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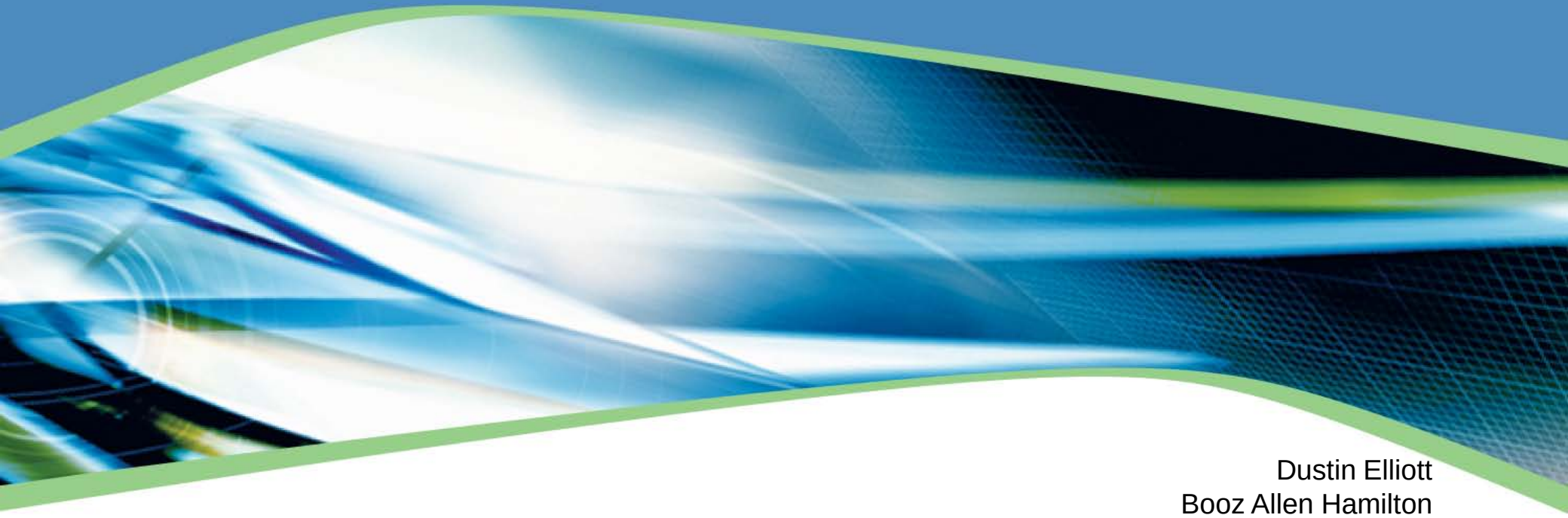
Assessing Supply Chain & Industrial Base Risks: The Industrial Base Assessment Methodology



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The U.S. industrial base is a complex, *dynamic* network of suppliers, service providers, and customers that must be understood

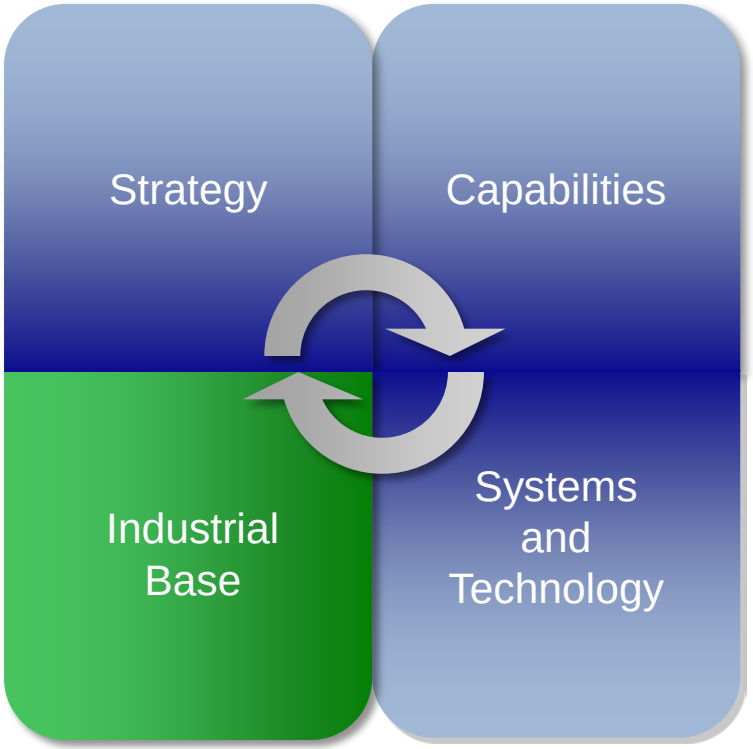
- The U.S. position in the global economy, the strength of our defense capabilities, and the prominence of the U.S. presence in space depend upon the health of the domestic industrial base

- This web of critical relationships changes – every day – and not always for the better, but decision makers have some ability to preserve (and in some cases regain) the stability of the industrial base
  - To make informed decisions about policies and investments, decision makers require detailed knowledge of the challenges and limitations that exist, especially at lower tiers
  - An industrial base assessment delivers data that arms leaders with the ability to make the most *impactful* investment and policy decisions

- Industrial base assessment must examine more than just supply chain relationships, therefore a *comprehensive* approach is needed to obtain the broadest understanding of the industrial sector under investigation

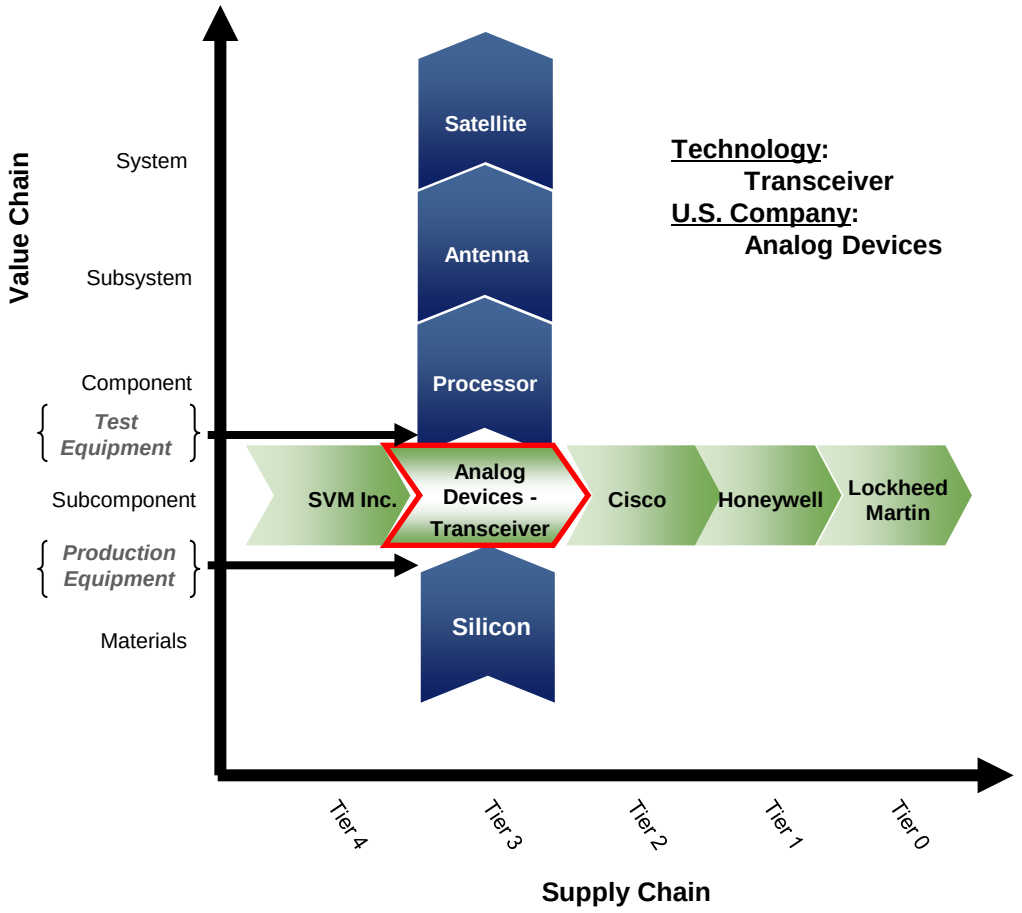
An analysis of the industrial base gauges the present state and the long-term viability of key industrial sectors

- An understanding of the present state provides an assessment of the current health of the industrial base
- Through the development of a strategy, the industrial base can project needs and requirements for long-term planning
- If the strategy requires new or modified capabilities, the industrial base can then sufficiently react to fulfill the requirements
- The capability requirements will then manifest itself in new systems and technologies
- As new systems and technologies are identified, based on the strategy and desired capabilities, the requirements for a reliable, sufficient, and cost-effective industrial base will arise



The analysis of the assessed industrial base and the study approach entails a detailed examination of all points of intersection

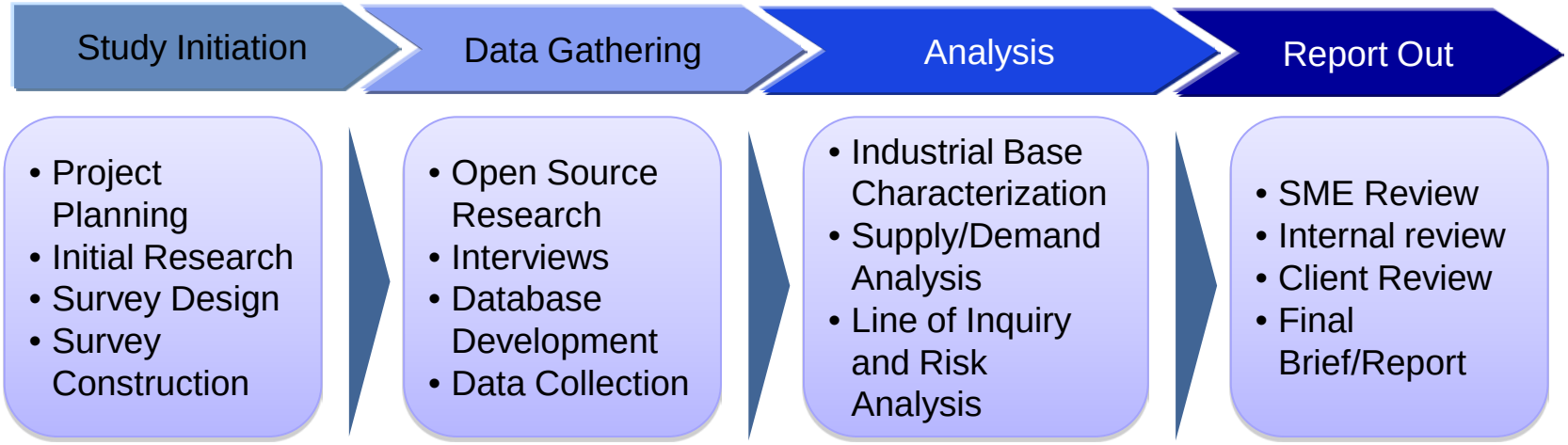
- Industrial base analyses often look at one component of the value chain and the related suppliers
- Oftentimes, evaluating the segments before and after the value chain, as well as the supply chain, is just as critical to understand flows and impacts
- The information gathered during the evaluation of the industrial base is assessed through three criteria to understand the broader picture
  - Reliability
  - Cost-effectiveness
  - Sufficiency



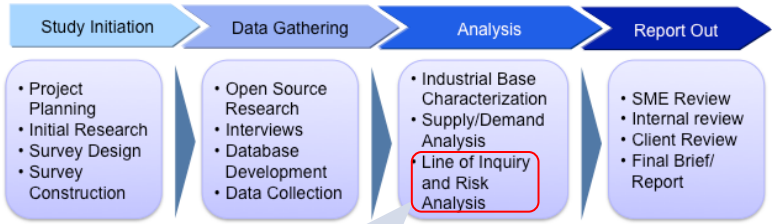
Industrial base assessments examine a segment of the supplier base for a capability or a system

- Industrial base assessments typically focus on one industrial base segment and are intended to answer one or more specific questions
  - For example, “Is the projected space industrial base sufficient to meet the national security requirements for the next 15 years and will there be adequate competition in the industry?” (*Booz Allen’s 2000 Space Industrial Base Assessment*)

- Industrial Base Assessment Methodology



The Industrial Base Assessment Methodology has traditionally focused on five lines of inquiry...

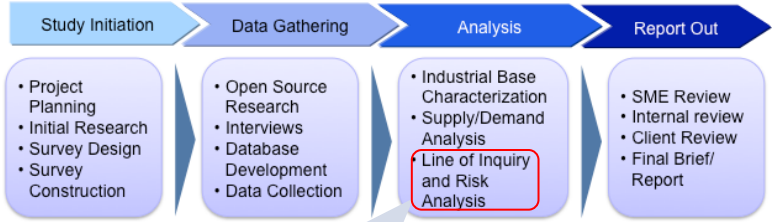


Lines of Inquiry

Workforce	• **Average Age** • **Hiring and Retention** • **Skill Criticality**
Facilities	• **Condition and Age** • **Capacity** • **Location**
Suppliers	• **Diversity & Qualification** • **Delivery History** • **Domestic vs. Foreign**
Equipment	• **Qualification** • **Age & Condition** • **Uniqueness**
Funding/Finances	• **Sufficiency** • **Source Diversity** • **Line of Business Diversity**

- Lines of Inquiry (LOIs) vary by study topic and scope, but generally consist of:
  - Workforce
  - Facilities
  - Suppliers
  - Equipment
  - Funding/Finances
- LOIs form the framework for risk assessment and mitigation

LOIs are assessed for risk levels through likelihood and impact analysis



Lines of Inquiry

- Workforce
- Facilities
- Suppliers
- Equipment
- Funding/Finances

- Risk is assessed by assigning impact criteria to each sub-element and assigning each supplier with a score
- Scores are compared in aggregate to form overall risk assessment
- Supplier risk is validated using Booz Allen's team of Supply Chain and Logistics experts
- High risk LOIs and sub-elements are investigated for risk mitigation through funding or policy recommendations

- Risk Assessment
- Findings
- Risk Mitigation
- Recommendations

Common themes have been identified in recent Industrial Base Assessments

- Today, visibility into lower-tier suppliers is almost exclusively dependent upon suppliers at the Prime (Tier 0) level, with each Prime focusing only on the suppliers with which they work
- Export Control regulations are impacting the global competitiveness of the industrial base, especially at lower tier, undiversified firms
- "Inverted pyramids" of suppliers has left multiple Primes and programs dependent upon one domestic supplier for a significant number of components and subsystems
- The U.S. industrial workforce, especially in highly-skilled occupations, is aging at an alarming rate, with fewer young workers entering fields where knowledge transfer is critical
- Investments in Independent Research and Development are deteriorating, especially within lower-tier firms, where risk is greatest

Industrial Base Assessments provide the backdrop for Supply Chain Assessments and can arm decision makers with the data they need to mitigate risk up-front

- Industrial Base (IB) Assessments:
  - Have traditionally been *reactive* in nature, and work is being done to refine how we use IB assessment to *predict* areas of highest risk
  - Expand upon and provide additional context for the findings of supply chain assessments by providing decision-makers with a strategic picture of industrial base health
  - Recommend and support funding and/or policy decisions to prioritize and mitigate risks to program execution and economic health
  - Are executed using a highly tailorable methodology that can easily scale to accommodate a wide variance in study scope and timeline