



How the Global Pandemic Reinforced the Need for Strong Supply Chain Fundamentals

Article 1 of 3: Managing Through Uncertainty using Supply Chain Strategy

Introduction

The Wall Street Journal recently wrote an excellent article called “[Why Is the Supply Chain Still So Snarled? We Explain, with a Hot Tub](#)” that describes the supply chain management challenges of a Utah-based manufacturer of hot tubs called Bullfrog Spas due to the COVID-19 pandemic and other recent supply chain disruptions. The article illustrates the supply chain for one of the company’s high-end models and gives examples of how the 1,850 parts used to produce the finished good product are manufactured and combined into subassemblies by a variety of suppliers across the globe before final assembly occurs in the company’s Herriman, UT factory and product is shipped to customers.

The article describes the complexity of a multi-company network of key North America and Asian suppliers, ocean, rail, and over-the-road transportation flows and a variety of potential bottlenecks and constraints. The article outlines challenges related to COVID-induced port disruptions, container shortages, and raw material shortages due to COVID as well as weather-induced shortages resulting from freezing temperatures disrupting the US-based chemical industry. The result for Bullfrog Spas has been difficulties meeting customer demand and significantly extended lead times – which are consistent with problems we at Spinnaker SCA have seen across various industries.

While the WSJ article does a great job explaining the supply challenges companies currently face, it doesn’t attempt to address how companies can respond to such challenges or the fact that demand itself can be extremely volatile.

The goal of this series of executive briefs is to highlight key supply chain fundamentals Spinnaker SCA and our clients have used across the Supply Chain Strategy, Planning, and Execution layers of their supply chains to respond and manage to demand and supply challenges in the face of a global pandemic. In this executive brief, we focus on Supply Chain Strategy.

Fundamentals for Managing Through Uncertainty: Supply Chain Strategy

Supply Chain Resilience was a trendy buzzword across supply chain publications, consultants, software vendors, online discussion boards, etc. well before the COVID-19 pandemic and has only picked up steam during the pandemic. Resilience can be a tricky topic for senior executives – risk management is prudent but can't overburden the supply chain with added cost when times are good. Buzzwords aside, our experience developing supply chain strategies with senior supply chain executives (CSCOs, COOs, VPs, etc.) has been to focus on pragmatic steps that can be taken to identify, avoid and ultimately manage through disruptions.

Our view of Supply Chain Strategy involves designing the end-to-end supply chain and establishing policies to control behavior. Forward-thinking companies consider these topics when times are good, so they are ready to deal with challenges when problems arise, and the best companies take the following three steps:

Step #1: Understand Your End-to-End Supply Chain and Potential Risks

Unless driven to do otherwise, it can be easy for companies to focus on immediate suppliers and customers. But in an environment with complex global supply chains ignoring the structure of your end-to-end supply chain (including supplier's suppliers and customer's customers) leaves companies open to a variety of risks. The apparel and footwear industry faced a significant backlash in the 1990s when child labor and other poor working conditions were exposed in the extended supply chain for leading brands, high tech manufacturers faced significant supply disruptions because of the 2011 flooding in Thailand and the Fukushima earthquake, and food and beverage manufacturers have faced similar issues related to supplier working conditions and ingredient quality and provenance.

During the global pandemic, companies in these industries that had taken steps to understand their end-to-end supply chain were able to quickly ingest regional and local data on COVID-19 impacts and understand how this information would impact their supply and demand. Companies without this knowledge were often caught flat footed and experienced demand and supply shocks too late to react in any meaningful way.

Step #2: Revisit Your Supply Chain Design to Mitigate Risks and Enable Flexibility

Two of the risks we see most often when companies evaluate their supply chains are a) purchased parts that are single sourced from suppliers who themselves have only one source of manufacturing or supply and b) production and assembly operations that are single sourced and located in areas where disruptions can occur.

Purchasing single sourced products from suppliers who do not have resiliency strategies in place is an obvious risk but can easily occur especially in industries like high tech where product designs rely on specific components that go through rigorous (and expensive) qualification processes that often involve qualifying specific production locations. The previously mentioned natural disasters in Thailand and Japan brought this issue to the forefront for many companies that subsequently experienced major delays and following these events there has been a significant movement to multi-source that has reduced but not eliminated this risk. However, COVID-era shortages in semiconductors and other key components for the automotive industry have shown that risks still exist.

Production and assembly operations that are single-sourced can create manufacturing and inventory economies of scale but also risk and higher transportation costs. Supply chain network design provides a powerful tool to evaluate scenarios and understand the trade-offs across fixed and variable supply chain network costs to understand

these trade-offs. Evaluating alternative supply chain sourcing (internal and external production options as well as materials procurement) strategies is a classic example of network design analysis and helps companies understand the best strategies to minimize risk while managing costs.

Step #3: Develop Demand and Supply Strategies to Respond to Disruptions

In the face of supply chain uncertainty, scenario analysis provides an incredibly powerful tool for understanding issues and developing strategies to reach. Systems enablement for scenario analysis – whether through network design and optimization models or S&OP/demand/supply planning systems – was a critical enabler to such analysis. During the pandemic companies with proven systems to run scenario analysis models had a huge head start when it came to evaluating the options in their supply chains and responding quickly. Numerous clients asked us to refresh network optimization models to evaluate alternative demand and supply scenarios to help determine their response. Likewise, companies with the abilities to run scenarios through S&OP processes using demand and supply planning systems were able to evaluate and develop pro-active responses to changing business conditions.

While resilience planning is often viewed as a supply-side exercise, demand shaping is another powerful tool for responding to disruptions. During the pandemic numerous companies reduced their product assortments to focus on core products. While consumer product shortages received significant media coverage during the pandemic the ability of some consumer product companies and retailers to pivot and ensure supply even if the portfolio was limited was remarkable. The companies that execute these processes the best have previously given thought to the segmentation of their products and customers so that when supply becomes scarce their supply chains automatically prioritize appropriately without manual intervention.

Conclusion

In conclusion the three key capabilities across Supply Chain Strategy include:

1. Understanding your end-to-end supply chain and potential risks. Key questions to answer include:
 - a. Where is the risk in your supply chain? Here we're really talking about understanding your upstream supply chain – where materials come from, who and where your suppliers are, and how diverse is your supply base.
2. Revisiting your supply chain design to mitigate risk and enable flexibility. Key questions to answer include:
 - a. Are you utilizing modeling tools, such as a 'digital twin', to evaluate what-if scenarios in your network? Digital agility is the key to growth and resilience.
3. Shaping Demand and Supply to respond to disruptions. Key questions to answer include:
 - a. Is everything on the table in terms of optimizing business outcomes and how we can shape demand and supply? As design capabilities have matured, the focus has become the evolution of existing capabilities.

We recommend that companies look across these layers of Supply Chain Strategy & Design, Planning, and Execution when they consider how to improve capabilities. Supply chains are complex systems and often to drive real results it's not the problem right in front of you that needs to be solved but a bunch of different processes working together that span across Strategy, Planning, and Execution. In articles 2 – Supply Chain Planning and 3 – Supply Chain Execution, we'll be continuing this series on how to manage through uncertainty by focusing on supply chain fundamentals.

About Spinnaker SCA: Spinnaker SCA is a leading supply chain services firm providing End-to-End Supply Chain Strategy, Planning, and Execution Consulting services, based in Boulder, CO. Founded in 2021 through the joining of two top supply chain consulting firms, SCAPATH LLC and Spinnaker Supply Chain, together Spinnaker SCA provides their customers a broad set of services to enable their clients' supply chain capabilities. With a combined over 30 years of experience in the supply chain industry, Spinnaker SCA's services offerings include Supply Chain Design & Strategy, Supply Chain Planning, Omni-Channel Fulfillment, Distribution, and Logistics Management and Change Management consulting services. To learn more please visit <http://bit.ly/SPINNAKERSCA> or call 877-476-0576. For strategic supply chain staffing services, visit <http://www.pros2plan.com> to learn more about our sister company, Pros2Plan.

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