\> Is your **high tech supply chain** prepared to weather disruption?

Table of contents

Executive summary

The ripple effects of COVID have exacerbated underlying vulnerabilities in our global supply chain that the high tech industry has faced for years. Supply chain disruption has become a fact of life.

The traditional ways of working no longer hold. The hidden costs of just-in-time planning have been revealed by recent volatility in material lead time and transit times. Nothing better exemplifies the complexity and global nature of the modern supply chain than the recent semiconductor shortages and the knock-on effect they have had on an array of industries. Not all companies are affected equally, though. High tech organizations that invested in their digital supply chain transformations prior to the current crisis have had an easier time navigating the daily/weekly

shortages. They have more effective tools such as supply chain control towers that boost supply assurance and supply chain resiliency, for example. By leveraging material visibility, high tech companies can even modify their supply chains to better serve customer demand—or shape customer demand to fit the products companies can reliably deliver.

This transformation to a supply chain and organization capable of withstanding the next shock requires digital orchestration across the entire supply chain. The process to effectively rethink your foundation involves four key steps:

①	②	③	④

Rebuild the data foundations to aggregate internal and external input

Develop intelligent operations that use modern tools to harness that data, increasing visibility

Upgrade talent strategies, developing workforces with the digitally integrated skill sets to extract insights from analytics

Apply this framework to not only improve supply chain operations but to also support strategic decision-making across the organization

Digital supply chain transformation enables operational teams to shift from putting out fires to helping improve their planning, production, purchasing and logistics execution.

Leadership can identify leading indicators of disruption and develop strategies to help address the issues in advance. Even in case of catastrophic events, they can be better positioned to respond before the situation negatively affects operations. It's an investment that helps bring value across the enterprise. And in our ongoing era of disruption, supply chain organizations need to start their digital transformations now.

Client outcomes achieved

40%+
increase in forecast accuracy

3-5%
drop in cost of goods sold

98%+
increase contract visibility/spend compliance

15x
ROI from procurement cost savings

Client snapshot #1: High tech device manufacturer

The challenge:

Responding to the "V-shaped COVID-19 recovery" customer demand, a client faced severe shortages of semiconductor components. To make matters worse, disruptions in the N-tier supply base made it difficult to pinpoint where the next component shortage would occur.

The solution:

The client partnered with the Accenture team to develop a holistic solution. The team started by building a proof-of-concept digital use case to identify high-priority component parts. From this use case, plans were put in place to proactively protect more than $1 billion in revenue. Finally, the client solicited feedback from the supply base to gain visibility into sub-tier suppliers and build a digital twin of the supply base.

The results:

The digital twin enabled the impact of critical disruptive events (e.g., LA port congestion, COVID surges, etc.) to be fully assessed in minutes instead of weeks. Taking this a step further, the client applied the digital twin to run stress test models and pinpoint weak points across the supply network.

Industry context

For decades, we've focused on lean supply chains and just-in-time purchasing, but that model was built for a different world.

Since the start of the pandemic, more than half of manufacturers have experienced two weeks or more of inbound material delays, and nearly a third have had a supplier declare a force majeure. Disruption of the normal flow of shipping means that containers and vessels aren't where they need to be, and even when they are, they can't get unloaded. The result is a port backlog so severe that the Port of Los Angeles, for example, announced a "dwell fine" on containers stranded portside, which are there because of a shortage of trucks—and the drivers to drive them (see table 1).

Table 1: Port delays (15 Oct 2021)

Global Rank	Continent Rank	Port	Waiting for Berth (days)	% from average
1	1	Shanghai	1.8	140%
2	2	Singapore	0.7	133%
10	1	Rotterdam	0.4	-20%
14	2	Antwerp	0.8	100%
17	1	Los Angeles	9.8	19500%
22	2	Long Beach	13.2	13100%

Source: https://live.fourkites.com/port-congestion

But the pandemic is only the most recent illustration of the trend. Disruption has become the order of the day.

Whether natural disasters, trade wars, economic downturns or cross-border conflicts, these unpredictable events are predictable only in their ability to disrupt supply chains and the organizations that depend on them. This particularly affects high tech, with its complex, interlocking global operations dependent on highly synchronized supply chains of exotic and often single-sourced materials and subassemblies. Amid these unstable conditions, the concept of a "safe" lead time is fast losing relevance.

Digital transformation of the supply chain equips high tech companies to not only better coordinate across the supplier ecosystem but to also "see around the corners," identifying leading indicators of the next disruption in order to better navigate through it. The change can't be a scattershot process, however. Point solutions alone are not sufficient. It's the integration that truly brings value. This ready access to easily consumable data from internal and external sources boosts supply chain resiliency, increases supply chain flexibility and supports better strategic decision-making across the enterprise.

Planning for transformation

In today's high tech organizations, the digital supply chain effort is frequently siloed—one business unit might focus on increasing material visibility with point tools while another separately invests in similar tools to search for advance warning of disruption.

The goal is to find a way to integrate the effort so that the analytics, insights and information can be accessed by all stakeholders. Not only does it make financial sense, the insights afforded by the higher level of integration can also inform strategic decision-making within and outside of the supply chain.
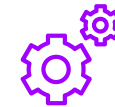
To transform their supply chains and access the strategic benefits discussed above, companies should rethink their foundation by focusing on the following key steps:

Update the data foundation to aggregate internal and external data

Shift to intelligent operations that use modern tools to uncover insights

Foster the talent and skillsets to support the effort

Apply the insights to help leadership guide the organization

The first three steps provide the basis of the digital supply chain. The true value lies in using those building blocks to extract insights that enable faster, more effective decision-making.

Updating the data foundation

Many companies today believe that they are preparing for the next digital disruption by investing in "digital tools," but are they?

More than three quarters of executives say that digital architecture is becoming critical to survival but only 39% in a recent survey considered their organization to be digitally mature.[1] And many of those digital tools are narrowly focused, addressing specific needs without communicating effectively over the value chain. Supply chain transformation begins by rethinking the foundation with digital literacy. That involves more than simply digitizing records and processes.

Connected data
Success rests on a foundation of data aggregation across the value chain. High tech enterprises are required to invest in data lakes to aggregate data supplied by sources throughout the supply chain. Linking data from each stage—design, plan, source, make/buy, deliver, service—makes it accessible to users seeking to generate actionable insights and support real-time decision-making. These activities move beyond just reducing supply-chain risk to helping drive overall business strategy.

Cloud enablement
Cloud enablement can be an essential tool to support high levels of integration across the enterprise and the greater ecosystem. The irony is that while many high tech companies are closely involved in building or even running clouds, they also have room to grow in cloud adoption—currently, only about 56% of application workloads are cloud enabled.[2] Supply chain organizations are required to embrace the cloud and leverage it as a tool for integration and orchestration. Public clouds like AWS, Azure and Google deliver flexible, elastic solutions and integrated security.

Connected digital ecosystem
Supply chain resilience doesn't arise from internal data alone. High tech organizations are required to gather input from an ecosystem of external partners to gain a better understanding of supplier operations and challenges. Events and trends completely outside the ecosystem, from patterns in severe weather to patterns in corporate leadership resignations, can also help provide leading indicators of supply chain issues.

Shifting to intelligent operations

The true value of the data foundation emerges when it is operationalized for use across the organization to help make operations more intelligent.

The data foundation needs to be part of an integrated technology stack—the core ERP, the business planning platform and the collaboration platform for the ecosystem. Coupling this with current market indices and other data helps build a more complete picture of current conditions and future expectations.

High tech organizations can rethink their foundation by taking advantage of "out-of-the-box" solutions to support both the broad (e.g., spend visibility, market intelligence, benchmarking, etc.) and the focused (e.g., "should" costing, product complexity, etc.) requirements of the business. The objective is to use tools to help simplify the process, increase coordination and reduce effort.

In this reimagined supply chain framework, modern tools like robotic process automation (RPA), artificial intelligence (AI) and multiparty systems (MPSs) harness the data to support all areas of the new procurement technology ecosystem, from transactional to strategic.

Going forward, up to 80% of today's supply chain management and operations will be supported by these powerful new tools.[3] They will be used to not just manage inbound supply chain but also to help enable sophisticated tasks like scenario modeling, predictive analytics, digital twins of supply chain networks for risk management, etc.

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Client snapshot #2: Enterprise and consumer compute products manufacturer

The challenge:

Modernize supply chain operations to reduce fulfillment complexity and enhance customer experience. The organization encompasses an 800+ person supply and procurement team managing a complex global supply chain with hundreds of logistic/3PL suppliers.

The solution:

Accenture partnered with the client to help lead them through a digital procurement transformation designed to align people, processes and digital tools. This took the form of a machine-learning-based, real-time, predictive-analytics-driven logistics control tower capable of sensing and responding to estimated times. The team also created and deployed machine-learning algorithms to constantly predict delivery times around the world in near real time.

The results:

Identified cost savings of over $40 million, with a 25% improvement in ETA accuracy versus promised delivery, as well as reduced transportation and delivery costs and improved supplier relationships. Also, an intelligent operations digital tool was designed and implemented to improve visibility into supplier risk and supply assurance during the pandemic and inbound supply crisis. This new visibility led to proactive insights and analytics, with over $100 million identified in annual value.

Fostering the talent and skill sets

Even the best data foundation and technology stack is useless without a workforce with the skills to take advantage of it.

The conventional supply chain operation is typically one of the most people intensive. The transformed supply chain requires updated job roles and new skillsets. Digital fluency is just the start. To unlock the value of the data foundation and intelligent operations, organizations will need to rethink their foundation by training a workforce with advanced capabilities like analytics, problem-solving and data-driven decision-making.

A digital supply chain transformation requires an overhaul of the organization and processes, both to help address the immediate requirements and to help adapt to changes in coming years. Architecting and navigating this kind of radical restructuring may require leadership recruited from the outside, who can then partner with in-house experts to guide the process. Of course, data scientists and systems architects are in high demand today. Supply chain organizations are required to develop targeted recruiting strategies to compete for talent in a very active marketplace. In concert, they would be required to foster in-house staff to bring them up to speed with the new processes and tools.

Applying the insights

Every day in our volatile environment, supply chain executives are faced with decisions that have profound implications for profitability, productivity, resource use and the workforce.

With the transformed supply chain, they no longer have to make these decisions in a vacuum. Investing across the four steps and effectively rethinking your foundation provides a rich trove of real-time data to power targeted analytics. The result is better information to make faster, more effective strategic decisions, driving value through internal operations and the external ecosystem. In the wake of this digital transformation, the high tech supply chain organization becomes one of the nerve centers of the business.

Insights to application:

E2E cost-to-serve analytics—Establish component-level visibility into the total cost of ownership structure of the entire supply chain. By linking cost to customer demand and product pricing high tech companies can analyze the full supply chain and product pricing which can serve as a foundation for data-led SKU and product rationalization driven by margin optimization.

N-tier visibility—Supply chain network 'digital twin" that pinpoints N-tier event-based risks and models the resiliency of the network to these risks.

Supply chain control tower—Dynamic demand-supply matching that proactively flags supply gaps and supports SKU prioritization for components under allocation.

With the tools and results from the digital supply chain at their fingertips, leadership teams can rapidly make the strategic calls that will deliver the optimal business outcomes.

Client snapshot #3: High tech industrial manufacturer

The challenge:

Disconnect between demand and supply led to ballooning backorders and plummeting customer satisfaction, with declining on-time-in-full (OTIF) metrics. This was exacerbated by supply chain disruptions caused by events like COVID, port backlogs and the Ever Given grounding.

The solution:

The Accenture team helped the client develop an end-to-end process design that encompassed demand planning, inventory planning, supply planning and sales and operations planning. The team revamped organizational design, including planning organization structure, roles and responsibilities. The talent strategy developed a workforce to support operational model deployment.

The results:

The company now uses strategic segmentation analytics to inform planning decisions and update configurations. They expect to realize over $100 million in business benefit through reducing working capital investment, measured by days of inventory on hand; rebalancing inventory to remove slow moving, excess and obsolete items; cutting customer lead times and boosting OTIF, and seeking more stable, more predictable execution activities, even with a capacity-constrained supply plan.

Getting started

Initiating the transformation of the supply chain doesn't have to be daunting. High tech companies can begin with these actions:

1 **Start small**. Remember, the company as a whole needs to keep operating during the transformation.

2 **Define** a North Star by aligning the digital agenda with the strategic business imperatives.

3 **Identify** the use cases to develop a comprehensive roadmap and solution architecture.

4 **Transform** use cases into rapid prototypes to test and approve minimally viable products (MVPs). Refine the process and then apply lessons learned to the larger implementation.

5 **Build**, test and deploy the proven MVPs, implementing the new ways of working and activating the new operating model.

Throughout the transformation, be sure that you are working with a robust, scalable solution; you don't want to get caught in pilot-project purgatory. It's also easy to overlook the human factor. In parallel with MVP development, begin designing the new ways of working so that the organization can fully realize the benefits of the investment. Finally, consider working with a partner. Just as supply chains have many moving parts, so does the digital transformation process.

Conclusion

Volatility is here to stay. To help reduce the impact of the next disruptive event, high tech businesses are required to access to insights that will let them not just improve their supply chain management but "see around the corners" to prepare for the next crisis.

By digitally transforming operations, high tech companies can deliver new capabilities, based on the four steps of updating the data foundation, shifting to intelligent operations, fostering talent and applying the insights. The transformation can help provide the entire organization with access to the results of sophisticated analytics that help support more informed, effective and timely decision-making. The pandemic will eventually end but disruption is not going away. Is your supply chain strategy preparing your organization to thrive in this new era?

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