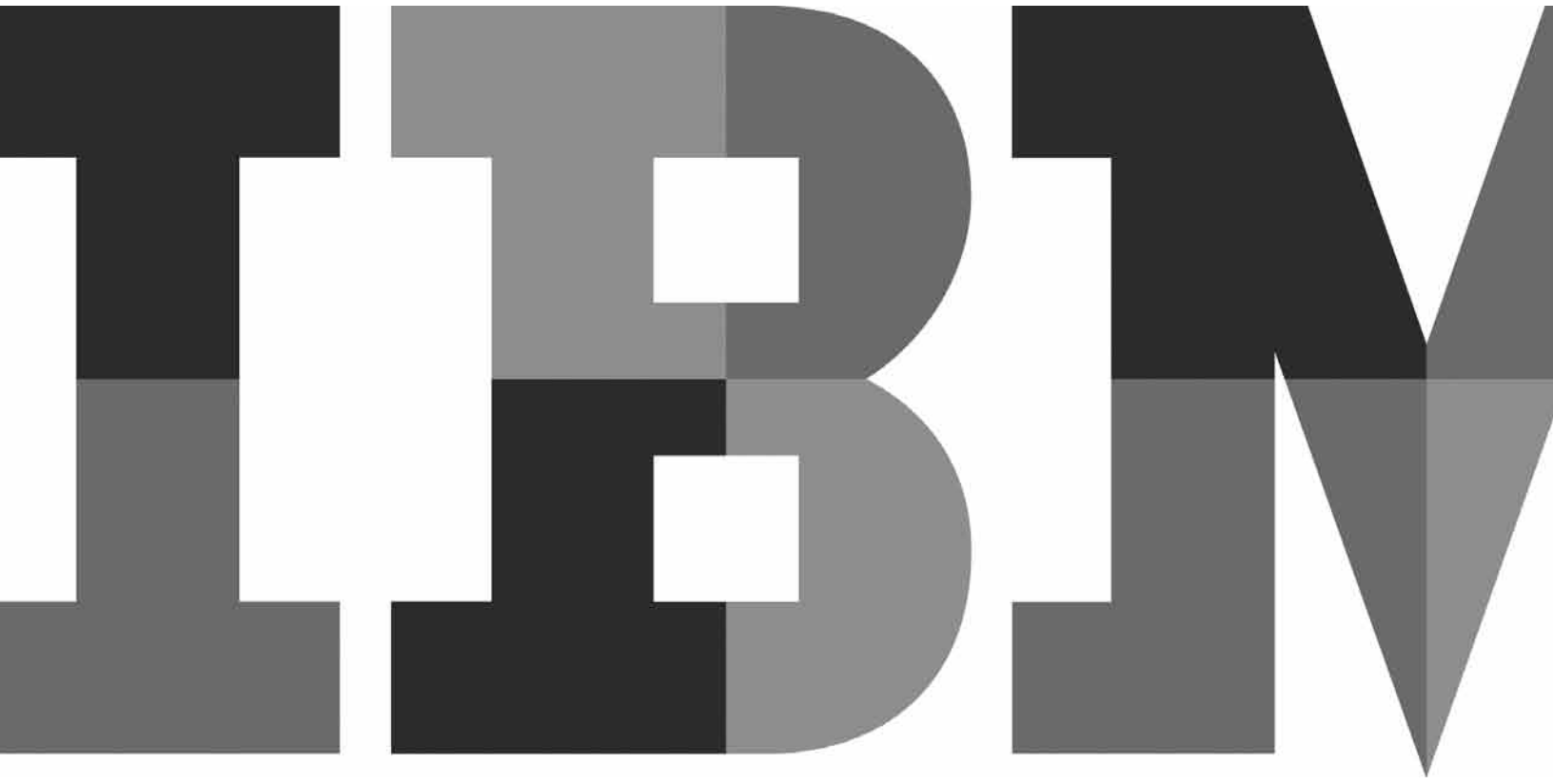
Spend Analytics as a foundation for supplier risk management



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Managing supply risk has not only risen to become one of the key focus areas for operations and procurement executives, but is increasingly viewed as a strategic imperative by many of the most senior operational and financial executives at global organizations.

Of course, many practitioners are familiar with supplier risk case studies. A well-known example of managing supply risk is the fire that destroyed an electronics component plant in New Mexico in 2000. This plant supplied both Nokia and Eriksson, and the reactions from these two different organizations to a single event in time and the impact of their actions on their future business clearly demonstrates the benefits of monitoring and managing supply risk. Nokia reacted promptly, securing components from the market. Eriksson, on the other hand, was left with supply shortages which translated into direct lost sales estimated at $390M. The most significant consequence of this event may have been the subsequent loss of Eriksson's market share to Nokia.

This brief case study illustrates the need for more proactively managing supply risk, the risk of a company's suppliers being unable to deliver the materials needed to effectively meet its production requirements and/or customer commitments, – and the consequences of failing to do so. With the imperative clear, below is a reliable three step framework to help managers identify specific sources of supply risk, prioritize those sources that need to be addressed and then implement specific plans to significantly reduce a future threat of supply risk. This framework, which uses spend analysis as a starting point for such analysis, has been successfully used by many procurement executives at leading Fortune 2000 companies.

An environment of increased supplier risk

Supply-chains are complex due to the many parallel physical and information flows that exist to help ensure that products are delivered in the right amount to the right place in a cost-effective manner. As organizations have started to outsource manufacturing to low cost countries, their supply chains have become even longer and more complex. For example, it is not uncommon in the semiconductor industry for a chip to be fabricated, tested and packaged in three different countries in Asia, before being shipped to a distributor in the United States. The challenges in planning, coordination and logistics of such a supply chain are not simple. To further complicate matters, the drive toward more efficient supply networks has resulted in very little buffer inventory in the system. Virtually any hiccup in this type of environment such as lower manufacturing yields, delays at customs, labor issues or an extreme weather condition can disrupt supply, leading to stock outs and missed customer shipments. Shortening product lifecycles have further increased this complexity by creating constant changes in the supply base, as new specialist suppliers join the supply chain while others leave. The new suppliers barely have time to establish a good working relationship with the company before experiencing steep ramps in production quantity. As product lifecycles shorten and increasing percentage of profits are made in the first few months of new product introduction, a short term supply disruption can put the entire product profitability at risk.

A framework for identifying supply risk

Based on implementations at dozens of global companies, the following three step framework has been tried and tested to be very effective at identifying supply risk in large and mid-sized organizations:

Step 1: Risk identification: Spend analysis is the starting point to identifying potential sources of supply risk for key

components. Spend analysis is the process of determining what is being spent, with whom, and for what. While spend analysis is primarily used to identify and implement cost saving opportunities by rationalizing the supply base or reducing maverick spend, it also provides the essential information needed to identify sources of supply risk. For example it highlights components that are being sole sourced or are being primarily sourced from a certain supplier that just filed for Chapter 11. Using valuable information from spend analysis, a purchasing manager quickly identifies components that would pose a high degree of supply risk if a certain supplier, region or lane is experiencing disruption. Spend analysis not only helps identify sources of risk, but it also provides the context needed for prioritization of risk, such as amount being spent, criticality of component and other sources of supply for that component. Following is a partial list of potential sources of supply risk that procurement managers have identified through spend analysis:

- Components sourced from suppliers that are at financial risk
- Components that are sole sourced or sourced from a specific region
- Suppliers of commodity or components, when prices fluctuate due to exchange rate issues and the currency risk from them.
- Suppliers of very specialized components or a service, which reduces the potential supplier pool and increases dependency on them
- Component segments when the technology is changing fast and the suppliers of those components (for example, risk that they might not be investing in research and development to keep up with the changes)
- Key suppliers that have a monopoly or oligopoly position, which reduces leverage with them and increases supply risk
- Suppliers that disproportionately impact product costs or customer service, which can potentially increase supply risk

Step 2: Prioritize risks: Once spend analysis provides purchasing executives visibility into total purchase volume of components facing supply risk and their criticality in the product portfolio, they are able to perform what-if analysis and quantify the impact of supply risk for that component. For example, with a clear visibility into purchase volume and forward price contracts, purchasing managers are able to perform cost sensitivity analysis for components they deem to be at price volatility risk and measure their impact on product profitability. Similarly, purchasing managers are now able to perform what-if-analysis on the components being sourced from geopolitically sensitive areas and quantify their impact on customer shipments and revenue. Armed with such detailed analysis, they are now able to prioritize acting on those components or commodities when supply risk has the greatest impact on their business.

Step 3: Take action on prioritized risk: Once the list of various components is prioritized, based on the supply risks they pose to the company, the next step for purchasing managers is to decide what action to take. Their options are:

- **Avoid or eliminate the risk.** This is typically done by employing techniques such as finding a second source of supply, reengineering the supply chain to enable a rapid shift to "Plan B", or creating forward pricing contracts to reduce the price fluctuation risk. However, these strategies take longer to deploy and the organization still will have to live with the risk in the short term.
- **Mitigate the risk.** When the cost of elimination of supply risk far exceeds the probability and cost of downside, purchasing managers implement techniques that reduce the risk to the level when they can live with it. This is one of the most popular strategies used to manage supply risk. More details of such techniques are provided in the section below.
- **Share the risk.** Sometimes when the probability of risk is very low, but the impact on business is high (or sometimes even debilitating), it is strategically better to share the risk with a third party partner. Such a situation might occur if an earthquake or fire disrupts a major supply channel. Examples of risk sharing approach include either buying an insurance for supply disruption (financial approach) or outsourcing the relevant part of the supply chain to a large contract manufacturer (operational approach).
- **Retain the risk:** In certain situations, especially when the probability of risk is low and its impact on business is low, purchasing managers accept the supply risk, choosing to live

with it, and planning and budgeting for it internally and with shareholders.

Tactically reducing supply risk

There are a number of techniques procurement organizations can implement to tactically reduce or mitigate their supply risk. For example, some organizations create safety margins by producing slightly more units than in their sales forecast in order to create finished goods buffers in their supply chain. Many choose to marginally increase their inventory costs by implementing just-in-case inventory, when they maintain extra inventory of virtually all of the raw materials or component parts used in production. Another popular approach among operations executives is to retain the option to expedite orders by paying for a faster shipping method at the last minute. Some go a bit further and reserve additional capacity either in their production line or with their contract manufacturer or distributor to rapidly catch-up after a disruption by allowing for rapid production of additional units. Some also implement a dual-sourcing strategy and source from two different suppliers, preferably in two different locations. In such a model, they create allocation rules to engage new suppliers in their supply chain. Alternatively, instead of implementing a dual sourcing strategy, they source from a supplier with multiple, geographically dispersed plant locations and either use materials and products from both locations or help ensure that production can be moved to a second location in a very short time frame should a disruption occur.

Virtually regardless of the approach to mitigation, in order to manage supply risk, the first step is to identify and prioritize the sources of supply risk. Spend analysis is the right starting point for such an analysis and provides the rich context needed to identify the sources of supply risk. Once the sources of supply risk are identified and prioritized, specific actions can be taken to eliminate, mitigate, share or retain those risks.

IBM Corporation
Route 100
Somers, NY 10589
USA

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