



Supply Chain

How You Can Overcome Supply Chain Disruption By Going Digital

James Langford | Jul 19, 2022

Machine shops and metalworking businesses that have grappled with rising raw-material prices and inconsistent deliveries during two years of shipping-market disruptions may have found a way to get the upper hand: digitizing their supply chains.

The uniquely 21st-century capability is powered in part by advances in the Industrial Internet of Things, a network of computers and digital sensors that can monitor and improve equipment operation and maintenance.

That network allows both real-time tracking of raw-material production by suppliers as well as usage by their customers, and it can be used to overcome communication gaps and delays that have long plagued industrial supply networks.

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Combined with advanced data analytics, robotics and automation on an industrywide scale, digitization offers even smaller businesses a chance to place more timely orders, counter glitches in production and ensure on-time arrival of the supplies they need to keep operations on schedule, David Buss, the CEO of freight company DB Schenker USA, writes in a **blog post** for the Institute of Entrepreneurship Development.

Raw Material Risk

Such capabilities are increasingly important. Some 64 percent of the 244 top executives, operations leaders and supply chain officers **surveyed by consulting firm PwC in December 2021 and January 2022** listed securing raw materials from suppliers as a moderate to major business risk.

About 68 percent cited the same level of risk from operational issues at supplier workplaces.

Those trying to **digitize their supply chains** in response needed the most help stretching their budgets to pay for the initiative, PwC's survey found, but hiring the right people and buying the right technology were concerns as well.

Help is available, however. Small businesses seeking assistance digitizing their supply networks can get support from organizations including the National Institute of Standards and Technology (NIST), which sponsors *manufacturing extension partnership (MEP) centers* across the U.S.; the *Manufacturing Enterprise Solutions Association (MESA) International*; and *CESMII – The Smart Manufacturing Institute*.

“Supply chain digitization is a solution to the *ongoing challenges* and obstacles that are disrupting the global supply chain,” Buss says, bringing all parties together “to create a smoother and more efficient process.”

Corporations such as manufacturing giant 3M, whose products include safety helmets, respirators and full-body harnesses, are already making significant investments in the technology.

The St. Paul, Minnesota based company bought the digital assets of inventory management firm LeanTech in April 2022 to support its “connected bodyshop,” a platform that records and analyzes data to take advantage of developing trends.

“Businesses across industries are looking for innovative ways to harness the power of digital transformation—and body shop owners are no exception,” Dave Gunderson, president of 3M’s Automotive Aftermarket Division, says in a statement.

Buying LeanTech, he says, “will allow body shops greater visibility of their business operations, operational efficiency, and a better customer experience.”

And late last year, DHL Supply Chain, a division of Deutsche Post DHL Group that operates in the Americas, announced that it had begun using autonomous forklifts in one of its warehouses, a prelude to rolling them out to 2,200 facilities worldwide.

‘You Will Get Bypassed’

The company’s manual forklifts travel about 25 million miles a year, DHL Supply Chain says in a *statement*, making them an ideal candidate for testing automation.

The initial switch improved warehouse efficiency 20 percent, thanks to speedier pickup and put-away times, and the autonomous equipment displayed 98 percent reliability, the company says.

“Digitization of supply chains is important because if you don’t stay current with the times and change as you go, you will get bypassed,” Gordon Hanthorn, senior director of operations for DHL Supply Chain, said in a *video detailing the project*. “A lot of people as you know, in the last couple of years, have ordered something and it hasn’t come in for months. Autonomous guided vehicles allow us to have the ability to help make sure that our end customers get the product that our customer sold them.”

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Governments eager to calm supply chain disruptions to provide more economic stability have joined private companies in taking advantage of digitization’s potential.

The U.S. Transportation Department introduced the Freight Logistics Optimization Works initiative in March, a pilot program that began with participants sharing freight information at key supply-chain points such as warehouses, ports and private businesses.

"The lack of digital infrastructure and transparency makes our supply chains brittle and unable to adapt when faced with a shock," the White House says in a **fact sheet** on the program. Privately-operated shipping lines, ports, trucking firms and cargo-owners "have made great strides in digitizing their own international operations, but they do not always exchange information with each other."

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Digital enhancements, Buss says, can help supply chains to run smoothly by improving:

- **Flexibility:** Real-time planning and forecasting enables shippers to adapt quickly to shifting conditions.
- **Speed:** Distribution networks with forecasting and predictive analytics can help shippers avoid disruption and congestion on major routes.
- **Efficiency:** Automation, including the use of self-driving trucks and robots, reduces delays and frees employees to focus on more important tasks.

At most companies today, "products are delivered to customers through a very standardized process," PwC writes in a report on the growth and development of digital supply chains. "Marketing analyzes customer demand and tries to predict sales for the coming period. With that information, manufacturing orders raw materials, components and parts for the anticipated capacity. Distribution accounts for upcoming changes in the amount of product coming down the pipeline and customers are told when to expect shipment."

If everything goes according to plan, the gap between demand and supply is small, PwC adds. But it rarely does.

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Digitization can dissolve the silos at each stop along the supply chain, powering immediate communication about delays or disruption so that affected businesses can switch to backup options.

"Low levels of a critical raw material, the shutdown of a major plant, a sudden increase in customer demand—all such information will be visible throughout the system in real time," the consulting firm says. "That in turn will allow all players—and most important, the customer—to plan accordingly."

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