# How a Digital Twin Leads to Better Supply Chain Decisions in a Risk-Riddled World

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LOGILITY

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**The best kind of technological revolutions lead to a wholesale change in the way things are done. The advent of affordable automobiles led to a growth in suburban living. Smartphones made Uber possible. Usually, it takes a while for the change to happen while human thinking catches up to the possibilities. Then, transformational, rather than incremental improvements start to kick in. Often, early adopters gain a huge competitive advantage.**
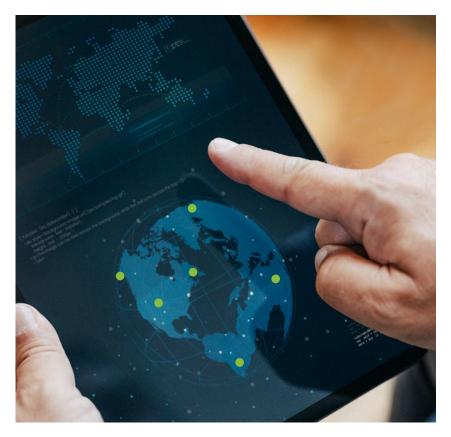


Supply chain organizations are still at the early stages of making the most of advances in supply chain technology. In many ways, you could argue the industry is mostly using the astonishing capabilities of computing and internet connectivity to do what they did before – just faster and cheaper. Yes, better is in the mix too, but there are enormous opportunities to do better in a bolder way that truly embraces the possibilities offered by innovative technological capabilities.

A case in point is decision-making. We find ourselves in a business environment where consumer demands change as fast as the news cycle, and international sourcing strategies need to turn on a dime to adapt to the latest with the trade wars, Brexit and a global economic recession. The risks associated with responding to a looming crisis or opportunity with a less-than-optimized decision are high.

Today, the amount of supply chain data available to a typical plan-

ner and their trading partners is incredible. While this is welcome news, the sheer volume of data can be daunting, even overwhelming. That's why smart companies focus not just on gathering data, and figuring out how to filter and analyze it, but how to utilize it to make better, faster, more informed decisions. Since data management is not usually the core business of companies engaged in manufacturing and/or selling goods, most need to rely on a trusted technology partner (such as Logility) to

help them make the most of this brave new world.

Hank Canitz, director of product marketing and industry strategy at Logility, argues getting the best support possible for supply chain-related decisions is more important than ever now, as we face the near-certainty of a recession. A survey of 100 small and medium-sized manufacturers conducted by MIT's Center for Transportation & Logistics last year warned that companies should be moving toward a more variable cost structure for more resilience, for example, in order to weather the next recession. Instead, the survey found that more than a third were doing the opposite, putting them in an even weaker position than in 2007. "The supply chain as a profession hasn't learned much from the last recession," said Canitz. "The truth is, in many ways, we're not much better off than we were then. The main difference is the advancement of technology, and the visibility into your supply chain."

Visibility is about a lot more than tracking a shipment of sneakers out of mainland China all the way to a big-box store shelf, or making fine-grain measurement of the on-time performance of carriers – although those are great data points to have. Sophisticated supply chain platforms offers the ability to build a "digital twin" – a virtual mirror of your physical supply chain operations – in order to run multiple what-if scenarios before you pull the switch on any changes. "You can run for best case; you can run for worst case," said Karin Bursa, Logility's executive vice president. "You have enormous complexity that can quickly be modeled and automatically generate and assess hundreds of scenarios, not just two or three. Artificial intelligence and

machine learning can handle more parameters than you can think of. There's usually more than one '"right"' answer, and the software helps you get the best answer for your current strategy. You can explore the impact of changes with little effort and no cost."

Let's take an actual example. One of Logility's customers sources its products from manufacturers in both Asia and Latin America, for markets in the US and South America. The head of procurement received an offer from the company's Asia-based supplier, which wanted to increase business with them, and offered a highly attractive discount. "They were a trusted supplier, the offer was in good faith, but our customer needed to determine if that was a good price for their particular business," said Bursa. Using a digital twin of its supply chain, the company was able to

show how the lower price stacked up against other options, including the current supplier. "Price is a factor, of course," explained Bursa. "But so is lead time, how far the product has to travel, how this potential change might impact my need to hold finished goods inventory… If it's going to take six weeks longer to get to my DC, does that mean I need to hold two, three, maybe six weeks more of inventory? Then there's the changes in cost of distribution."

The customer's team was able to use the digital twin of their global network to evaluate the merits of the entire scenario. Even better, they were able to arrive at an answer with a high degree of confidence in just two hours. "Before, it would have taken them two weeks, and they'd have had much less confidence they'd gotten it right," said Bursa. "So, not only did they have a

comprehensive picture, they were able to articulate to their executive team and the supplier why that decision made sense. They were able to go back **in two hours** and say: 'Thank you for your offer, but here are the specific things that make sticking with our current supplier make sense.' That way, they got to keep the relationship with the valued supplier, and avoided making a costly mistake by prioritizing on price alone."

"The key is to have accurate, up-to-date data," said Canitz. "That affects how long it takes for you to identify something that happened in the supply chain you need to address – or something that is likely to happen. Then you can spin that up using AI, machine learning and analytics. It's an optimal way of solving problems."

Canitz said the perceived wisdom in the supply chain was that the three crucial elements of the supply chain were 'people, technology and process.' "Now you need to add data to that list. Data has become an enabler of making better decisions," he said. The scope and detail of what you need to know has grown exponentially, and will continue to do so. "You're looking at your supplier's supplier, machine resources, transportation modes, where a shipment is at any given time, and then weaving in all these other types of data such as POS, predicted customer demand, social media information…" Canitz said. "Then you bring it all together so you can make a decision on unexpected events. You can always make a nice plan, but the moment you publish it, things happen you didn't expect."

Both Bursa and Canitz feel the new capabilities should engender a whole different way of thinking about supply chain management.

"What's different now is the ability to **continuously** improve the plan," said Bursa. "Leading companies are no longer limited to the old cadence of monthly, weekly, or even daily reports that offer production updates and so on," said Canitz. "Now, companies can keep refining the plan right up to the point where the product is headed to the customer."

This is not just a nice-to-have, Canitz warns. "You have to be able to respond very quickly, otherwise you're at a disadvantage, because your competition is doing it. So if you're not, you're going to be out of business pretty quickly."

For more information, please contact Logility at info@logility.com or call us at 800-762-5207.