IDC PERSPECTIVE

Coronavirus: Impact on, and Implications for, the Global Supply Chain

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EXECUTIVE SNAPSHOT

FIGURE 1

Executive Snapshot: Risk and Resiliency in the Supply Chain

It is time for supply chains to take a structured, proactive stance against risk. Whether the next disease outbreak, the next war, further trade conflicts, or climate change–related weather disruptions, your supply chain will be affected. Don't just work on alternative plans, though that is a good start; develop the structural capabilities to be a resilient supply chain.

Key Takeaways

- Supply chains are in better shape today and have greater visibility and are more resilient; but, as the coronavirus outbreak is showing, they are still not resilient enough.
- While globalized operations can mean diversification of risk, they also expose supply chains to the impacts of regional problems, particularly where those operations play a significant role globally.
- Understanding the multidimensional nature of risk, and creating a resilient supply chain, is a worthwhile endeavor, particularly in a world where disruptions appear poised to occur more frequently and with greater severity.

Recommended Actions

- Build resilient products: Product design for risk mitigation including parts reuse where appropriate with key component mitigation and risk-informed inventory positions
- Ensure supply resiliency: Supply network "design for risk mitigation," including manufacturing, testing, and logistics resiliency
- Implement business continuity assessments: To evaluate the recovery requirements of the supply network, look across the entire network, and adjust the process based on the significance of the supplier
- Have a clear crisis visibility: Crisis visibility into global events/problem areas, with clear protocols for events based on defined rules, including crisis team activation and response management

Source: IDC, 2020

February 2020, IDC #US46037217

SITUATION OVERVIEW

In December, a new coronavirus related to SARS emerged in Wuhan, China. As of early February, over 1,100 people had died from the virus and more than 44,000 people are estimated to be infected. Both those numbers are expected to grow. The human health concerns are enormous, but the impact of a globalizing disease on the supply chain is significant as well.

Most of the impact to date has been in parts of Asia, but the implications are increasingly global. Chinese New Year celebrations were banned as governments recommended against public gatherings. Chinese factory closures for the holiday are still in effect in many places, and the precise duration is as now, unknown. Many factories and logistics warehouses remain closed, not only in Wuhan, but also in Shenzhen, and Shanghai. Hong Kong is restricting incoming people and shipments from China and outbound flight operations. Airlines, including American, United, and Delta, have suspended flights, and restrictions on ship dockings are increasing. Taken in aggregation, these developments are a significant threat to global supply chain operations.

Global Supply Chains — Risk and Opportunity

Over the past decade, supply chains have moved aggressively to globalized operations, in part to leverage low-cost labor arbitrage opportunities and also to meet the growing demand for products in those same emerging regions. While globalized operations can mean diversification of risk, they also expose companies' supply chains to the impacts of regional problems, particularly where those operations play a significant role globally. We saw that back in 2011, where Thailand flooding significantly impacted high-tech electronics manufacturers that could not get the hard drive components they needed for their products. Some companies diversified supply so that a future issue would not be as debilitating, but many other companies did not and remain vulnerable.

In the current coronavirus situation, the automotive industry is facing significant risk because the Wuhan and Hubei province are the main automotive parts and production regions in China. With a disruption in the part being received from China, a Hyundai manufacturing plant in Korea has had to suspend factory operations. Hyundai was among the first to report an interruption in manufacturing, but we are likely to see many more in the coming weeks. Just this week, one of the two assembly lines at GM Korea's Bupyeong Complex, west of Seoul, which can make over 400,000 vehicles annually, announced that it will be closed to start the week of February 17 due to shortages of parts from China.

In addition, the move to aggressively implement lean manufacturing techniques across multiple industries means that manufacturer's inventories are often low, and many parts are managed "just in time." You cannot build an automobile with 98% of the necessary parts; you need 100%. At IDC, we have argued that implemented improperly, lean principles can result in some brittleness in the supply chain and a reduced ability to respond to unexpected disruptions.

The reality is that many manufacturers do not adequately prepare for disruptions. The benefits of lean manufacturing to the bottom line, for example, may outweigh the more elusive benefits of extra inventory, manufacturing capacity, or diversified supply. Globalization, and the complexity it drives, means that external risks like the coronavirus, climate change, and various trade "wars" are going to be more frequent and potentially more impactful.

Managing Risk and Creating a Resilient Supply Chain

Certainly, supply chains are in better shape today than they were in 2011; they have greater visibility and are more resilient; but, as the coronavirus outbreak is showing, they are still not resilient enough. Even if the coronavirus proves less injurious to the supply chain than it could, the next disruption is just around the corner, and that could be much worse.

The "traditional" approach for risk has been to do a simple cost-trade-off calculation. If the cost of a particular disruption is $100 million, but the probability of occurrence in any given year is only 1%, then the in-year cost is only $1 million. If the cost of mitigating that particular risk, either in flexibility, redundancy, or rapid-response capabilities, is more than $1 million, then companies may make the strategic choice to live with the risk. It works fine until the year when the failure occurs, and your business responds poorly – then the fingers start pointing.

Understanding the multidimensional nature of risk, and creating a resilient supply chain, is a worthwhile endeavor, particularly in a world where disruptions appear poised to occur more frequently and with greater severity. At IDC, we define the term as the capability of a supply chain to ensure and preserve the continuity and consistency of product supply and meet business obligations for product delivery and service to customers in the face of both short-term operational and longer-term strategic disruptions. Resiliency is also about the ability to quickly adapt to changing business conditions while maintaining the core purpose and principles of the business. For a manufacturing company whose first principle for supply chain is to be the low-cost provider in its market segment, for example, responding to business disruptions by increasing structural costs over an extended period of time would not be representative of a business that had high levels of resiliency. Likewise, a resilient business whose first principle was service would be able to adapt to disruptions without significant impact to service levels.

Even though discussions of risk and resiliency have tended to focus on the supply side, it is our view that a proper treatment of resiliency recognizes that there are both supply-side and demand-side issues – and implications. Based on this definition, four areas of focus for resiliency efforts are:

- **Risk assessment:** The vulnerability of the supply chain to both internal and external disruptions
- **Risk mitigation and response planning:** Readiness assessment and the steps the supply chain has taken to be prepared for potential disruptions
- **Event management and coordination:** The operational capability to effectively manage disruptions and communicate status
- **Response execution:** The actual response performance of both mitigation and responsiveness

The manifestations of resiliency, as well as the drivers, will differ for different companies. For some, it may be about improving inventory performance (getting to a more "agile" inventory); for others, it may be about visibility into mixed factory networks; and for still others, it may be about supplier diversification. In some ways, of the previous four steps, risk mitigation and response planning is the most interesting. In some situations, it may be prudent to actively mitigate a risk, prequalifying an additional backup supplier "just in case" would be an example. In other cases, the ability to respond more quickly to a disruption and take advantage of limited available alternative may be the best course. If your company is ready to execute secondary plans and your competitors are not, you have the competitive advantage. If they are ready and you are not, you are at a competitive disadvantage.

Technology Can Help

There are a number of vendors that offer technology in the risk/resiliency space. Table 1 lists a representative, though not exhaustive, list of examples. Some are enterprise scale tools, others more niche.

TABLE 1

Vendors That Offer Technology in the Risk/Resiliency Space

Company Name	What They Do
IBM Sterling	IBM Sterling Supply Chain Suite provides end-to-end visibility, real-time insights, and recommended actions to turn disruptions into opportunities for customer engagement, growth, and profit.
Infor Nexus	This is a network for multienterprise supply chain orchestration. The network connects businesses to their suppliers and manufacturers and to brokers, 3PLs, and banks, providing supply chain visibility, collaboration, and predictive intelligence.
JDA (now Blue Yonder)	The company offers network design to model the entire supply chain in order to improve strategic and tactical decision making with visibility into design, sourcing, inventory, and capacity.
LLamasoft	The company provides supply chain design software that helps organizations worldwide design and improve their supply chain operations. Its software tools enable customers to model, optimize, and simulate supply chain operations to improve service, sustainability, and risk mitigation.
Resilinc	Resilinc is a cloud provider of supply chain resilience and risk management intelligence and analytics. Companies rely on Resilinc to mitigate risks end to end while achieving long-term competitive advantage and building brand and shareholder value.
SAP Ariba	SAP Ariba Supplier Risk helps simplify risk management. To protect your organization against supplier risk, your buyers need the ability to make smart, safe, and informed decisions during supplier selection, qualification, and segmentation.

Source: IDC, 2020

ADVICE FOR THE SUPPLY CHAIN

Managing supply chain risk in a measured, transparent way will, IDC believes, be a crucial component of future best-in-class supply chains. Yet, as the coronavirus is showing, it is also critically important for companies today. Companies that run resilient supply chains will outperform those that do not. But what does this mean in practice?

IDC suggests that companies invest in and develop the following capabilities:

- **Build resilient products:** Product design for risk mitigation including parts reuse where appropriate with key component mitigation and risk-informed inventory positions (either in parts, WIP, or finished goods)
- **Ensure supply resiliency:** Supply network "design for risk mitigation," including manufacturing, testing, and logistics resiliency
- **Implement business continuity assessments:** To evaluate the recovery requirements of the supply network, look across the entire network of suppliers (components/ingredients, OEMs, logistics, and finished goods), and adjust the process based on the significance of the supplier
- **Have a clear crisis visibility:** Crisis visibility into global events/problem areas, with clear protocols for events based on a "crisis playbook," including crisis team activation and response management

It is time for supply chains to take a structured, proactive stance against risk. Whether the next disease outbreak, the next war, further trade conflicts, or climate change-related weather disruptions, your supply chain will be affected. Don't just work on alternative plans, though that is a good start; develop the structural capabilities to be a resilient supply chain.

LEARN MORE

Related Research

- *IDC FutureScape: Worldwide Supply Chain 2020 Predictions* (IDC #US45573518, October 2019)
- *IDC MaturityScape Benchmark: Digitally Enabled Thinking Supply Chain in the United States, 2019* (IDC #US44930219, March 2019)
- *IDC MarketScape: Worldwide Multi-Enterprise Supply Chain Commerce Network 2018 Vendor Assessment* (IDC #US44514117, December 2018)
- *IDC MaturityScape Benchmark: Supply Chain Risk and Resiliency in Manufacturing in the United States, 2016* (IDC #US41155016, April 2016)

Synopsis

This IDC Perspective looks at the impact on, and implications for, the supply chain as consequence of global disruptions like the current coronavirus.

"It is time for supply chains to take a structured, proactive stance against risk. Whether the next disease outbreak, the next war, further trade conflicts, or climate change-related weather disruptions, your supply chain will be affected. Don't just work on alternative plans, though that is a good start; develop the structural capabilities to be a resilient supply chain," says Simon Ellis, program vice president for Supply Chain at IDC.

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