



Single Version of the Truth

The Journey to a Unified Supply Chain

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About ChainLink Research

ChainLink Research, Inc. is a Supply Chain research organization dedicated to helping executives improve business performance and competitiveness through an understanding of real-world implications, obstacles, and results, through supplychain practices, processes, and technologies. The ChainLink Inter-Enterprise Model is the basis for our research. It is a unique, real-world framework that describes the multi-dimensional aspects of the links between supply chain partners.

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Executive Summary

Most of us have played the game of "Telephone" with a line of people—the first one whispers a word or phrase into the next person's ear, who then whispers the same phrase to the next person and so on. Invariably by the time it gets to the end of the line, the phrase has been totally distorted and transformed into something completely unrecognizable from the original. Unfortunately, too many supply chains are run like that today.



Figure 1 - Typical Linear Data Sharing

The common practice is to share primarily transactional data, only between direct trading partners. This practice has major shortcomings:

- Lack of "peripheral vision" businesses see no further than their immediate trading partners. Businesses deep in the supply chain have no clear picture of their true end-market demand. OEMs and others are blind-sided by material shortages, production problems, and other upstream events.
- **Distorted**, **delayed signals** any information that does eventually "leak through" from other tiers is delayed in time and so thoroughly "massaged" that its validity and usefulness are decimated. The "Bullwhip Effect" is one well-documented negative outcome, but there are many others.
- No event visibility beyond transactions many of the most important business events are not transactions. They are the events that happen between the transactions (see sidebar: Events vs. Transactions).

The net effect: companies end up with a myopic, unsynchronized view of the supply chain.

This will no longer do. Business models have evolved, and the accurate and timely sharing of strategy, planning, and execution information across the end-to-end supply chain has become critical. To get a crystal-clear picture of what is happening in end markets, actual

Events vs. Transactions The vast majority of data shared beture of firms to double.

tween firms today is transactional—e.g. forecasts, orders, invoices, etc. But there are critical events that happen between the transactions. For example:

Production lines stopped; product getting too close to expiration date; promotional displays not put up properly or not put up at all; temperature-sensitive product exposed to extremes; product diverted or stolen. It is critical to share events (selectively of course), not just share transactions.

demand, key events, and changes in status across the supply chain, ultimately requires much deeper information sharing and collaboration between trading partners. In addition, it requires leveraging newer IT techniques (such as data synchronization) and data sources (such as RFID).

This goal remains elusive and cynicism persists. However, federated business relationships and the virtualization of enterprises have become pervasive. The elimination of trade barriers, and the move to massive outsourcing, especially to low-cost labor countries, has created globally dispersed "virtual corporations," often with hundreds of intertwined companies involved in bringing each product to market. At the same time, major investments are being made in areas such as RFID. To survive and thrive, it appears enterprises will have no choice but to "open the vault" and begin the process of standardizing and sharing data.



In this new model, survival requires "peripheral vision" across the extended enterprise, including a view of actions and events across the supply chain, not just the transactions with your immediate trading partners. The new business reality requires synchronizing on a "single version of the truth" (SVoT) across multiple enterprises.

To find out about current attitudes, plans, and actual adoption of these newer approaches to sharing data across multiple tiers of the supply chain, ChainLink Research surveyed 218 companies and interviewed senior supply chain executives from 30 firms across a diverse range of industries including manufacturers, distributors, retailers, and service providers (e.g. 3PLs) to answer a number of key questions including:

- How important to your business is having a Single Version of the Truth (SVoT) across the supply chain? Why?
- What data do you share and will you share with trading partners?
- What will you do with this data?
- What are the challenges and obstacles to achieving these goals?

Our findings include:

- The trend to higher velocity and precision drives a need for SVoT All industries are driving to tighter synchronization with trading partners, smaller safety stocks, and narrowing delivery windows. All of this requires more accurate, timely, synchronized sharing of information.
- The trend from vertical integration to many tiers drives a need for SVoT As supply chains continue to be fragmented into more and more specialized pieces, it becomes even more critical to get multiple companies aligned to deliver for the ultimate end customer.
- Business Events, not just transactions, are critical RFID is creating a groundswell of interest in capturing the events on the ground that happen *between* the transactions, and sharing these across the supply chain. This enables a "physical-reality-based" SVoT to be shared.
- SVoT means different things to different companies The concept of sharing a Single Version of the Truth is almost cosmic in proportion. We found that companies zeroed in on those aspects of SVoT that were core to their business.
- The desire for SVoT is high, but there are many barriers We found a universal, strong desire for SVoT, but little actual adoption.

In this paper, we will report on these and many other findings from our survey and interviews.

HOW THIS REPORT IS ORGANIZED

This report is organized into five main sections:

- Dimensions of SVoT Findings from the research regarding how practitioners related SVoT to their firm. We discovered many facets of SVOT such as sharing of product designs, synchronizing demand and supply, tracking products, coordinating the players in a project, and aligning the service ecosystem.
- How Companies Plan to Share Data Specifics from our research on which ways companies are planning to share data with trading partners, including exposing web services to trading partners, sharing of RFID data, and sharing across multiple tiers.
- Impacts of Supply Chain Structure on SVoT Implementation How company structure shaped the different companies' priorities for SVoT.
- Inhibitors to Adoption Why is it taking so long! We explore the barriers uncovered by the research.
- Evolution of SVoT Technologies How different technologies support different aspects of SVoT: ERP/EAI, EDI, CPFR, Project Collaboration Systems, Exchanges and Networked Applications, GDS, RFID and the EPCglobal Network.









Types/Uses of Auto-captured Data Sharing – Movement of Goods

When asked what specific auto-captured data companies plan to share—the most commonly selected choices (Top 3) concerned the *movement and location of goods in the supply chain*—what was shipped, where it is, and what was received (see Figure 10—Types of RFID and Bar-code Data Shared).



Lot and Batch Tracking

Plans to share lot and batch tracking data were surprisingly high—on average 32%—and especially high in industries like Aerospace & Defense (65%) and Pharmaceuticals (45%), where traceability is key. There are a number of different problems being solved by sharing this kind of data. The problem being solved has an impact on the requirements (equipment, process, infrastructure):

- **Compliance with regulations** It is not surprising that Aerospace and Pharmaceuticals ranked highest in plans to share lot and batch tracking data, as both are highly regulated and require this kind of tracking hannel partners, service partners, and government agencies may all be
- Expiration management For limited shelf-life p may be used to determine EOL and help enforce disciplines in warehouses and other environme may be transshipped between warehouse or consumption before expiration (see quote F This may require various supply chain pa capture, monitor, communicate, and ac

atch number Expired First Out) cases, product is in order to assure nealthcare provider). PL, distributor, retailer) to data.

"Understanding expiration data is critical for never want to waste blood products, some less frequent consumption, typically neer life left. But a big hospital can use sho weeks of shelf life at better prices. T but how are you going to channel t Creating the visibility is helpful, b facilities rotate out the short da they well be used. You hav and consumptions. In a pe and where to send it."

SVP, Major Healthca/

or the stablished protocols, for example in the utilization patterns, each hospital's inventory levels would know where all the product is at any point in time

rement Organization

Recall — Recalling tainted or defective products is a challenge common to many manufacturing industries. If the distribution of batches/lots is not tracked through distribution and retail channels, then recall cannot be done precisely, requiring costly general recall of all products. Lot tracking throughout the channel is currently not done effectively in Consumer Products, Food, Pharmaceutical and other industries. In order to use auto-captured data to track each lot, manufacturers are required to encode or associate that data with each item and then wholesale, distribution and retail channel partners need devices, new procedures, and infrastructure to capture and communicate that data back to the manufacturer. This substantial investment is one of the barriers. As one pharmaceutical manufacturer said about recall "I find it hard to justify investments to improve a process that I'm trying very hard to eliminate."

The sharing of data across multiple tiers does not imply a centralized database, because ownership and responsibility for data is distributed across the many players in the chain.

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When we asked the multi-tier question² in direct interviews, there was a fuller range of nuances in the answers. Those with multi-company coordination challenges tended to say it was very important. Those with more silo'd views or responsibilities, or those still struggling with internal integration said "nice to have" or "not important." There are several reasons for the gap between desire and reality for multi-tier data sharing, which are explored later in the paper in the section on **Inhibitors to Adoption**.



The question was fing of supply chain-wide information, how important is having a distributer in the <u>multiple instances</u>, with technology to synchronize the data across those for technical question. People believe that multi-instance, synchronized databases are key to sharing information across the supply chain. Figure 12 highlights an important distinction—the sharing of data across multiple tiers does not imply a centralized database. In fact, almost 80% of respondents felt a distributed database with multiple instances was necessary when sharing data across multiple tiers. This reflects the reality that the ownership and responsibility for that data is distributed across the many players in the supply chain.

² The question we asked in our interviews was "How important is an integrated and synchronized data flow and environment for supply chain-wide information—a "single version of the truth" whereby the various players across the supply chain get access to the same information at the same time?"



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