



SUPPLY CHAIN NETWORKS REVEALED

SUPPLY CHAIN NETWORKS

Executive Summary

No matter your industry, the very nature of competition has changed. The break-through business strategy that has emerged today is the networked enterprise.

In this new paradigm, competitive advantage has as much to do with your network of trading partners and the technology platform your enterprise and ecosystems, as the actual product or service you offer the market. And we know, for supply chain professionals, solving the multi-party challenge has always been the essence of supply chain.

These issues are driving the high level of interest in supply chain networks. Yet these networks are not well understood, in spite of the current hype, which has not provided the right framework for a clear understanding of what supply chain networks are, what they can provide, how they work, and what the different offerings in the market are differentiated.

In this report series, *Supply Chain Networks Revealed*, we provide some answers. This executive summary focuses on the key issues required to understand and evaluate a supply chain network.

ChainLink Research 2019



Supply Chain Networks Revealed

This report series will provide a differentiated discussion on supply chain application networks from a process, functional and technical perspective.

This series consists of three parts:

- **Executive Summary:** A strategic overview of Supply Chain Application Networks and why they are an essential component of competitive advantage, along with a summary of key points from the report.
 - **Part One: What They Do:** What is a supply chain network? Why is it the platform for the inter-enterprise supply chain process and functional perspective?
 - **Part Two: How They Work:** Understanding the supply chain application network technology and examples of different types of network offerings in the technology market.
-

Table of Contents: Supply Chain Networks Revealed

What's Your Strategy?	1
Understanding Supply Chain Networks—What to Look For	2
Technology Prerequisites	5
Conclusions	6



What's Your Strategy?

For this decade of the 21st century and beyond, the winning business model is the networked enterprise. Supply chain has emerged as the key enabler of networked enterprises, where the imperative is designing and managing federated partner relationships with dynamic and fluid connections with customers. The technology platforms that enable them is the connective tissue of these networks. Cases in point:

- Product companies today are rapidly becoming *smart connected enterprises* that provide product-as-a-service via a Performance-Based Logistics/Power-by-the-Hour model. They leverage their smart connected products with a continuous stream of information to sustain high performance.
- Manufacturers who become “network enterprises” can and have changed their business models, becoming information companies—beyond just providing service or hardware.
- Retailers often become resellers, recrafting the store-within-a-store for the digital age, providing infinite catalogs and direct-to-consumer delivery anywhere in the world.
- The rate of mergers has steeply accelerated as companies leverage their physical, service and web presence to provide global end-to-end service to their customers.
- Customers engage with multiple sellers and do business, not just based on competitive price, but based on *availability and service/supply chain performance*.
- To accelerate growth and performance, networked enterprises address their talent shortages using effective partnering strategies and support remote workers with advanced technologies.

For supply chain executives, transitioning to this new model requires implementing a supply chain trading partner operating model that supports the networked enterprise, providing interoperability and visibility with reduced complexity. The supply chain trading partner operating model is a codification and automation of the key processes, policies, performance metrics and technology that govern your supply chain partner relationships.¹

21st Century Business Model

- Enterprise strategy: *Networked Enterprise*
- Supply chain strategy: *Supply Chain Trading Partner Operating Model*
- Information strategy: *Supply Chain Network*

To meet the instant access/instant response cadence of today's sales and fulfillment lifecycle, companies need extremely granular data from all of the demand and supply points across their supply chain, as well as the ability to rapidly and accurately analyze that data. Customers expect not only accurate price, availability, and reliable delivery promises (down to the hour) while they are shopping, but often they also demand visibility to source markets and accurate tracking throughout the whole process.

¹ Examples included compliance and data standards (types of technology expected and formats), contracts (pricing, volumes, guarantees and so on) and agreements



This is BIG data. This is connected. This is 24/7. And this is extremely smart. This requires moving beyond incremental thinking. This demands transformative, ever-fresh business models, with broader and bolder approaches. And all of this requires digital connective tissue. Often when we hear about digital supply chains, the advice given is to automate more processes. Automation as a goal is insufficient if it introduces more layers between you and your objective. So we need to move beyond enterprise-centric approaches that introduce more layers in the supply chain. A networked enterprise with a

networked supply chain requires reducing the layers of complexity, providing more clarity, and the cutting away of the labyrinth and the time required for multiple stovepipe applications and enterprises.

As the phrase ‘form follows function’ implies, the technology we deploy must follow and support these needs. We need to be closer to our partners and customers, with more visibility, more sharing, and common goals. This is why supply chain executives are turning to supply chain network providers for solutions. But as we know, the tech market is notorious for buzzwords that often don’t really describe accurately and assist the buyer in understanding and choosing the appropriate solutions.

Understanding Supply Chain Networks—What to Look For

To fulfill these goals, the supply chain network solution should include all elements needed to achieve an intelligent real-time supply chain. Integration or visibility platforms, without applications, are frequently marketed as ‘supply chain networks’ by themselves.² But, a supply chain network needs both the integration/visibility capabilities and multi-enterprise supply chain applications, together on one process-wide platform, a supply chain application network. In the marketplace there are two basic types of supply chain application network³ offerings. We call them Integrator Networks (IN) and Real-time Single Version of the Truth Networks (RSN).

Definition: Supply Chain Network

A multi-party network for trading partners, which is a single-platform, single-instance of supply chain applications, data, and services.

Members can share data, processes, and applications for the purpose of achieving their mutual and their enterprise business goals.

² Examples are business to business (B2B) and application integration offerings such as Informatica, OpenText, IBM’s B2B Integrator, TIBCO, SPS Commerce, etc.

³ You may also hear more generic terms such as *supply chain business networks*. However, the definition for those offered up in the media includes B2B/EDI integration solutions. *B2B* is a feature needed by supply chains, but is insufficient by itself to support the physical *supply chain network*. Another term you may hear is *supply chain commerce networks* which includes transactional as well as integration capabilities.



Integrator Network—These are networks that have been built up over time through acquisitions. Thus within their offerings are a set of separate networks that are integrated between applications and users/tenants. A common integration platform is provided. Each tenant has their own database⁴ (in the cloud) supported by common master data.⁵

Real-time SVoT (Single Version of the Truth) Network—These are networks that have generally been organically developed with a single database and single processing engine. This is a many-to-many approach in which all tenants share the same ledger-like,⁶ multi-enterprise data store—as well as sharing the same multi-party process execution.⁷ Figure One shows an overview comparison between these two supply chain application network approaches.

Supply Chain Application Networks

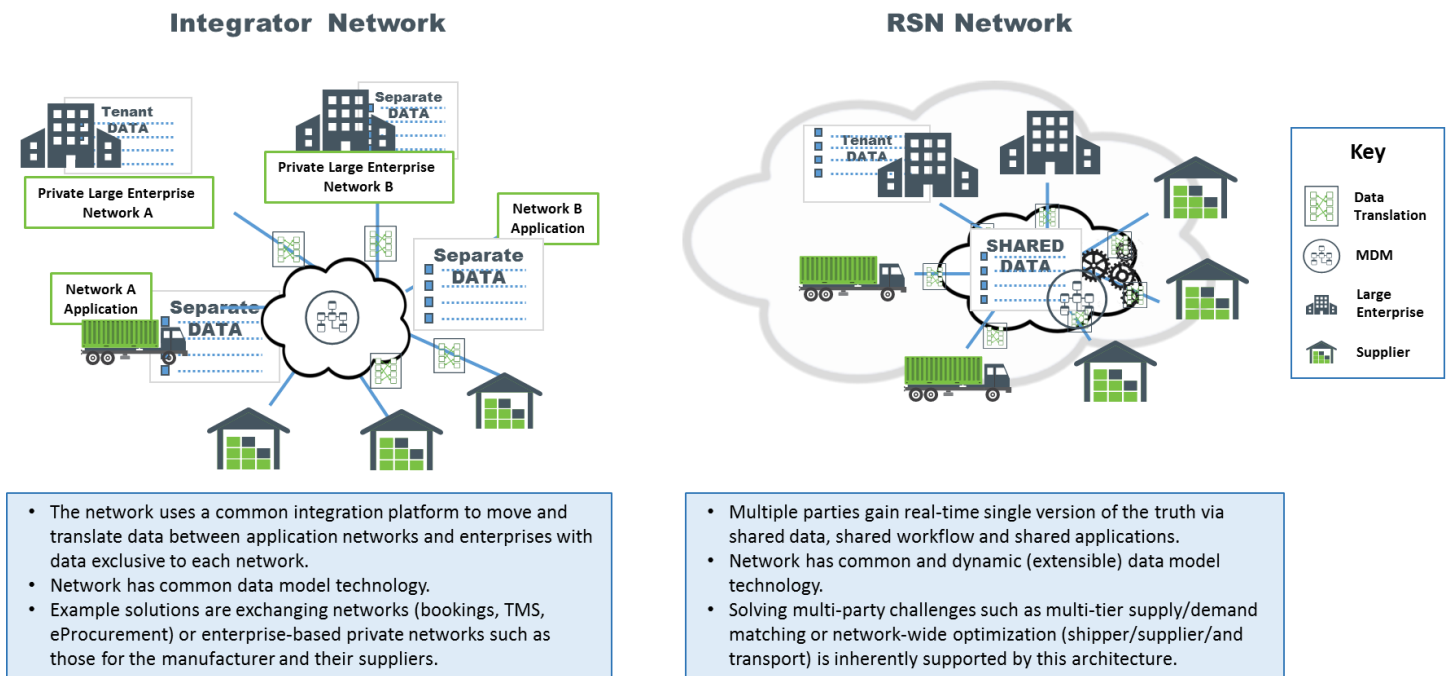


Figure One: Comparison of Application Networks

A central goal for supply chain application network providers is to provide an accurate and timely picture of the supply chain—a real-time single version of the truth and the ability to act upon it. So many terms are babbled about that sometimes their meaning gets lost. With some simple clarifications, we can better understand these terms and therefore what is required to run a multi-party supply chain.

⁴ Generally, these are called *hubs*. When supporting entities (partners such as suppliers or transport) connect, they are called *spokes*.

⁵ Examples are Descartes and E2open

⁶ Not to be confused with Blockchain

⁷ Examples are Infor Nexus and One Network



Single version of the truth (SVoT):

- ✓ A single *shared* data base where all the participants can see the transaction *in progress*.
- ✓ A single version of the truth can be multi-functional/network-wide as in the case of the RSN or per application in the case of the IN.
- ✓ Granular inclusive data—Single version of the truth also means supply chain-wide scope and granularity—at all the demand and supply points. This allows users to ‘see’ and include all the relevant data points needed to plan and execute accurately, again and again. Gone are the days of multi-layered endless steps from general to specific planning approaches. We can’t fulfil orders end-to-end unless we know all the elements that need to be included in each and every shipment, no matter how large or small.
- ✓ Scale—Even for a small company there can be an overwhelming amount of data. Systems need the scale including all that granular SVoT data—forecasted, in progress, and history.
- ✓ Extensible shared master data management—Data across the supply chain is industry specific, always changing, and often unique to a particular enterprise or trading partner. In order to trade and support customers and partners, data has to be commonly understood and usable by all involved parties. The platform needs the ability to respond to the dynamism of continuously evolving data between multiple parties.
- ✓ Modern supply chain data—By this we mean social, geospatial, location-based data, unstructured data from the web and devices (conveyances, goods in motion, equipment) and mobile connectivity and data from customers, employees, and service providers. All these are included in today’s supply chain analysis and execution.

Think of this:

*A mid-size manufacturer can have tens or hundreds of thousands of supply and processing points.
A mid-size retailer can have hundreds of thousands of demand points—SKUs at each location.
In a supply chain, then, just these two entities can have millions of demand/supply points. That is incalculable for the average user to understand or legacy system to manage!*

Real-time:

- ✓ Real-time means continuous refresh of information from data sensing, planning, through execution, *as events happen*.
- ✓ The ability to immediately *act* upon new circumstances. The always-on, 24/7 expectations do not leave time for elaborate orchestration or planning meetings. Systems must have the *applications and the intelligence* to alert users to critical issues in a timely manner and then to make recommendations and/or bring together all the necessary key data so that the best decisions can be made and executed on time.
- ✓ Real-time also means the system needs to support the dynamism of constant data, compliance, standards, and regulatory changes.

Why we need Real-time Single Version of the Truth to span planning through execution

Often supply chain decisions, such as those made in Sales and Operations Planning (S&OP), never make their way into the actual execution. And conversely, all the important lessons from successful or ineffective execution are not fed back and captured in the planning models.



Technology Prerequisites

High-level technology capabilities⁸:

- ✓ *Native/In-network Applications*—Often called *network services*. Rather than pulling together separate runs from individual application networks or off-network systems, the platform runs the relevant applications (such as demand, supply and logistics) *in* the network, using the shared SVoT data. In this way, achievable decisions that are optimized across a multi-enterprise supply chain are derived.⁹
- ✓ *Extensible Master Data Management*—The ability to support continuous, dynamic updating, appending data models and definitions (syntax and semantics) which include the rich, high-fidelity, modern supply chain data.
- ✓ *B2B Integration*—Supports the required data movement, standards, and translations between trading partners, within an industry or eco-system.
- ✓ *Interoperability*—Process synchronization between partners, through data and process inheritance, workflow management, and shared data
- ✓ *Elastic Cloud Services*—The ability to scale resources up or down as needed. Data and processing loads often change dramatically from season to season or for short term surge. Services should support rapid growth, increasing granularity, and volumes of data.
- ✓ *Machine Learning*—With the enormous scale of data and the dynamics of rapid change, we cannot expect users to see and understand every pattern buried in the sea of data. Machine learning can monitor, identify/derive patterns, and learn from the oceans of data, creating data-validated insights and make recommendations for action.
- ✓ *Intelligent Agents*—These programs take action based on explicit requests, rules-driven triggers, or machine learning-based pattern recognition. As organizations gain knowledge and experience with machine learning, intelligent agents can operate more autonomously.
- ✓ *End-to-end Process Management*—Supports the whole ‘work’ cycle of the supply chain user’s tasks: visibility, planning, decision making, execution, analysis, and dynamic report creation.
- ✓ *Control Towers*—These monitor and control an enterprise’s supply chain domain, built using both in-network and off-network data. These towers should not be merely visibility systems. Control means the ability to predict, alert, decide, and execute. Advanced control towers have intelligent agents to provide autonomous execution.
- ✓ *Trading Partner Services*—Methods for customers and partners who may be infrequent users and/or who have limited technology capabilities¹⁰ to very easily get onboarded, communicate, and participate in planning and transaction management.

All these create more inclusion which allows multi-enterprise optimization—to discover cross-function/network-wide solutions that are feasible and optimized for all the parties involved, rather than optimizing just for the big anchor tenant and pushing the burden to smaller suppliers.

⁸ For further definitions of these terms and additional essential features, please read *Part Two—How They Do It*

⁹ See *Part One—What They Do* for supply chain process examples

¹⁰ Often system services are offered at low or no charge for smaller partners.



Conclusions

Improving overall performance across the whole chain is the *quintessence*¹¹ of network objectives today. Thus our technology strategy and platform should be one that enables new levels of performance—growth, with profit, for all the partners.

We know our physical network includes all the elements that support fulfillment—seen and unseen. It’s not just our partners, but also the environment and events happening around us that have an impact on the flow and integrity of product. Thus, we have to turn to networks.

By creating a network-wide digital network, we can gain exploitable details—not just estimated time of arrival, but the actual time; not just which ocean carrier, but which container at each stage as it moves from port to over the road.¹² We may need sensor data, such as temperature, vibration, and directionality, to ensure our product integrity. We want to see clearly into the selling channel—our product in distribution, at the store, and with the customer.



And we want to act on it. That is network-wide optimization. It goes beyond changing local parameters, such as resetting a safety stock level. It involves mutual-optimization across multiple functions and multiple enterprises. Ultimately, solutions that optimize across functions and enterprises will produce superior results across the chain.

All this data enriches us, makes us smarter, and enables us to be more competitive. This kind of real-time data and intelligence opens up greater possibilities for all parties involved. Now is the time to get closer to our customers and partners. They need us—and we need them—now more than ever.

¹¹ Definition: typical example of a quality; exemplar; stereotype; epitome; paragon; picture; prototype.

¹² Users have been tackling the consolidation and reconciliation of multiple data sources—carrier, 3PL, freight forwarder, an onboard GPS or RFID device, and/or one of many new ocean tracing or container tracking companies. Sadly, often this data does not agree and users are left to develop additional methods to try and accurately extrapolate the current reality on the ground ... or on the water or in the air.



321 Walnut Street, Suite 442

Newton, MA 02460-1927

617-762-4040

Email: info@CLResearch.com

Web: www.ChainLinkResearch.com