finally, some carriers offer real-time data regarding the location of their vessels or fleets. For example, certain carriers use [telematics systems](#) to gain access to location data for in-transit trucks. Of course, this data generally comes at a price, and carriers are not always motivated to share data that could make them look bad. That said, access to even a limited data stream from a carrier can be extremely helpful in gaining some visibility into a shipment as it travels between ports or other check-in points.

Proprietary Data

Relying on public and accessible private data is certainly better than nothing, but it is still extremely limited. To get a complete picture of a shipment's journey, LSPs need to implement proprietary data systems.

So what does a proprietary data system look like? There are a few different varieties, but in general, LSPs get access to proprietary data by implementing a [sensor-based tracking solution](#). With cloud-connected trackers on every pallet, package, or shipment, LSPs can actually access real-time data about their customers' shipments without relying on the good will of a public or private third party. And it is the incorporation of new proprietary data systems that is now giving modern LSPs a competitive edge.

Specifically, advances in cellular infrastructure, low-power sensors, and tracker batteries have made it possible for LSPs to use always-connected trackers that can last for months at a time and transmit data constantly, in real time, via the cellular network. These trackers offer insight not only into



the location of in-transit goods, but also into their condition. For example, temperature sensors can send an immediate alert when a pharmaceutical shipment experiences a temperature excursion, or shock sensors can help pinpoint exactly when and where a fragile electronics package was dropped. Today, trackers are available that include all of these sensors and more, giving LSPs access to real-time data regarding exactly where goods are and how they're doing.

“Our cellular-connected multi-sensor trackers give shippers access to real-time location and condition data, all around the world.”

Krenar Komoni, CEO and Founder, Tive

With a sensor-driven supply chain tracking solution, the modern LSP gains access to huge amounts of data at their fingertips. But of course, it's not just about access to raw data. New operational processes are necessary to complement these new data sources, turning all that data into useful, actionable insights.

Adopting New Processes

First, the LSP will need a system for reliably accessing, collecting, and storing the data. This involves everything from integrating carrier data into your monitoring systems to getting trackers onto shipments to IT infrastructure that will manage the influx of new data streams.

Getting the Data

Some third-party data sources are relatively simple to access. For example, government weather or traffic data, port data, and container-tracking data is often available for free simply by checking a website or integrating an API. Some LSPs rely on data aggregators that compile data from a variety of sources and then send it along (often for a price). Other data can be harder to get your hands on. For example, many LSPs work tirelessly to build relationships with carriers and dispatchers in order to gain access to vital real-time data, and still struggle to get consistent real-time updates from all of their many carriers.



Because of these challenges, it is often preferable to supplement third-party data sources with proprietary data from on-board tracking devices. To do this, the LSP will need to coordinate with their customer to develop a process for attaching trackers to the relevant shipments. This will vary based on the customer: for an LSP working with a pharmaceutical company interested in monitoring temperature, two or three trackers per container may be sufficient, whereas if the client is an electronics or industrial goods company concerned with mishandling of individual fragile devices, it may make sense to attach a tracker to each pallet or even each individual product. Working with the client to build a reliable process for attaching trackers to shipments is a vital first step to accessing all that in-transit data.

Once a process is in place for accessing all the public, private, and proprietary data, the LSP should consider where that data will be sent. Some public data streams may need to be entered into your internal system manually, while others can be automatically funnelled into the LSP's digital system. Cellular connected trackers can send data directly to a [cloud-based software platform](#), so the LSP can access all the data from their trackers in real time with no need to invest in expensive, complex IT infrastructure. Some LSPs will prefer to work with third-party data management tools, while others may choose to rely more heavily on APIs that transfer the data directly into their internal tools. Making sure you're happy with your data management setup is a key foundation to building a successful digital supply chain.

Analysing the Data

So you've got processes in place for data access and storage. But without analysis, it's still just raw data: lots and lots of numbers. The next step is turning those raw data streams into actionable insights. There are a few different kinds of useful insights that can be extracted from these data streams.

On the most basic level, weather, traffic, port, and container data can help to inform some rudimentary analyses. For example, if weather data indicates high likelihood of a storm or earthquake, you can plan ahead for goods that will potentially be delayed or damaged. Similarly, with access to customs clearance data, airport arrival data, or real-time location data from a carrier, you can predict with greater accuracy exactly when goods can be expected to arrive. Of course, there's a lot more you can do once you've integrated some proprietary shipment-level data.

First, location and condition data can be used to trigger real-time alerts whenever a shipment arrives at a particular location, or experiences temperatures outside a set threshold. With an understanding of the potential problems that shipments can experience (such as delays, temperature excursions, etc.), the LSP can configure the appropriate alerts to get them and their client useful information right away.



Real-time alerts helped an international pharmaceutical company save a highly sensitive shipment when it was inadvertently set to the wrong temperature.

In addition to real-time alerting, LSPs can also take advantage of comprehensive data sets to perform analyses that improve and optimize their clients' supply chains on a macro level. This is where it is particularly useful to have data streams coming from multiple sources. For example, just by looking at AIS data, you can determine approximately when your shipment arrived at port. But combine AIS data with real-time temperature and location data, and you can pinpoint exactly when and where temperature excursions tend to occur, and which carriers are responsible for the shipments at those times. Better yet, combine that analysis with weather data, or with real-time shock sensor or light sensor data, to determine if temperature excursions often correlate with bad weather, a package being opened (change in light), or a package being dropped (shock event).

Armed with this sort of contextual analysis, the LSP can determine and potentially eliminate the root cause of recurring issues. For example, if carrier data indicates that containers on certain carriers often arrive later than others, the LSP can consider replacing the carrier. Or if trackers indicate that shock events often happen when trucks stop at a certain location, the LSP could reroute shipments to avoid the problem area.

To get value out of the data, it is vital that the LSP develop processes for monitoring data and extracting insights that can help the customer. And this brings us to the third, and potentially most important process LSPs need to build in order to make the most of their data: customer communication. Once you've gathered all this data and identified some actionable insights, how do you work with the customer to implement changes and get them the information they need, when they need it?

Sharing With the Customer

To make the most of the data, it is useful to consider methods for integrating these new data streams into your existing tools for communicating with customers. For example, some LSPs already use automated systems such as EDIs (Electronic Data Interchanges) or APIs (Application Program Interfaces) to share data and pertinent updates with their clients. Depending on the LSP, these applications can be either proprietary software packages or third party packages. Regardless, if the infrastructure is already in place, it may make sense to just add the new data streams into your existing communication platform.

Other LSPs may rely more on manual customer communication: phones, emails, and traditional face-to-face meetings. If this is the case, LSPs can either give their customers direct access to a third-party visibility platform to enable automated communications, or simply be sure to incorporate the new data streams into their existing manual communications.



Of course, as with everything, strategies for effective communication with the customer will vary significantly from client to client. Some customers will be excited to get as much access to the data as possible—for these sorts of clients, the LSP can offer access to continuous real-time monitoring as a value-added service. This can be implemented in a number of ways: the LSP can share weekly or even daily updates via phone or email, the LSP can opt to share access to a monitoring platform directly with the client, or the LSP can use an API to send data streams such as location, temperature, etc. directly to a client-side ERP or communications platform.

With other, more hands-off customers, this level of involvement may be unnecessary. In this case, the LSP may keep more of the data-driven insights internal, using them to improve operations such as carrier selection without extensive discussion with the customer. The LSP might call the customer only when an important alert is triggered, such as a temperature excursion, to warn them that product may be late or damaged.

Ultimately, any actionable insights you uncover are only as useful as they are communicated. If an LSP uncovers a game-changing insight but fails to communicate it in time, it might as well have never happened. No matter the customer, developing a consistent process for communication—be it weekly phone calls, an automated software system, or even just occasional text messages—is vital to ensure that both the LSP and their customers get the most out of their digital supply chain tracking solution.

Use Information and Insights to Help Your Customer (And Yourself)

To be sure, building out a custom digital supply chain (and integrating all of the supporting tools and frameworks that go along with it) may take some work. But once you've invested in the setup, the benefits—both for you and your customer—are significant.

First, a digital supply chain enables LSPs to deliver better service. Across the board, from real-time alerting to root-cause analysis to data-driven optimization, a digital supply chain gives LSPs the tools they need to provide their clients with a superior customer experience. This is something that forward-thinking LSPs are already well aware of. “Instead of just a transactional relationship, customers expect their LSP to be a real partner in planning and optimizing their supply chain,” says Mollie Curran, Global Operations Manager at Flexport International. “They’re excited to work with someone who can offer online tools for data-driven visibility and control.”



Instead of customers finding out about problems too late to fix them, the modern LSP can inform the customer as soon as an issue occurs, giving them time to ship a replacement, reschedule installation crews, or make other alternate arrangements. Instead of blindly pointing fingers at carriers or other vendors, the LSP can tell their customer exactly when and where problems are occurring. And based on the comprehensive dataset made available by a digital supply chain, the LSP can recommend changes to routes, carriers, or other variables in order to ensure a smooth, surprise-free experience for the customer.

Because of this significantly improved customer experience, investing in a digital supply chain enables LSPs to outshine the competition and enjoy greater loyalty from customers. According to a [2017 Capgemini study](#), 98% of 3PLs believe that improved, data-driven decision-making is essential to the future success of supply chain activities and processes. Ryan Rusnak, CTO of Airspace Technologies, expressed a similar sentiment: “You can track your socks on Amazon, but you can’t track an organ for transplant. Our customers are frustrated with the status quo. They’re frustrated with antiquated tools and lack of visibility. We’re able to deliver complete transparency and leading indicators of delay which has been really huge for our customers.”

“ It has become very clear that there is significant demand among shippers, in general, to look to their 3PLs as a source of capable [supply chain visibility] IT technologies...competencies in the IT area are fast becoming differentiating factors when shippers are making selection decisions.”

2017 Third-Party Logistics Study, Capgemini (p.14)

Ultimately, the digital supply chain makes it possible to move from an antagonistic, distrustful relationship with clients towards a truly collaborative partnership. Instead of customers endlessly wondering where their goods are, getting surprised when shipments arrive late or damaged, and having no one to blame but their LSP, the digital supply chain enables transparency and accountability. Working from a shared dataset, manufacturer and LSP can work together to identify where issues are really coming from, and how to overcome them.



The Future Belongs to the Informed LSP



We are entering a new era of data-driven supply chain management, in which decisions are informed not by guesses, but by real-time information and data analytics.

All trends point toward the rise of the digital supply chain. On the one hand, customers expect their logistics service providers to meet ever higher standards when it comes to reliability, transparency, and efficiency. On the other hand, technology enablers such as long-lasting trackers, global communications networks, and cloud-based software are giving LSPs access to previously invisible data. And the good news is, it's only going to get better.

More data sources become available every day, making it possible to get an ever more detailed look into the hidden corners of the industrial supply chain. For example, [some carriers](#) have begun installing cellular base stations on board airplanes and ships. Once these on-board connectivity solutions are fully implemented, cellular trackers will be able to provide uninterrupted connectivity even while at sea or in the air.

At the same time, connected Internet of Things (IoT) devices are becoming more and more prevalent. Conservative estimates suggest that by 2020, over [2.5 billion cellular IoT devices](#) will be in use, and along with this explosive growth will come substantial investment into the telecommunications infrastructure necessary to support this massive network. That cellular infrastructure will only further support the development of the IoT-powered digital supply chain.

As technology continues to advance, and as more stakeholders see the value of investing in digital supply chain tools and support systems, we will enter a new era of data-driven supply chain management. And it is LSPs who are at the center of this revolution, adopting new digital technologies, using data to collaborate with their customers, and reaching new levels of visibility into the supply chain—from end to end.



Tive helps companies eliminate surprises in their supply chain by providing real-time visibility of the location and condition of their shipments. Tive's combination of cellular-connected trackers and cloud-based software enables customized alerts, reporting and analysis on shipments across all modes of transport. As a result, companies are never caught off guard by damage or delays, helping them improve customer service while reducing disruptions and logistics costs.

+1 (617) 631-8483 | team@tive.co | tive.co