

Building Common Ground for Collective Intelligence: How Digital Supply Networks Can Provide a New Era of Collaboration for Industry 4.0

In an age of disruption, not having end-to-end visibility across increasingly complex global supplier networks, results in a constant state of fire-fighting mode.

In the pharma industry, new ground is gained every day in understanding how digitally connected supply networks can help drive innovation, respond rapidly to disruptions, and ensure business continuity. The journey to digital supply network adoption begins where many organisations are today – suffering from a lack of supply chain visibility – and ends with an opportunity to leverage the power of collective intelligence.

In this article, John Bermudez, VP of Product Marketing at TraceLink, explores how organisations can create their own digital supply networks on demand to forever change the way they work with their suppliers and partners. Bermudez also offers a look at how pharma companies can build their own network ecosystems with a digital network platform.

Supply chain visibility is critical... but it's not easy

More than half of the companies across the end-to-end pharma supply chain lack the upstream and downstream visibility needed to respond effectively to sudden marketplace disruptions, according to IDC research, that surveyed more than 500 companies on the impact of COVID-19 on the global pharmaceutical industry.

Visibility problems threaten efforts to build more agile, responsive, and resilient supply chains that can withstand and quickly recover from disruptions like those caused by the COVID-19 pandemic, the research found.

"Visibility and agility are critical components of overall resiliency," said IDC Program Vice President and Supply Chain Strategies Practice Leader Simon Ellis. "You

simply can't be a resilient supply chain if you don't have those kinds of things."

While companies struggle with visibility remains, demand for goods is stronger than ever

In June, the Institute for Supply Management (ISM) monthly index reported the 13th consecutive month of growth across 17 of 18 industries. However, many of these manufacturers are having a hard time keeping pace due to a plethora of supply chain issues, ranging from material shortages to commodity price increases.

According to ISM, lead time for production materials reached 88 days in June – the highest figure ever recorded in the history of the report.

Record-long raw-material lead times, wide-scale shortages of critical basic materials, rising commodities prices and difficulties in transporting products are continuing to affect all segments of the manufacturing economy.

Supply chain issues, material shortages, labour issues, and other obstacles are now beginning to manifest in prices. ISM's manufacturing price index reached its highest mark in the last 40 years, jumping 4.1% to 92.1% in June.

As supply constraints, material costs, and other obstacles begin to impact activity across the sector, it's critical manufacturers address supply chain friction whenever and wherever they can. Supply chain issue management is a low-hanging fruit in that regard, with multienterprise work management solutions enabling manufacturers to significantly improve the way they work with their supply chain partners. This enables dramatic improvements in supply chain issue resolution and delivery performance.

The journey to supply chain success starts with digital supply networks

The good news is that there are some steps companies can take today to meet the rising demand for goods and improve supply chain visibility. For starters, supply chain leaders must evolve the mental model

of "supply chain" to encompass the entire supply chain, not just next-in-line upstream or downstream trading partners. Second, digital supply networks and collaborative, multienterprise applications have arrived – and they are fundamentally changing the way that manufacturers work with suppliers.

Pioneering companies today are pushing the envelope and building digital supply networks to create an always-on, always-connected, real-time and dynamically adaptive supply chains. By enabling organisations to reach new levels of supply network collaboration, agility, and resilience in the face of disruptions, digital supply networks are poised to power the next stage in the evolution of supplier relationship management across all industries.

With a digital supply network, digital network links replace expensive point-to-point integrations, data flows seamlessly across network members, and work processes can be tightly coordinated between network partners. Inventory levels, production and distribution process information, and demand and supply forecasts can be shared across the value chain of suppliers, manufacturers, wholesalers, and points of sale.

The five stages of digital supply network adoption

Where did these pioneering companies start their journey? How can other companies take the first step towards integrating digital supply networks into their supply chain strategy? The answers to these questions can be found by analysing the various stages of digital supply network adoption.

The transformation begins where many organisations are today – suffering from a lack of supply chain visibility and contending with data silos that limit agility. But as the digital journey continues, those silos are gradually knocked down, and companies gain an opportunity to capitalise on the power of collective network intelligence. By adopting digital supply network technology, organisations can expect the process to unfold in the following five phases.

Phase 1: Prior to the adoption of a digital supply network, supply chain data is siloed,

and information flows linearly from one silo to the next. For example, data flowing from an ingredient supplier to manufacturing organisation to distributor, and so on. Visibility is generally limited to the previous or next node in the supply chain – and disruptions can easily occur often without any warning.

Phase 2: Once an organisation goes live with a digital supply network, they are immediately able to connect with more companies across their end-to-end supply chains, quickly proliferating their digital network links. As a result, additional supply chain information becomes available for stakeholders making decisions across the lifecycle.

Phase 3: During this stage, supply chain data insights start moving in a variety of directions and is distributed among stakeholders. These digital links begin to render informational data silos obsolete and valuable supply chain insights become more freely accessible.

Phase 4: Now, the network is becoming the connective tissue that enables organisations to continuously create digital links with supply chain partners and secure information as it flows between stakeholders.

Phase 5: The final stage. This is when data silos are eliminated and supply chain data flows freely in and out of an interconnected digital core. By this point, supply chain visibility has increased well beyond just the next or previous node, and the ability to identify potential disruptions grows ever stronger.

The power of digital supply networks is clear – but challenges remain

While some companies have made it to the fifth phase and have significantly improved visibility across their end-to-end supply chains, there are looming challenges that can prevent supplier management teams from achieving the full potential of digital supply networks.

While an organisation and its network members can share insights freely and orchestrate processes, silos can still exist between the networks themselves. This makes it difficult to share data and glean insights across all networks in an industry. As a result, preventing shortages and predicting potential disruptions is more difficult, and supply chain optimisation across an entire industry is not possible.

Collective Intelligence: The answer is a digital network creation platform

To digitally transform entire industries, organisations need a network platform and a new breed of multienterprise business applications to create digital networks on demand to tackle critical business activities – while also enabling organisations to share collective intelligence freely and securely.

One of the most powerful benefits of building networks on a single platform is the collective intelligence that can emerge from collaborative, interoperative networks. Like Waze for traffic intelligence, a digital network platform with a common data model will have massive transformative power. For example, resource planning decisions can be made based on real-time demand data. With extended visibility raw material and supply disruptions can be identified long before they impact production.

The results? Products will be brought to market with unprecedented safety, security, and efficiency. Collective intelligence gleaned from cross-network analytics will help organisations predict and prevent shortages and disruptions. And entire industries will be digitally transformed.

Last word on pharma's digital journey

Members of the healthcare and supply chain ecosystem know that it cannot fulfill its commitment to patients or society without better operating models with network trading partners. This collaboration is vital to the safety and security of the world's drug supply.

Fortunately, the foundation for the collaborative digital supply chain infrastructure pharma needs has been built already, through the global, industry-wide requirements to meet track and trace regulations. The digital supply networks that were created to help companies meet these requirements have evolved and organically expanded to provide end-to-end supply chain solutions that help companies digitalise their processes, network ecosystems, and ultimately, their supply chains.

Designed for interoperability and collaboration, pharma finally has the collaborative platforms and networks it needs to disrupt disruptions and assure patients safe secure access to affordable medications and healthcare.



John Bermudez

John Bermudez is responsible for leading the overall strategy, business planning, and operational execution for TraceLink's Digital Network Platform business. He has over 30 years of experience in management, marketing, product management, engineering, software development, research and SaaS transformation, and is an established leader in supply chain management. Prior to TraceLink, Bermudez led Infor's supply chain management digital transformation and acquisition strategy and held roles as Vice President at Oracle and AMR Research/Gartner, where he co-authored a book on the impact of e-commerce on supply chain management. Bermudez holds an MBA in finance and a Master of Science degree in Operations Research from Rutgers University.