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The ROI of Resilience: How to Be Lean, Global and Resilient at the Same Time

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The world is investing heavily in supply chain resilience. Re-shoring or near-shoring factories, "just-in-case" inventories, and qualifying alternative suppliers are among the most common ways that companies are building resilience. However, these strategies come with tremendous complexity and a price tag of hundreds of millions, perhaps billions, of dollars. Such approaches are financially untenable in the long term for small and medium-sized companies, especially in the current environment of high interest rates, suppressed corporate valuations, and low investment activity.

So how can these companies achieve supply chain resilience?

Small and medium-sized businesses must "weaponize" their size, agility and speed of execution by affording themselves an "information advantage" that allows them to act rapidly on information that others lack. An effective playbook contains the following three components:

- *Mapping the supply chain,* and understanding where parts and raw materials are manufactured, by working closely with suppliers. Most companies only know the corporate office addresses of suppliers, and not the actual factory locations where parts originate.
- *Using global disruption-monitoring systems powered by artificial intelligence* to track data in many languages, giving companies an early warning about disruptions that might affect suppliers' factories or logistics operations.
- *Collaborating with suppliers across multiple tiers* to create an efficient and automated workflow, whereby alerts drive operational action between internal cross-functional teams and the company's suppliers, within hours of a disruption.

The technology to cost-effectively achieve these capabilities has been available for a decade, and has proved successful through many disruptions. For example, during the semiconductor crisis, Toyota's manufacturing lines first went down almost eight months after other automotive companies had already reported billions of dollars in lost profits. Toyota credited its success to its years of mapping its supply chain and surgically holding inventory for the highest-impacting components, such as semiconductors, and having close ties with suppliers by fostering transparency and collaboration. At the end of 2021, Toyota took the number-one car company position for the first time since 1931.

The cost of this technology can be less than a million dollars a year. As seen from the example above, the return on investment is exponentially high with maturity. So why have companies been slow to adopt this approach?

There are two reasons: First, supply chain experts in most companies struggle to understand how this approach translates into quantified ROI. As a result, they're unsuccessful in building the business case and securing the funding. Second, even if they do get on board, they fail to change behavior by transforming the legacy people-process-incentive structures that got them in trouble in the first place, and therefore fail to achieve the desired ROI.

To quantify ROI, one must first understand the true cost of risk across the stakeholder ecosystem. Supply chain leaders are usually measured by their achievement of targets around revenue attainment, cost profile, inventory turns and customer on-time delivery metrics. Risk jeopardizes their ability to meet these targets consistently and leads to profit leakages, which can occur from having to pay millions of dollars in premiums to procure raw materials that are in short supply.

Once news breaks about a supply chain disruption, affected material prices can jump 30% or more. Or companies might have to expedite product delivery and use expensive air transportation instead of ground. Freight expedites can cost tens of millions of dollars a year, and some companies during the pandemic paid hundreds of millions in freight expedites alone. Port disruptions led to record profits by freight and logistics companies, who reported in some cases as much as 10 times the profits in 2021 compared to 2020.

Once or twice a year, most companies experience supplier rationing or "allocation" for a handful of parts or raw materials, where they fail to receive their required quantities of shipments. This results in having to hold expensive inventories of other parts ordered and received while waiting for the delayed shipments. Additionally, if they, as a supplier to their own customers, frequently delay deliveries to their customers or relegate them to an allocation, customers will begin to switch to alternative sources. This can be a setback with long-term consequences, and cause hundreds of millions of dollars in potential revenue growth, as well as a loss of investor confidence and corporate valuation.

The true cost of risk can be debilitating to organizations, making the ROI to finding a solution very high. To quantify it, companies must work with their supply chain finance team to assess the following:

- Raw material premiums for constrained parts paid annually (also known as purchase price variance, or PPV);
- The aggregate value of freight expedites due to supply chain disruptions;
- The number of times manufacturing lines shut down due to a part or raw material shortage;
- The weekly fixed cost that would be incurred to run a factory, irrespective of whether it was operational or not;
- The number of instances where materials were delivered late to a customer (using on time delivery metrics), and
- Lost customers, who were dissatisfied due to delayed shipments.

Once this cost of risk is assessed, the team should select a handful of past disruptions and conduct a before/after analysis to identify the points in the timeline where timely information would have made a difference. What if, for example, they had found out about the event within hours, instead of days or weeks? What might have happened if they were immediately alerted to what the impact could be to suppliers, sites, products and parts?

The team at GM compared their lessons learned during the 2011 Japan tsunami with their response to the 2014 Japan earthquake, by which time they had spent several years mapping their supply chain. They found that their response time went from six weeks to six hours.

When companies respond before everyone else, armed with the right information, they secure supply sooner than competitors, pay lower premiums and avoid freight expedites. Many that go through this process generate optimistic, pessimistic, and likely ROI scenarios, assuming a three-year maturity journey, which helps them to achieve the transformation that's vital to the success of the resilience program.

Acquiring supply chain mapping data or AI-powered monitoring alerts is the foundation of the workflow. The next step is to use the data continuously and train people event by event.

Following are key elements in the successful transformation of how the business operates.

Driving coordinated response through awareness. Over time, teams learn how to respond to disruption-sensing alerts, where to go to get impact analytics, and how to reach out to their suppliers and deploy standard playbooks. Teams operating this way build "muscle memory," and the execution gets smoother and faster over time.

Transforming the supplier management playbook. Proactive companies incorporate transparency, resiliency and disruption recovery scores into supplier performance metrics. With time, procurement teams' emphasis on continuity of supply and partnership changes, to proactively protect the highest revenue-impacting parts and materials.

Adopting Lean and just-in-time. Companies that are currently holding hundreds of millions in just-in-case inventory on their balance sheet can draw on multi-tier intelligence to identify where their inventory positions could be reduced without jeopardizing resilience. During mapping, suppliers often disclose their backup sites and

mitigation strategies for protecting revenue. This in turn can help companies identify parts where Lean and JIT should be implemented. In the current environment of high interest rates, inventory carrying cost savings alone can often fund the entire investment in the program.

Integrating playbooks to drive operational action. With more confidence in the data, companies integrate mapping and monitoring intelligence with operational systems such as control tower, planning, and logistics visibility. By creating rule-based response triggers that execute actions based on pre-defined criteria and playbooks, companies can turn their disruption response into a source of competitive advantage.

Designing for resilience. ROI grows exponentially when companies change how they design products and their global network for resiliency. For example, the decision to build semiconductor wafer fabs onshore in Arizona and Texas can factor in the long-term drought and water-availability risk. A new product being designed can avoid unreliable suppliers and high-risk parts.

COVID-19 ushered in a transformation in the widespread adoption of supply chain resilience. Small and medium-sized businesses that navigate this maturity journey can protect their supply chains and turn disruption into a source of competitive advantage and longevity for themselves and their stakeholders.

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