

Digital Twins & Control Towers Can Help Supply Chain Managers During Disruptions Like COVID-19

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I saw a meme on social media yesterday. It went something like this: "Every morning I can't wait to get up to read the damage report from last night." Sound like your life these days? Although, as supply chain practitioners, it isn't exactly much fun.

Beyond its obviously tragic human toll, COVID-19 has also spoiled the day, week, and months ahead for supply chain professionals. The pandemic disruptions, with unusual demand signals from consumer behavior, is rippling through the commerce ecosystem and supply networks unlike any disruption we have seen in the past. Not a day goes by that we aren't hearing stories of supply chain executives attempting:

- To adjust an existing supply chain network to fill demand shortfalls
- To adjust product flows and capture extraordinary costs related to the COVID-19 pandemic disruption
- To leverage their ecosystem for increasing capacity or to execute on difficult service requirements

The problems facing executives today, right now, range from logistical bottlenecks to personnel shortfalls, both internally and within their ecosystem partners. Transportation lanes, and resulting capacity, are hindered by geopolitical responses to the virus spread. And those that are operational and have available capacity are demanding three to four times the usual freight rates for moving inventory. Factories are struggling to manage workforces who are encouraged by government officials to not panic, but at the same time to stay away from crowds – which is exactly what a factory workplace is.

Maintenance is hindered by the inability to allow contractors from outside the plant to enter the facility. Also, huge demand fluctuations are bull-whipping the upstream supply chain processes.

Organizations are looking for increased flexibility across their network, increased capability from their ecosystem partners, and methods for capturing extraordinary costs, as the final “damage report” won't come in until several accounting periods pass — possibly sometime in early summer.

Insight and Oversight

Given these conditions, it's critically important to rapidly examine your network, re-plan supply and logistics, understand the trade-offs in cost and service, and have complete visibility across your ecosystem. All of this is now possible thanks to digital twin and supply chain control towers.

To address these issues, consider walking through the industry trend toward how a digital twin and control tower can be deployed. First, your supply chain network would be digitized – events, locations, costs constraints, capacities, and product flows would be captured and built into digital models. These models would be hosted on the cloud and become immediately accessible to support decision making. As a crisis like COVID-19 develops, a crisis “czar” should be identified and a cross-functional team assigned to lead your recovery effort. This individual would coordinate your remedial actions and hold daily stand-up meetings to drive action — all within a command enter or “war room” environment. This team would interact to leverage the maximum power of your digital twin by simulating multiple scenarios across your network and, importantly, provide output for decision support in the form of trade-offs between service and cost variations. Your czar would liaise and report to leadership the network changes and best new configuration to minimize critical metrics — both customer-facing and financial.

But what about the inventory in transit? You have dozens of partners in your ecosystem, all of which are facing different problems. Governments are shutting down borders for all non-essentials. Your customs broker has established a work-from-home policy creating short-term delays. Furthermore, you've just initiated changes to your network and thus new product flows. Having superior visibility of where your inventory is very quickly becomes a very important capability.

Control towers provide visibility into your supply chain, serving as a platform for analytics and help you manage your ecosystem. In the pandemic virus disruption scenario we've been discussing (and experiencing, since this is no longer a hypothetical), a supply chain control tower would be aggregating data from across your network and your ecosystem partner's network. Your command center team would lean on this solution for making quick decisions and to help develop new scenarios to simulate using your digital twin. As lanes become clogged or just too expensive (which you see in near-real time in your control tower), new routes and flows can be identified and simulated, enabling optimized decisions. Finally, the embedded analytics would alert leadership that costs were mounting, allowing for a proactive plan and communication to stakeholders — not waiting to be embarrassed when the freight accrual in COGS turns upside down two months from now.

So, the damage report is in and you saw it coming. You leveraged the digital twin and supply chain control tower tools to proactively minimize impacts, see and react rapidly to changing logistical environments, and accurately predict the financial impacts. Congratulations are in order. As we enter the new normal, a final step: have the team update the disaster recovery guidelines, making the digital twin and control tower central to getting back in business.

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