

## Second Thoughts on Second Sourcing

**Blog** July 08, 2016 Reading Time: 4 min  
Yossi Sheffi

### A widely used method for mitigating supply chain risk is multi-sourcing — using more than one vendor to supply specific items. But there are significant risks to consider.

Not keeping all of your eggs in one supply basket is an appealing strategy to increase supply chain resilience. But it's not always effective.

Aircraft engine maker Pratt & Whitney has doubled up suppliers in an effort to avoid interruptions to the production of its new turbofan engine. But according to [a recent Wall Street Journal article](#), nearly half of Pratt's 1,600 suppliers are still failing to deliver parts on time.

Multi-sourcing, of course, isn't the only way that companies can work to ensure a reliable flow of supplies. The main alternative to multi-sourcing is investing in key supplier relationships. There are a number of ways that companies can do this. Some buyers embed representatives in partners' organizations, and carry out detailed analyses of vendors' financial positions. Embedded reps can also influence suppliers' use of sub-tier suppliers, and even advise on the appointment of senior executives.

But developing these kinds of deep relationships is expensive and time-consuming, and as a result they are typically confined to strategic and, sometimes, critical supplies. Dual- or multi-sourcing is often a more attractive option, especially for non-strategic items.

#### Five Questions to Assess the Risks of Multi-Sourcing

But before rushing to find alternative suppliers, companies should delve into the strategy's pros and cons. There are a number of drawbacks to the mitigation strategy of dual- or multi-sourcing that companies need to be aware of. The strategy can be costly, and it can actually increase certain types of risk. Companies should explore these five questions before moving forward.

1. **Are all the sources in the same geographic area?** Companies need to beware of source clusters, because choosing second or third suppliers in the same geographic area might not spread the risk. In 2011, for instance, Thailand experienced severe flooding due to unusually high rainfall levels. At the time, Thailand provided 45% of worldwide hard-drive production. Four of the top five suppliers — Western Digital, Seagate Technologies, Hitachi Global Storage Technologies, and Toshiba — had facilities or key suppliers in Thailand, and all four suffered serious disruptions when the flooding occurred. These disruptions subsequently caused shortages of disk supplies. Second sourcing did not help much, because many of the alternative suppliers were located in the same disaster zone. Similarly, much of the world's chip capacity is concentrated in the north of Taiwan — an area prone to earthquakes.

2. **What will it cost to develop a second supplier?** In some industries, such as automotive or medical products, finding and validating a second source is not trivial in terms of both the cost and the time involved. The process might require significant amounts of additional work such as carrying out safety tests. In some cases — if the buyer is a contract manufacturer, for example — appointing another supplier might require the approval of customers such as OEMs.
3. **How compatible is the alternative source?** Even when a company's due diligence is thorough and searching, finding second sources that are identical to an established supplier is still difficult. These differences can complicate after-sales support and increase the likelihood of yield and quality issues. In 2013, Chrysler recalled 30,000 Jeep vehicles because of problems with fuel tubes. The manufacturer had used a substitute plastic to make the tubes in response to a shortage of the material it originally used.
4. **Are the additional CSR risks worth it?** Corporate social responsibility risks — which are increasingly important to companies' operations and reputations — increase significantly when multi-sourcing is adopted. It only takes one miscreant supplier to embroil a buyer in a scandal involving environmental issues, worker rights, or political issues. As more suppliers are added to a company's network, the monitoring and compliance burden gets heavier. Pharmaceutical company Pfizer actually consolidated its supplier base for compliance reasons after determining that managing several thousand suppliers in multiple countries represented a significant risk to the business.
5. **Will primary suppliers start holding back their best stuff?** Suppliers may be reluctant to bring innovations to a company that buys from their competitors if it fears that the innovation will fall into a competitor's hands. In general, when a company multi-sources, it is less likely to be the first to access supplier innovations.

### Moving Forward: De-Risk the Risk

If, in spite of these drawbacks, multi-sourcing remains the preferred route to achieving more secure sources of supply, there are ways to increase the chances of a successful outcome.

Intel uses a five-level risk-management approach to analyze and implement dual sourcing. At the heart of the approach is a separation between qualifying a supplier and actually using it for supplies. The first level is a paper study that simply assesses the feasibility of using a dual source in case of a disruption. The second level identifies potential second sources and evaluates samples from these sources. For the third level, an Intel facility samples supplies from potential second sources over time to ascertain their consistency. The fourth level pilots a second source in production. Only the fifth level involves a full implementation of dual sourcing that can directly reduce the initial impact of a disruption at the primary supplier. The other four levels reduce risk by shortening the company's time to recovery.

Naturally, there are cases when the decision is taken out of the buyer's hands, simply because there is no other supplier with the capabilities required. For example, making chips with layers only a few atoms thick requires highly specialized, exotic chemicals. In many cases, only one supplier (and sometimes even only one plant) in the world knows how to make the molecules "dance in just the right way," in the words of an Intel executive.

If there is no choice but to rely on one supplier, it is still possible to mitigate the risks by finding ways to increase the capacity of that vendor during a disruption. The use of overtime, deferring maintenance of machinery, and reformulating products are examples of measures that de-risk a sole-source arrangement when a crisis hits.

#### ABOUT THE AUTHOR

Yossi Sheffi is the Elisha Gray II Professor of Engineering Systems at MIT, and Director of the MIT Center for Transportation & Logistics. His latest book is *The Power of Resilience* (MIT Press, 2015).