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Could Artificial Intelligence Save the Holiday Shopping Season?

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As we all know supply chain disruptions over the past two years do not seem to be going away any time soon. However, businesses are turning to new artificial intelligence-powered (AI) simulations, known as “digital twins,” to help get products and services to consumers on time – especially as we head into the holiday shopping season. These digital twins can predict disruptions that lie ahead and suggest what to do about them.

Digital twins are used to solve breakages in the supply chain by anticipating them before they happen and then using AI to devise a workaround. The term “digital twins” is meant to elicit the idea of simulating a complex system in a computer, creating a sort of “twin” that mirrors real-world objects (from shipping ports to products), and the processes of which they are a part. While simulations have been a part of the supply chain for many years, the use of digital twins and AI offers the ability to process large amounts of real-time data using robust computing power that can assess much more complex processes and simulate those processes for the first time. As an example, think of the chaos of our global supply chains that rely on many different vendors and many different transportation networks.

Digital twins use as much data as possible to run these simulations and train their AI. They take logistical information about the company itself and its suppliers, including inventory and shipping data, data on consumer behavior based on market analysis and financial projects (and social media, too), as well as geopolitical and socioeconomic trends.

David Simchi-Levi, who leads the data science lab at MIT and has helped build digital twins for several large companies, says that digital twins cannot fix the breakdown entirely, but will allow companies to identify issues before they happen. This corroborates what Hans Thalbauer, Google’s Managing Director, Global Supply Chain, Logistics & Transportation, reports is the biggest problem: an inability to forecast events up the chain. “It doesn’t matter which company you talk to,” he says, “Everyone in the supply-chain world will tell you they don’t have the visibility they need to make decisions.”

Deliverr, a company that manages delivery logistics for multiple e-commerce firms, says that an estimated delivery time of two days versus seven to ten days increases sales by 40 percent, while an estimated delivery time of one day increases sales by 70 percent. Right now, with the holidays

approaching, the use of digital twins to predict shipping time and delivery estimates could make or break sales performance.

Even after the worst of this supply-chain fiasco is over, if it’s not a global pandemic, there will be another disruption. Businesses need to better prepare for the future by using technology like digital twins to stay ahead.

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