



SECURITY &
DEMOCRACY
FORUM

The Defense Industrial Base and National Security Innovation

From Primes to Prototypes

Graham Markiewicz,
SDF Executive Director

Course Objectives

- Understand the structure and players in the defense tech ecosystem
- Learn how Congress interacts with contractors and innovators
- Explore acquisition and innovation pathways from concept to fielding

Why the DIB Matters

- Enables readiness, modernization, and tech advantage
- Critical to U.S. economic and national security
- The “arsenal of democracy” for the modern era



The Structure of the DIB

- Prime contractors, subcontractors, startups, and labs
- Public-private partnerships
- Geographic distribution and regional clusters

Key Players

- Primes: Lockheed Martin, Boeing, Raytheon/RTX, Northrop Grumman, General Dynamics
- Subcontractors & suppliers: specialized parts and systems
- Small businesses/startups: agility and niche innovation
- Academia & research centers: UARCs, labs



Government-Led R&D

- Service research labs: Army Research Lab, ONR, AFRL
- Federally Funded R&D Centers (FFRDCs)
- University Affiliated Research Centers (UARCs)
- Role in long-term innovation



Acquisition Pathways

- Traditional acquisition under FAR
- OTAs – flexibility and speed
- SBIR/STTR – small business innovation programs
- Service-specific innovation hubs (AFWERX, NavalX, Army Applications Lab)

In-Q-Tel

- CIA-founded strategic investor for national security tech
- Invests in dual-use commercial technologies with intelligence and defense applications
- Portfolio examples: satellite imagery, cybersecurity tools, biotech
- Model for bridging commercial and government innovation needs



The Innovation Pipeline

- Tech scouting & identification
- Prototyping & experimentation
- Testing & evaluation
- Transition to programs of record
- The “valley of death” problem in scaling from prototype to production

Congressional Interaction

- NDAA and Appropriations oversight
- Hearings on acquisition reform and supply chain security
- Legislative pushes for innovation (e.g., funding DIU, OSC)
- Role in supplementals and emergency funding



Challenges in the DIB

- Slow acquisition timelines
- Cybersecurity vulnerabilities
- Supply chain fragility (rare earths, microchips)
- Workforce shortages in trades & STEM fields
- Balancing openness and security



Case Study 1: Ukraine & Rapid Prototyping

- Loitering munitions, drones, commercial satellite imagery
- Lessons for accelerating acquisition



Case Study 2: Commercial Space Integration

- Leveraging SpaceX, Maxar, Planet Labs for defense missions
- OTAs and public-private partnerships enabling rapid fielding



Looking Ahead

- Emerging tech: AI, autonomy, quantum, hypersonics, directed energy
- Increasing role of commercial tech in military capability
- International collaboration and competition

Key Takeaways

- The DIB is diverse—primes, small businesses, academia, investors, and government
- Innovation depends on bridging acquisition speed gaps and funding valleys
- Congress plays a central role in shaping policy and funding

Questions & Next Steps

- Open Q&A
- Check out the additional resources on this topic
- Invite to take other related modules (Intro to Intelligence, Economic Statecraft)