Is Your Supply Chain Dangerously Lean?

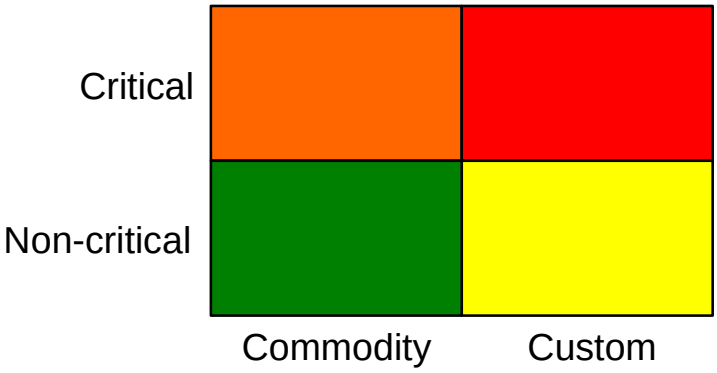
If a critical supplier experiences a disruption from a natural or man-made disaster, there can be an immediate and devastating effect on a company's ability to deliver its products. A supplier with a business continuity plan can avoid some disruptions and, recover more quickly from others, and therefore, lessen the economic impact of the disruption.

Background

Lean techniques have been, and continue to be, applied to production lines globally since, at least, the early 1990's. This application of Lean has been highly successful and has yielded significant results by reducing inventory levels, outsourcing product components to extremely efficient manufacturers and increasing the speed of final product assembly. Lean manufacturing saves money and increases profits.

Today, globally, between 65 and 90 percent of the content of an end product is provided by suppliers. As Lean has percolated down from original equipment manufacturers to their suppliers and from those suppliers to lower tier suppliers, supply chains have become not only lean, but they are longer and more complex.

Very simplistically, we can posit that supply chains provide four categories of material or components as depicted in the figure here.



Material and components for which a manufacturer has multiple, active sources are non-critical, even if they are custom components. A disruption to deliveries from a non-critical supplier can usually be managed without extraordinary effort and will not interrupt end product deliveries.

Material and components for which there is only a single supplier, even if traditionally considered commodities, such as rare earth minerals, are critical to a manufacturer's production line. Any significant disruption of deliveries from a supplier of critical material or components can interrupt the manufacturer's production, deliveries and cash flow.

The Issue

An unintended consequence of the deployment of lean techniques throughout global and national supply chains is the increased brittleness or fragility of those supply chains. As suppliers reduce their costs by shrinking production capacity, reducing their inventory of material and components/parts and reducing their inventory of completed products for delivery, they are also reducing or eliminating their ability to maintain deliveries in the event of a days-long disruption of their production line or the ability to absorb production from another supplier whose operations have been disrupted.

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In the three years from 2009 to 2011, supply chain disruptions increased by 465 percent and the cost of those disruptions rose from $62 billion to over $350 billion. These skyrocketing figures reflect dangerously lean supply chains – any disruption in the supply chain ripples through all the way to the end.

These disruptions to the supply chain are, at best, costly – at worst, catastrophic. Lean techniques have reduced or eliminated the need to store a large inventory and have eliminated "unused capacity" at supply sites, an ideal situation when operations are proceeding according to plan. But, when things go wrong, and there is a disruption to the supply chain, a Lean final assembly process quickly exhausts its "buffer" inventory of parts and must be interrupted. An assembly line shut down for want of a vital part starts costing money and customer satisfaction very quickly.

Case Studies

Evonik, a German supplier of plastic resins, experienced a fire in one of their plants in southern Germany. The fire caused significant damage and shut down all production in the plant for several months. Evonik, at the time, had a 40 percent global market share of a specific plastic resin used in circuit boards and automobile interiors. Overnight, the supply of this key resin shrank by 40 percent. The electronics and auto industries immediately began to work with other resin suppliers to create a substitute for this resin. Replacement of the resin produced by Evonik cost both industries significant sums of money and caused increased production costs because production lines now had to accommodate two separate resins in lieu of the single resin used before the fire. Even though Evonik restarted production in their plant sooner than originally projected, they lost market share, which they have yet to fully recover.

The Japanese earthquake and tsunami of 2011 is most strongly remembered for the problems at the Fukushima Daiichi nuclear power plant, but the earthquake/tsunami also destroyed the production facilities for a quarter of the components used globally in automobile paints. As with the plastic resins produced by Evonik, auto manufacturers in Japan, Korea, Europe and the U.S. had to quickly spend copious amounts of money to reformulate their paint formulae and reconfigure their paint processes to accommodate the new paint.

The cost of these two interruptions alone was measured in the $100s of millions.

The Solution

The response to the risk of supply chain disruption is not to abandon the very real and valuable benefits of Lean, but rather to incorporate business continuity thinking into manufacturing supply chain strategies.

Most companies have long sought to recognize and mitigate technical risks within their supply chain. They have also instituted initiatives to develop integrated supply chain strategies focused on reducing the number of suppliers, simplifying the complexity of their supply chain "webs" and leveraging overall purchasing power to craft better business relationships.

These integrated supply chain strategies are a significant step forward in creating a competitively advantageous supply chain, but most such strategies do not, yet, incorporate business-continuity thinking. Research has indicated that most companies do not usually require, request or expect their suppliers to plan for disruptions to their business. Yet, companies with plans in place for maintaining service to their customers when they experience disruptions (i.e. implement business continuity planning) will recover more quickly from such disruption.

Firestorm, a national business continuity consultancy, in partnership with Georgia Tech, has been researching supply chain business continuity preparedness. They have found that the majority of suppliers either do not have business continuity plans or have business continuity plans that are not sufficiently robust to ensure continuity of delivery to customers in the face of a natural or man-made disruption. Business continuity is frequently equated only with IT recovery. While restoring IT *is* vitally important after a disruption, recovering data is only one part of a comprehensive business continuity program.

A disruption for a vital supplier means a disruption for your business.

Simply requiring suppliers to have and maintain a business continuity plan, while better than nothing, is unlikely to result in major improvements in supplier resilience since most companies will aim for minimal compliance and pass any costs along to their customer.

A more robust response involves establishing business continuity criteria as part of competitive requests for proposals (with detailed business continuity criteria defined), incorporating business continuity planning and performance (where extant) in annual supplier ratings, and working in close cooperation with suppliers to develop thorough, joint business continuity plans.

It is important, as part of a competitively advantageous supply chain strategy, to plan for disruptions to the company's supply chain. Having thought through actions in the event of a disruption, companies will know ahead of time what actions are required if a critical part of a product cannot be delivered. It is equally important to have total visibility throughout your supply chain and to know that the company's suppliers and their suppliers are prepared and have plans in place to recover quickly from any disruption and to maintain scheduled deliveries.

Firestorm offers a comprehensive set of assessments to help suppliers (and their customers) understand their current level of preparedness. Assessments are aligned with the industry standards adopted by FEMA for the Congressionally mandated, voluntary Private Sector Preparedness (PS Prep) Certification Program. These assessments can also provide data for improved development of priorities and allocation of resources within the context of improved, integrated supply chain strategies.

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