



Managing the Digital Supply Chain Through Global Disruption

Part of the Driving Digital Agility content series: Insights and strategies to pivot to digital business, navigate new work environments, and manage changing customer expectations.

As signs of recovery start to emerge, technologies to support optimized supply chains come front and center for businesses devising strategies to ensure they aren't again caught unaware in the face of the next global market disruption.

Business leaders this year learned more than they likely wanted to about their supply chain vulnerabilities as supply and demand went haywire amidst the economic uncertainty surrounding COVID-19. While some suffered from extreme shifts in demand, others successfully maintained inventory and logistics capabilities during unpredictable times—and the difference between the two was often due to advanced connectivity and network technologies.

In many cases, COVID-19 found businesses not prepared to maintain successful supply chain operations as consumers were ordered to shelter in place and buying behaviors radically changed. As store shelves emptied at unprecedented speeds, other goods languished in temporarily shuttered stores, deemed unnecessary during the crisis. Challenges persist now as governments propose cautious reopening plans, and supply chain managers must consider updating their infrastructure to support the technologies that enable visibility and transparency into the supply chain and prevent major disruption.

“COVID-19 revealed the lack of advanced planning around truly digitizing supply chains. Global supply chains are long and lean and extremely fragile,” Randy V. Bradley, Associate Professor of Information Systems and Supply Chain Management in the Haslam College of Business at the University of Tennessee, said during a [recent webinar](#). “The lack of risk management in many organizations has been greatly exposed. Many will really try to modernize their supply chain moving forward.”

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— Simon Ellis, Program Vice President, Supply Chain, IDC

Supply Chain Challenges in Crisis

COVID-19 represented a perfect storm for supply chains.

Not only did buyer behavior shift unpredictably, supply chains experienced problems ranging from the inability to scale production to an uncertainty of workforce availability and supplier uncertainty. Transportation networks were interrupted, causing long lead times and imprecise delivery windows, which in turn caused customers to accept deliveries in new ways. And new sanitary and cleanliness regulations sprung up around varying products, sending businesses scrambling to meet guidelines and establish new processes.

“IDC conducted a survey earlier this year, and about 70% of some 800 companies responding expect some sort of major disruption in their business this year. Some have seen it already, and some are still expecting to see it,” said Simon Ellis, Program Vice President leading the Supply Chain Strategies practices at IDC. “A resilient supply chain is not just able to operate within its current business model. A resilient supply chain enables business leaders to think about new, adjacent business models.”

Also in response to this crisis, the supply chain has become smaller and more local as partners in other geographies cannot promise delivery of goods in a reasonable timeframe. This has caused some to speculate that supply chains going forward should be locally sourced rather than global in nature. Some industry watchers disagree.

“I don’t believe everything is going to come back to local markets nor do I think everything should come back to local markets,” Bradley says. “We spend so much time and emphasis on the supply shops, but the demand is going to determine if people can stay in business. Those businesses that can respond to demand are going to continue to thrive.”

Devising a Digital Supply Chain

If businesses were not considering a digital supply chain transformation before 2020, they most certainly are now. COVID-19 was the unfortunate reality check needed to help business and technology leaders understand why bandwidth, connectivity, visibility, and transparency must evolve to support a modern supply chain.

A digital supply chain requires a [robust network infrastructure](#) that can support many connected devices—think Internet of Things (IoT)—collecting and communicating data that can be used to take action or plan for future demand. For instance, connectivity across devices used in warehouses,

manufacturing plants, and logistics vehicles can provide real-time tracking of materials and deliveries. The technology can also help locate and source an alternative provider if the current one cannot meet requirements for whatever reason.

Remote monitoring of machinery and devices along the supply chain will provide the visibility needed if all partners agree to be transparent. IoT-connected machinery in warehouses and production facilities can feed meaningful data on needed repairs or maintenance back to managers and avoid a supply chain slowdown by shifting to an alternative supplier when problems do arise.

“A digital supply chain has true-time access, which is providing the right amount of data in the right form in the right time and in the right context,” Bradley said. The massive volume of data collected is too much to make meaningful use of so artificial intelligence and automation technologies can parse through all the data and more quickly deliver the information needed to make a decision for that problem at that time. “Software for recognizing disruptions in the supply chain are good as long as the data you feed the predictive models evolve over time. The models should learn and change over time as you feed them more data,” he said.

The data collected from sensors distributed across a sophisticated network can inform several supply chain considerations:

- Sensors that provide information for real-time and in-transit inventories to track raw materials from production to warehouse to transport to delivery; sensors and asset digital records (barcodes) to ascertain levels and locations of raw materials; and sensors and IoT solutions to track consumption in real time.
- Communications and document exchange during supplier onboarding (including remote visual inspection through video)
- Onboarding processes for new vendors on corporate networks for information exchange, necessitating the proper levels of access permissions, security controls, and bandwidth.
- Remote machinery operation monitoring; remote machine maintenance and predictive maintenance; and remote viewing of production processes.
- “Digital twins” (digital safety certificates, such as high memory chips and barcodes, to validate origin and chain of custody).

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A Mature Supply Chain for Digital Business

As industries begin to recover from the effects of the COVID-19 outbreak, supply chain technology will help businesses better prepare for the next unpredictable event. It's not that events such as a global pandemic can be accurately predicted, but preparing a response team to take action when unexpected conditions arise will enable businesses to better survive the unknown.

“There is progress, but we are a long ways off from 80% of businesses having digital supply chain success. Technology is a net creator of jobs, not a net destroyer of jobs,” IDC's Ellis said. And while businesses consider the network upgrades and technology investments they might need to connect the dots along their supply chains, they will realize the introduction of AI and automation to the supply chain will only further the chances of business success.

“Businesses that have truly digitized their supply chain have invested in automation, and that is why they have been able to continuously roll with the punches,” Bradley says.

To watch an on-demand webinar about how organizations are reimagining supply chain management through technology, [click here](#).

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