

THE VISIBLE SUPPLY CHAIN

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Introduction: What Does Visibility Mean to You?

It's a critical question, yet one that many enterprises struggle to answer clearly.

The reality is that supply chain visibility is an abstract term. If you take 10 different companies and ask them to define what visibility means to them, you'll likely get 10 different answers. Some view visibility as a transportation-specific function. Others break it down further, viewing visibility as a mode-specific capability.

Best-in-class enterprises, however, look at visibility as broadly as possible. That is to say, they want visibility across as many supply chain-related processes as feasible. That might include something as far upstream as raw material procurement and as far downstream as final mile delivery to an e-commerce consumer.

You can only go as fast as you can see.

This need for visibility is directly related to the speed of the supply chain. Firms can react individually and meet the need for speed by building up inventory and buffers. Supply chains can also respond more efficiently to demand by having greater visibility all of the firms. This requires a 'we' mentality. Tomorrow's efficient and effective supply chains will operate at the 'Speed of We'®.

There's a problem though: there is a critical gap between that which supply chain executives want and what's available. That slows down the supply chain.

Historical Roadblocks to Supply Chain Visibility

Companies that hope to achieve end-to-end visibility, including critical areas like transportation and inventory management, find themselves cobbling together data from several sources, and feeding that data into a variety of systems. That's suboptimal to say the least.

Here are the problems:

- Data is plentiful these days, but is rarely standardized, normalized, or structured across transportation modes
- Transportation data isn't synced well with complementary supply chain data around warehousing, inventory, fulfillment, and production
- Data latency and accuracy is a major problem, primarily due to antiquated data formats and transmission timeframes
- System implementations and integrations are lengthy and costly, creating a reluctance to engage in complex cross-functional visibility projects

There are two other things to consider:

- Shippers typically labor under the weight of too many disconnected systems, either internally operated or provided by logistics providers (or both)
- Shippers often don't even know where to start when it comes to pulling in, curating, and integrating vital visibility data

Defining Supply Chain Visibility

Gartner defines end-to-end supply chain visibility as, "A capability that provides controlled access and transparency to accurate, timely and complete plans, events and data within and across organizations and services."

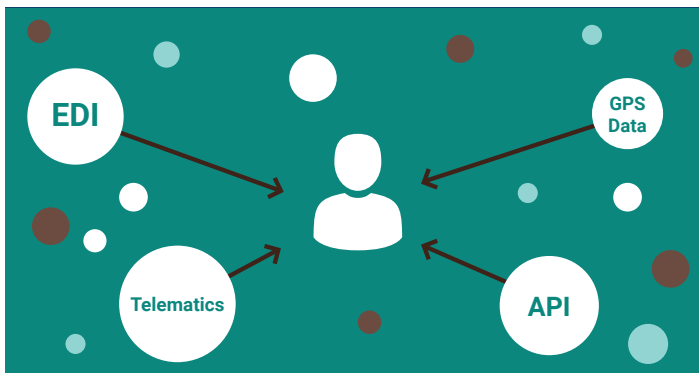
In short, supply chain visibility is about capturing usable supply chain data and freight transactions as you exchange information between different systems. Therefore, the most critical element to achieving true visibility is your architectural setup—how your company and systems are connected to your business partners and their networks.

To truly understand what end-to-end supply chain visibility means in 2017, we must also understand the current gaps preventing shippers from achieving it.

So Many Feeds

Data comes from different sources these days—EDI feeds around shipment status, telematics from a truck cab, GPS from a driver's phone, weather information, vessel position via AIS data. Add legacy systems and manual processes, both vital but hidden from view. The problem is not a lack of data, but that each of these sources of data has their own format, structure, and method of transmission.

That's a huge headache for a logistics director trying to literally make sense of apples and oranges. It is like living in a smart phone world with an AM/FM radio. Different data formats need to be normalized—that is, shippers need a layer that translates different types of visibility information into a common language so the impact and context of each data point is more easily understood.



Most shippers don't have that layer, which means they end up managing visibility data in a piecemeal, unconnected fashion.

Internally, shippers manage too many systems and have too much non-standardized data to sort through.

That makes decision-making around information gained from any single piece of data much harder. In effect, shippers are reacting by chance rather than systematically, since they're missing timely pieces of data, or don't even know they're sitting on actionable data.

So Many EDI Standards

EDI lives up to a marketing slogan: have it your way. That can be a good thing, but not for EDI. The ability to customize the feeds leads to significant connection issues, which are both time consuming and costly to maintain and develop.

Out of Sync

Pan out and the situation gets worse. Data collected from upstream and downstream activities (if it's even being collected at all) is not synchronized with data collected on the freight transportation side. That leads to yet broader disconnects between supply chain partners.

Yet the whole point of visibility is to understand exactly where a shipment or asset is, not approximately. It's to understand how those locations impact upstream and downstream decisions. If there is an inbound transportation disruption, that can be a cue to alert the production facility to stage buffer stock, slow the production process, or make a different product altogether, if possible. This transportation disruption can also have an impact on the final delivery of product to the store or customer.

So it's hard to understand how a visibility initiative wouldn't seek to connect all those activities, yet it's easy to see why shippers and carriers find it hard—the data often just doesn't match up.

Late and Inaccurate

The varying data feeds a shipper needs to manage don't just create complexity in terms of the number of different structures with which to contend, but also the bigger problem that some of that data is likely inaccurate, obsolete, or both.

Shippers should understand that most shipment status feeds aren't real-time. They're pulled in batches, often from out-dated databases. The inaccuracy is generally due to latency. Say a shipper makes plans based on the assumption a load was picked up when it actually wasn't.



In today's supply chains, how accurate is your data if it isn't real time?

The data is generally transmitted via EDI (or even email) and the shipper might not have even known about the load missing its pickup until after it was supposed to have arrived. That shipper might have made staffing decisions at the receiving location based on the wrong assumption.

In a world where we can see traffic and weather in real-time, where we can order goods within a two-hour window, it seems outdated and sadly quaint that so much of the freight industry's visibility capability is still tied to technology that's not real-time and often inaccurate.

The Implementation Barrier

Here's the kicker: those ineffective data integrations are usually costly and time-consuming to implement. The average EDI feed takes weeks, if not months, to establish.

That creates a barrier to visibility that most shippers struggle to overcome. In modern times, data should be relatively easy to plug into, it should be reliable, and it should be real-time. If a shipper knows it costs a fortune and takes forever to integrate those feeds, they'll be much less inclined to undertake those initiatives.

A New Approach to Achieving Visibility

Don't assume that a single solution can provide end-to-end visibility across all supply chain transactions or modes of transportation, even if that's what vendors claim. Complete visibility expands beyond just your traditional truckload tracking and requires the entire freight transaction set. To remain competitive, shippers should have a constant pulse on the entire spectrum of your supply networks and freight transactions.

What if enterprises took a different approach to supply chain visibility? Rather than viewing it transportation mode by transportation mode, or function-by-function, what if an enterprise could plug into a core service platform that normalized data across as many supply chain functions as deemed important to that enterprise's visibility needs?

What if the service platform provided the visibility hub across functions, so that data pulled from truckload carriers, freight forwarders, production facilities, and final mile delivery providers were all standardized for consumption in a useful format?

This approach is possible when shippers move away from those antiquated data formats and toward application programming interfaces (APIs). To be more precise, specialized supply chain APIs built specifically for logistics applications.

APIs are the system-to-system integration backbone of most the consumer and commercial applications we are reliant upon today. Everything from traffic and weather apps on your phone to online shopping carts are enabled by APIs.

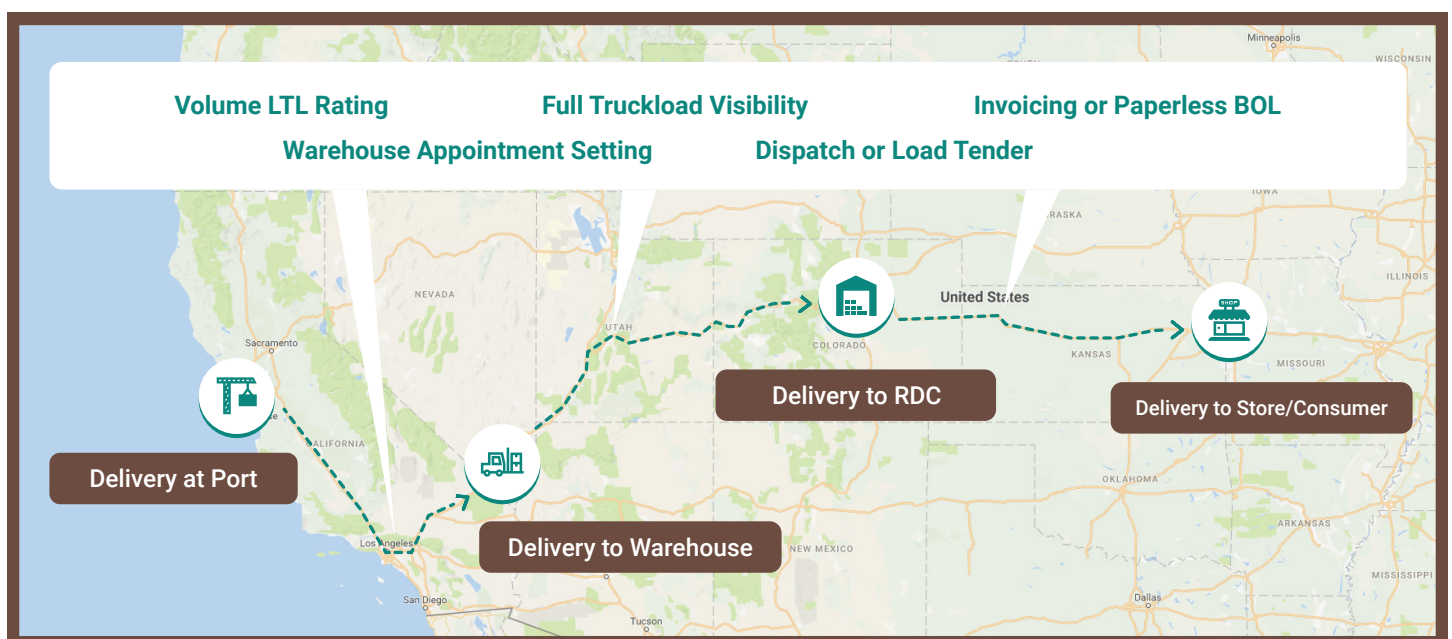
APIs allow systems to connect in real-time, with each transmission of data from one system prompting an immediate response from the other system. That solves the issue of latency and inaccuracy, since systems are receiving instant and up-to-date information, rather than information that is hours or days old.

APIs are also flexible. Unlike the rigid formats typically used for things like shipment status events, APIs can be configured in ways that suit the enterprise using them. That means they can capture more precise elements from a visibility standpoint, or they can capture all events in real-time.

How this New Approach Fills the Gaps

The proliferation of APIs has touched nearly every industry, but the most effective APIs are those that capture the service nuances of a particular industry. From a supply chain perspective, that means specialized supply chain APIs around the key visibility metrics for domestic and international shippers.

By adopting a single API-based network solution that also offers a suite of freight services, companies can accelerate visibility during transportation, and deliver superior value and improved service to their end-customers. Here's a glimpse into what that means.



Freight Service: Volume LTL Rating

- **Purpose:** Improve access to, and accuracy of, dynamic pricing across modes.
- **Why is it better than legacy solutions:** APIs call into carrier rate engines instantly, rather than batched requests that are often hours old.
- **How are other firms using this to achieve success:** Real-time rates help shippers make better buying decisions and reduce amendments associated with out-of-date rate information.

Freight Service: Dispatch or Load Tender

- **Purpose:** To efficiently coordinate pickup requests with LTL or full truckload carriers two way, real-time data connectivity is required.
- **Why is it better than legacy solutions:** Latency of EDI 204 data transfer increases the likelihood of missed pickups, and triggers phone calls and emails to manage processes that should be automated.
- **How are other firms using this to achieve success:** APIs transmit pickup request information to capacity in nanoseconds, maximizing on-time performance while eliminating time spent manually communicating requests.

Freight Service: Full Truckload Visibility

- **Purpose:** Provides shippers with automated location of all in-transit truckload shipments, including constantly updated ETAs.
- **Why is it better than legacy solutions:** Traditional means of truckload tracking involves phone-based driver check-ins, and no predictive measure of ETAs or other disruption information.
- **How are other firms using this to achieve success:** Real-time, anytime visibility is enabled by GPS, in-cab telematics and other data being conveyed to planning and execution systems via APIs.

Freight Service: Warehouse Appointment Setting

- **Purpose:** Coordinating shipment deconsolidation or transload requires proper orchestration with inbound and outbound transportation legs.
- **Why is it better than legacy solutions:** Appointments are typically set at warehouses based on presumed ETAs or transportation plans often made days in advance, but that can wreck warehouse efficiency and tie up labor unnecessarily.
- **How are other firms using this to achieve success:** APIs allow appointments to be set dynamically so that warehouses know when a shipment will actually arrive and so can allocate labor and facility space accordingly.

Freight Service: Invoicing or Paperless BOL

- **Purpose:** Bills of lading, customs documentation, invoice receipt, audit, and payment can and should all be handled electronically.
- **Why is it better than legacy solutions:** Paper-based freight documentation is inefficient, error-prone, and necessitates storage. In a freight environment increasingly defined by real-time data, paperless invoicing and bills of lading will soon be the requirement, not an option.
- **How are other firms using this to achieve success:** Electronic shipment documentation generation reduces manpower associated with data entry and paper production of documents. It reduces data inaccuracy and allows documents to be filed in real-time, via APIs, that can instantly trigger other critical supply chain processes.

These APIs are partially or wholly pre-configured to capture the shipment and inventory events critical to most supply chains, standardizing a wealth of data from various sources in a way that is digestible and actionable for shippers.

The result is an easy-to-implement hub of visibility that is standardized across data sources and modes, provides quick ROI and moves shippers to a world of true real-time end-to-end visibility.

Conclusion

Supply chain visibility may be an abstract term, yet it is a capability that firms will need to achieve competitive advantage. Customer expectations are increasing; they want the option of getting things faster, even if they choose a slower method. Customers first look for availability of products at a price they are willing to pay. In different situations, a customer will choose a higher price, but receive the product faster; other times, they will focus solely on price.

Reduced costs—and earning higher margins—will only be possible by truly having a supply chain that is capable of competing and winning against other supply chains. This means that the flow of information within and between firms has to be faster, accurate and actionable. This is not the responsibility of a single firm, but the supply chain. Inefficiencies will be highlighted and cause greater disruptions than before, as many of these issues were hidden with excess inventory. To achieve the Speed of We® everyone will need to work together to win.

The Speed of We® requires different thinking—and a fundamentally different technology supporting it. It requires faster and more accurate data from transportation and distribution, that can be shared within the firm, and with partners. EDI is not an option—it is a relic of days gone by.

Is it possible?

Perhaps that isn't the question to ask.

Perhaps, it should be 'Where is my market headed, and what is needed to be at the forefront of the competition?'

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Dr. Manrodt serves as a Professor of Logistics in the Department of Management at Georgia College & State University, located in Milledgeville, Georgia.



He is also the Director of the Master of Logistics and Supply Chain Management program, an on-line master's program for working professionals. His degrees include a B.A. in Philosophy and Psychology, Wartburg College, M.S. in Logistics, Wright State University, and his Ph.D. at the University of Tennessee.

Dr. Manrodt has over 20 years in logistics, transportation and supply chain research. These research projects have been funded by a wide range of participants in the supply chain, ranging from consulting firms, associations, carriers, software providers and shippers. This background will help Georgia College establish the Institute for Logistics and Transportation Studies, a research office focused on the needs of today's practitioners. He was recognized as a "2004 Rainmaker" by DC Velocity Magazine. Dr. Manrodt also had served the profession in several forums. He served on the Board of Directors for the Council of Supply Chain Management Professionals as well as other leadership roles with WERC.

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Dr. Manrodt is the original lead researcher of the annual study of trends in logistics and transportation. The study examines key practices in the industry and is now in its 25th year. Dr. Manrodt also leads the WERC survey on DC Metrics, now in its 13th year.

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Dr. Holcomb's research has appeared in the *Journal of Business Logistics*, *Transportation Journal*, the *International Journal of Logistics Management*, *Supply Chain Management: An International Journal*, *International Journal of Physical Distribution and Logistics Management*, *Supply Chain Forum: an International Journal* and *Supply Chain Management Review*. She is the co-editor for the *Transportation Journal* and serves on the editorial review board of the *Journal of Business Logistics* and *Supply Chain Forum: An International Journal*.

Dr. Holcomb is a principal researcher in a long-standing annual study in the discipline titled – Logistics and Transportation Trends and Issues. The study, which examines macro- and microlevel practices and developments in the industry, has been conducted over 25 years.

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