



# Collaborative Supply-Base Risk Assessment

Uncovering Risk With  
Suppliers Enables Strategic  
Investments

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“**N**o other supplier can provide you the service that we do.”  
“Next year’s workload is 50 percent of our minimum sustaining rate  
and without more workload we will have to exit the business.”  
“Because you’re not ordering enough, costs are going to more than double  
next year.”

Most defense acquisition and supply-chain professionals hear some version of these statements on a weekly, if not daily, basis. As overseas contingency operations wind down and sequestration becomes a yearly challenge, developing strategies to assist these suppliers is becoming ever more difficult for the acquisition community—especially the program manager.

But in a time of constrained resources, which capabilities are truly important or critical and at risk? To each supplier, the answer and the remedy are immediately clear and justifiably self-serving—more work for their unique capabilities. Department of Defense (DoD) acquisition and sustainment executives increasingly find that, without a proactive industrial base mitigation strategy, their limited resources are quickly directed to the loudest voice, not the greatest risk.

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**Figure 1. Supply-Base Landscape Dimensions**

			Supplier POV	Buyer POV
	Dimensions	Definition	Elasticity	Mobility
Capability	Market Availability	Availability of the capability in the marketplace	X	X
	Intellectual Property	Difficulty to move the capability based on technical knowledge		X
	Interconnectivity	Interchangeability of the capability across the buyer's network		X
	Importance	Level of development for a capability which provides a significant strategic/tactical advantage		x
Capacity	Availability	Accessibility of securing and absorbing capacity	X	
	Continuity	Risk of maintaining capability through a period of zero or significantly reduced demand for roughly 3 years	X	
	Lead Time	Impact on lead time of a dip in demand	X	
Cost	Set-up	Cost impact of less than optimal production lot sizes due to reduced volumes	X	
	Conversion Costs	Exposure to increased facility overhead rates due to a dip in demand	X	
	Procurement	Ability to source effectively and maintain supplier relationships during a dip in demand	X	X

The traditional approach to mitigating critical industrial-base risks is to fund additional workload for the supplier. What is left unsaid is that the incremental workload normally fails to address the underlying cause and delays a right-sizing that is both necessary and unavoidable. Not only does it fail to address the root cause, it also compounds the problem by increasing inventory beyond sustainable levels which then prolongs the expected dip in demand and increases inventory obsolescence costs. Most acquisition executives are rightly concerned that such an approach is at best a poor use of taxpayer dollars, and, at worst, fails to address the truly critical risks within the industrial base.

**Assessing Risk From DoD's Viewpoint**

A new approach is needed for maintaining a sustainable defense industrial base. Too often, the acquisition community, prime contractors and legislative entities assess risk from the supplier's point of view—thus, scarce financial resources are normally committed to mitigating a firm's unique risk. An effective strategy that maintains the industrial base must proactively answer four fundamental questions:

- What capabilities are at risk?
- What capacity, if any, of that capability is required to meet DoD's future needs?
- Who is ultimately responsible for mitigating that risk?
- What is the most cost-efficient way to mitigate that risk?

Each of these questions requires the evaluation of risk primarily from the buyer's (i.e., the DoD's) point of view, not that of the respective supplier. While challenges at

individual suppliers may require risk-mitigation efforts led by the DoD program managers when the capability is sufficiently unique or critical, more often than not an individual supplier's capability is replicated elsewhere in the industrial base. Rather than address these unique risks, DoD should use its limited financial and personnel resources to deal with the truly systemic risks with wide-ranging impacts to core or critical capabilities.

These business choices may result in an individual firm exiting the defense sector or even going bankrupt. However, the loss of one supplier usually does not constitute systemic risk for the broader defense industrial base. In fact, after a multiyear surge of demand due to overseas contingency operations, opportunistic suppliers are expected to exit the industrial base as demand returns to historical norms.

The traditional approach to buyer (DoD) interactions with the supply base focuses on buyer power versus supplier power that can seem, and often is, adversarial. In comparison, many corporations have adopted the best practice of assessing risk alongside suppliers for mutual benefit.

Two DoD program executive offices employed this approach through onsite facility assessments of more than 100 suppliers within their respective industrial bases. These assessments clearly identified the essential factors and scoring criteria that enable acquisition and sustainment executives to identify which suppliers possess truly critical capabilities and determine which of those are at greatest risk due to a number of factors.

## Identifying Critical Capabilities

Assessing supply-base capability is a daunting task for DoD acquisition and sustainment executives. In order to identify critical capabilities and risks to those capabilities within the supply base, a collaborative supply-base landscape assessment leverages data on each supplier's capability, capacity and cost.

The goal of the assessment is to determine how unique the supplier is in the broader market, how important the supplier is to DoD, and how difficult it is to move or integrate the capabilities into a new supplier. To accomplish this, the landscape uses 10 dimensions of capability, capacity and cost to assess each supplier. Each of the dimensions measures discrete elements and, taken together, provide an accurate picture of the supplier's criticality.

For example, the capability assessment focuses on four main elements: market availability, intellectual property, interconnectivity, and importance. These dimensions measure the relative importance of the buyer to the supplier (supplier point of view) and contrast that with the importance of the supplier to the buyer (buyer point of view). All four elements of capability influence the buyer's point of view, but only one impacts the supplier's point of view.

## Pinpointing the Risks

Once the evaluation of a supply base is completed, defense buyers not only can create a comprehensive picture of capabilities but also can determine where resources should be dedicated to mitigate the risk of losing those capabilities. The supply-base landscape ultimately is used to evaluate two key characteristics: a supplier's elasticity and the buyer's mobility.

Supplier elasticity measures the impact to a supplier's cost structure from varying demand profiles while maintaining overall lead time and product quality requirements. Mobility considers the relative ease of moving manufacturing capability from one supplier to another while considering the importance of the capability, how many programs are affected, and the ability to overcome any intellectual property-related obstacles. Taken together, these two viewpoints result in the Supply Base Landscape and identify which

suppliers and capabilities are critical and/or represent a systematic risk to the buyer.

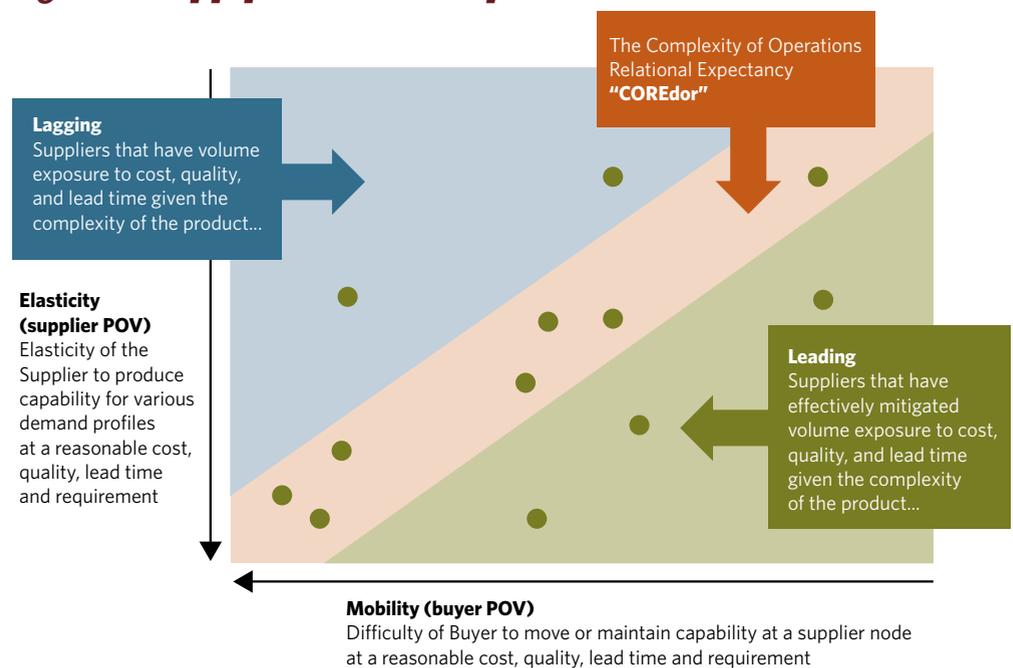
The supply-base landscape identifies a simple yet often overlooked attribute of any supply base—the strong correlation between product cost elasticity and mobility. Suppliers with unique capabilities that lower the assessor's mobility generally have lower elasticity—i.e., their cost structure and associated pricing respond substantially to changes in demand. The more specialized and highly engineered the product, the likelier it is that the supplier's business is both inflexible to cost and driven by only a few core buyers.

With this mutual dependence in mind, suppliers with relationships that are the most closely correlated with the assessor's needs should fall within a narrow corridor in the supplier risk landscape. This corridor is called the Complexity of Operations Relational Expectancy (COREdor).

Suppliers that fall within the COREdor are performing as expected given their relative elasticity and mobility. Suppliers that fall beneath the COREdor are more elastic than expectations, given the relative mobility from the buyer's point of view. These suppliers often embody the best practices that should be extended to the rest of the supply base: Suppliers that fall below the COREdor generally employed one or more of the best practices:

- They are able to leverage a commercial business with strong synergies to their military business.
- They deliver products or services with a high level of commonality with other DoD programs.

**Figure 2. Supply-Base Landscape**



- Or they outsource work and minimize capital expenditures when adding capacity to meet temporary surges in production demand.

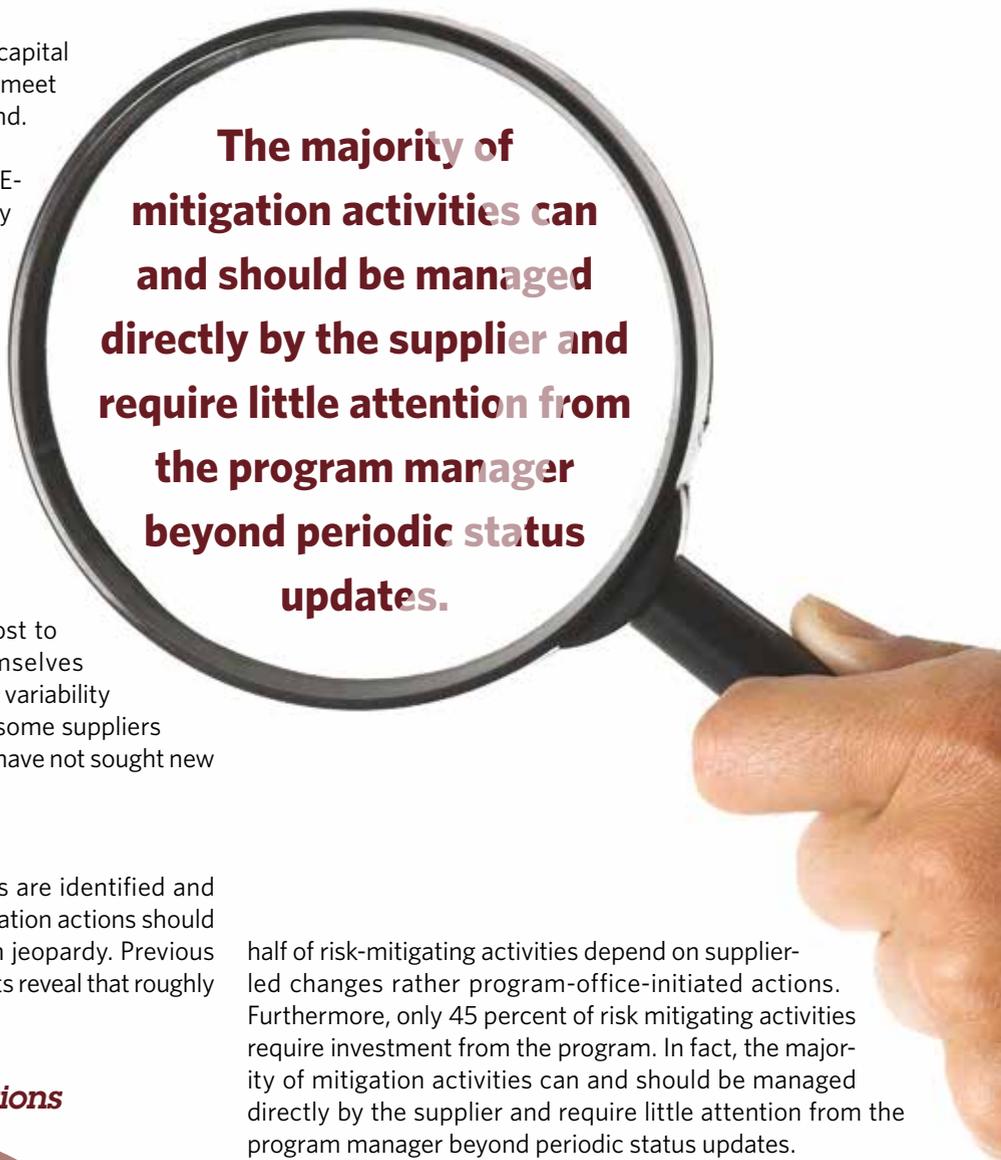
Conversely, suppliers above the CORE-dor are more inelastic than the mobility measurement would indicate. Generally, suppliers are lagging due to business decisions that drive unsustainable cost structures. The assessment found that the risk was most often the result of:

- Aggressive capital investment to meet short-term demand
- Failure to adjust facility sizes and cost structure to expected demand
- And an undiversified business model

By increasing the proportion of fixed cost to overall cost, these suppliers left themselves poorly positioned to handle the inevitable variability in demand. Even with these challenges, some suppliers with commercially attractive capabilities have not sought new sources of revenue beyond the DoD.

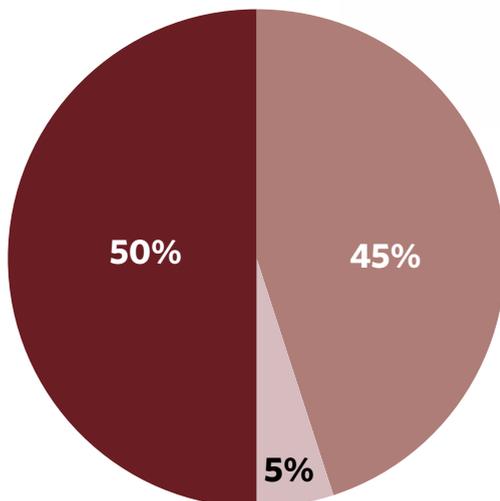
### Addressing the Risks

Once critical manufacturing capabilities are identified and critical risks assessed, targeted risk mitigation actions should be taken to address those capabilities in jeopardy. Previous experiences with supply-base assessments reveal that roughly



half of risk-mitigating activities depend on supplier-led changes rather than program-office-initiated actions. Furthermore, only 45 percent of risk mitigating activities require investment from the program. In fact, the majority of mitigation activities can and should be managed directly by the supplier and require little attention from the program manager beyond periodic status updates.

**Figure 3. Risk Mitigation Actions**



Summary of risk mitigation actions<sup>1</sup>

- Supplier managed
- DoD managed, investment required
- DoD managed, no investment required

### Conclusion

The future of the DoD industrial base is at a critical juncture. These suppliers have been instrumental in delivering and maintaining required warfighting equipment. With a top-line budget that over time either is flat or declining in real terms, the DoD's main weapon for meeting fiscal requirements will remain painful cuts to its Other Procurement and Research Development Test and Evaluation accounts. Failure to reverse this trend will jeopardize the ability to sustain an industrial base that leads the world and that can modernize future forces.

Looking to the future and an expected environment of reduced budgets and aging facilities, the DoD must make some hard choices, much as the private sector has done in past downturns. Only by carefully assessing the critical aspects of capability, capacity and cost can a meaningful analysis be done to develop a robust supply chain strategy to sustain and modernize the industrial base so that it can satisfy future warfighter requirements.

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