Insights from IBM Think Circles

Rethinking, rebalancing, and reinventing supply chains

In pursuit of increased agility

The last few years illuminated how adaptability in supply chains and operations need to support greater resiliency, agility, and risk management. At the most recent IBM CSCO Think Circle, supply chain executives discussed how they are rethinking, rebalancing, and reinventing their supply chain operations with new agile models for their workforces, alternate supplier bases, risk management models and approaches, segmentation strategies, and the expansion of real-time demand and supply signals.

"Will we have an ability to be agile and fast enough to address the many pressures we are under? I think we will, and I see hope, but it is long and slow."

The environment for CSCO Thinkers has not improved since the last quarterly discussion. For some it is worse; for most it is more of the same. *"This is just a day in the life: disruptions across the world. We must know this is our world and plan and operate within it."*

However, some organizations are trying to get ahead of the curve with a two-pronged approach to running their supply chains, both driven by deeper data insights. The first prong follows a predictive model, exploiting efficiencies by using advanced analytics, data modeling, and automation to drive reliability and a frictionless customer experience. The second prong is more proactive, addressing high variability and unexpected disruption while embracing exponential technologies including AI, edge computing, digital twins, data process mining, and even initial thoughts around quantum.

CSCOs tell us that these bimodal capabilities help them provide continuity in dynamic markets while preparing for an unknown future at the same time, and they are implementing them across their entire supply chain, including tier 2, 3, and 4 suppliers to last-mile customer deliveries.

In a recent IBV study, we confirmed that ongoing disruption has led to data-driven, long-term strategies for modernizing supply chains. Of the 500 CSCOs who responded to the survey:

- 45% are developing agile and resilient workflows to react to escalating situations
- 45% are accelerating the use of automation
- 41% are accelerating AI adoption to improve data utilization and insights
- 39% are implementing AI-enabled scenario simulation models
- 32% are increasing visibility in end-to-end supply chain workflows across their ecosystems.[1]

Q: What longer-term supply chain strategies is your organization undertaking as a result of disruptions? From a long pick list, these ranked as the highest priorities.

Getting back to reliability

Many of the Thinkers share the ongoing challenge of building more agility and flexibility into the system. They value a Supply Chain that can flex. However, making agility a reality by building a system, culture, mindset, and skills is difficult. CSCO Thinkers also noted that economic pressures and balancing costs are impacting their ability to re-establish reliability in the system.

"Our outputs are at an all-time high, but our service levels are at all-time lows. We have to get back to reliability. Agility means more resilience and speed to respond to disruption."

"The entire concept of agility is challenging. A major cyber incident requires a different flex than a capacity weakness. We need to have playbooks available that if something happens, you are ready to go. Otherwise, you are just flexing existing capacity."

Segmentation delivers serviceability

Many CSCOs are integrating segmentation principles across their suppliers to control risk. Parsing the supply chain by segment allows tighter collaboration with suppliers and service providers who boast differentiated skills and capabilities. Most of the Supply Chain Thinkers expressed a focus on playing catch-up in capacity, and the importance of segmentation to deliver service levels where they are most needed. When pressed due to lack of goods or pricing limitations, organizations may sometimes apply a 'triage' approach to determine priorities for deliveries. Thinkers discussed the active segmentation strategies they are putting in place to help ensure those needing service are getting the inventory first.

"When Supply Chains flex, it is important to know capacity without impacting service level. We decide who to service and who to ignore. Not every customer is a good one."

"We are constantly missing the regional limitations as algorithms and demand signals are often not aware of regionality."

Supply chain visibility, transparency, and simulation

Automated, intelligent workflows can help CSCOs not only meet customer demands but distinguish their organizations from the competition. 70% of CSCOs agree that customers expect full transparency from the first to the last mile of the supply chain.[2] When embedded with predictive intelligence, intelligent workflows make this visibility possible. They can power dynamic customer response, preventative product and service maintenance, and real-time inventory and delivery status. AI-enabled automation facilitates data-supported decisions so organizations can rapidly identify, prioritize, and recommend Next Best Actions for response, action, and reaction.

This increased knowledge also offers greater insight into risks, supporting the resilience of the supply chain. In anticipation of realizing the benefits of intelligent workflows, most CSCOs expect visibility and transparency to be a key differentiator in the next 3 years. 53% anticipate their digital supply chain transformation initiatives will be the most significant area of competitive advantage during this time.

As we continued discussions from the February Think Circle, the group shared different approaches to addressing supply chain stability, resilience, and visibility. One Thinker described using a control tower across critical product areas, data modeling in the supporting functions, as well as digital twins and gamification. Others wondered when to use digital twins.

Control tower for predictable management of high-value products and processes

Control towers create a framework for better multi-enterprise collaboration. More importantly, they can provide an accessible, secure, hybrid cloud-based environment that unifies huge amounts of data from disparate internal and external sources.

Platforms that function as control towers give CSCOs greater visibility across the supply chain to:

- Make better, data-driven decisions to understand risk and opportunity
- Uncover opportunities to reduce costs and improve margins
- Automate workflows and increase efficiency
- Create supplier and service provider network resiliency against risk and uncertainty.

"The value of using a control tower is that it is more straightforward, more predictable for those areas that operate in a manner of status quo. We can manage the lifecycle of high-value materials very effectively with a control tower and use it to predict."

Digital twins help CSCOs sense and respond to longer-term disruptions

Some Thinkers use digital twins for longer-term scenario planning and "what if" analysis with the caveat that the cost of building and using digital twins may lend itself best to very specific, high-value use cases.

"Building digital twins can be very expensive. We only use this approach to solve major problems and deliver the highest value. Our organization starts by visualizing and navigating through scenarios and gamifying the scenarios."

Others suggested using digital twins as a foundational layer to model the physical situation and simulate various assets in operation. This virtual representation of a physical object or system across its lifecycle typically uses real-time data and algorithmic techniques to enable learning and reasoning, while predictively and dynamically recalibrating the virtual and the physical to visualize complex scenarios or simulations.

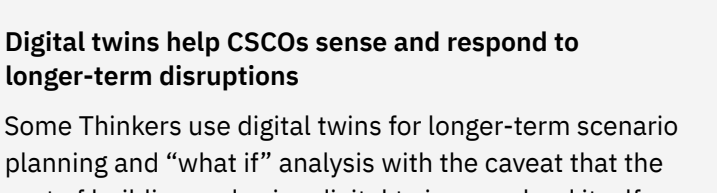
Using AI and automation reduces repetitive decision-making

Thinkers spent time discussing how to overcome the talent challenge. As organizations seek to achieve a faster, more predictable approach to modelling, some are turning to technologies and automation to help augment the skills of their employees.

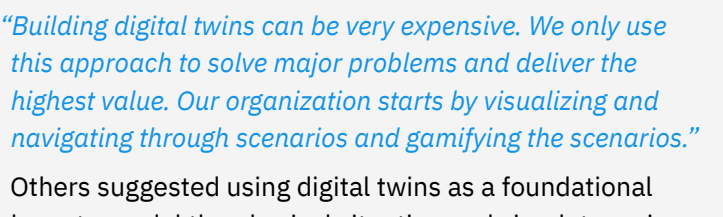
"As we assess, there is less need for traditional planners. We can automate a lot of that with AI. We need a small group of data scientists and analytics experts."

To achieve more dynamic, responsive, insight-driven supply chains, CSCOs are focused on building resilient workflows powered by automation and intelligence. The recent IBV study of 500 CSCOs revealed that new technologies are accelerating and powering intelligent workflows:[3]

AI/automation technologies



Complex workflow technologies



Q: On a 1-5 scale (5=to a very large extent), to what extent is your organization implementing the following technologies? Percent responding 3, 4 or 5.

A closing word: Options

Moving forward, having options is essential for the CSCO Thinkers. They continue to be challenged both by new threats and known issues. They are looking at various models to help them predict and prepare—including control towers and digital twins—and to build reliability and resilience. These Thinkers will continue to explore using leading technologies to support whatever happens next.

Related IBV reports

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1,3 "The resilient digital supply chain: How intelligent workflows balance efficiency and sustainability." IBM Institute for Business Value and Celonis. April 2022. ibm.co/digital-supply-chain

2 "The resilient digital supply chain: How intelligent workflows balance efficiency and sustainability." IBM Institute for Business Value and Celonis. April 2022. Unpublished data. ibm.co/digital-supply-chain