



DEFENSE
INNOVATION UNIT



NATIONAL SECURITY
INNOVATION CAPITAL

Mentor Protégé Summit

March 30, 2023

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Principal at National Security Innovation Capital (NSIC)

AGENDA

- 1145-1150 Introduction
- 1150-1200 Defense Innovation Unit (DIU) Overview
- 1200-1210 National Security Innovation Capital (NSIC) Overview
- 1210-1230 Commercial Solutions Opening (CSO) - DIU - and the Commercial Acceleration Opportunity (CAO) - NSIC
- 1230-1245 Open Q&A

MAKE THE RIGHT TECHNOLOGY INVESTMENTS

“[The United States] will be a **fast-follower** where market forces are driving the commercialization of militarily-relevant capabilities... and [DoD] will speed their delivery to the warfighter.”

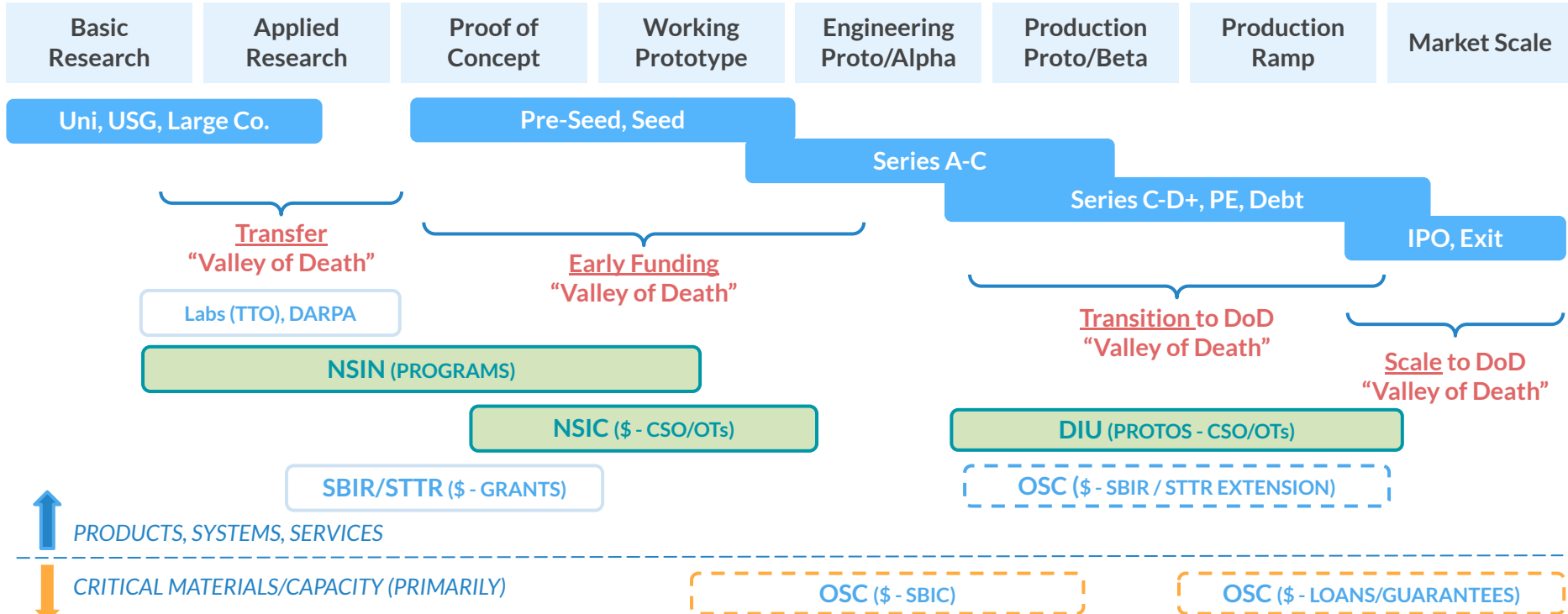
2022 National Defense Strategy



Photo credit: Rocket Lab

EMERGING TECH GO-TO-MARKET JOURNEY

A continuum of DoD support targeting multiple valleys of death



PRODUCTS, SYSTEMS, SERVICES



CRITICAL MATERIALS/CAPACITY (PRIMARILY)

EXPANDING LATE SEC. CARTER'S VISION

From scouting test-bed to scaling programs

DIU is focused exclusively on commercial companies to solve national security problems.

NSIN: Expand the NSIB with new talent and startups

NSIC: Accelerate product dev of critical hardware tech

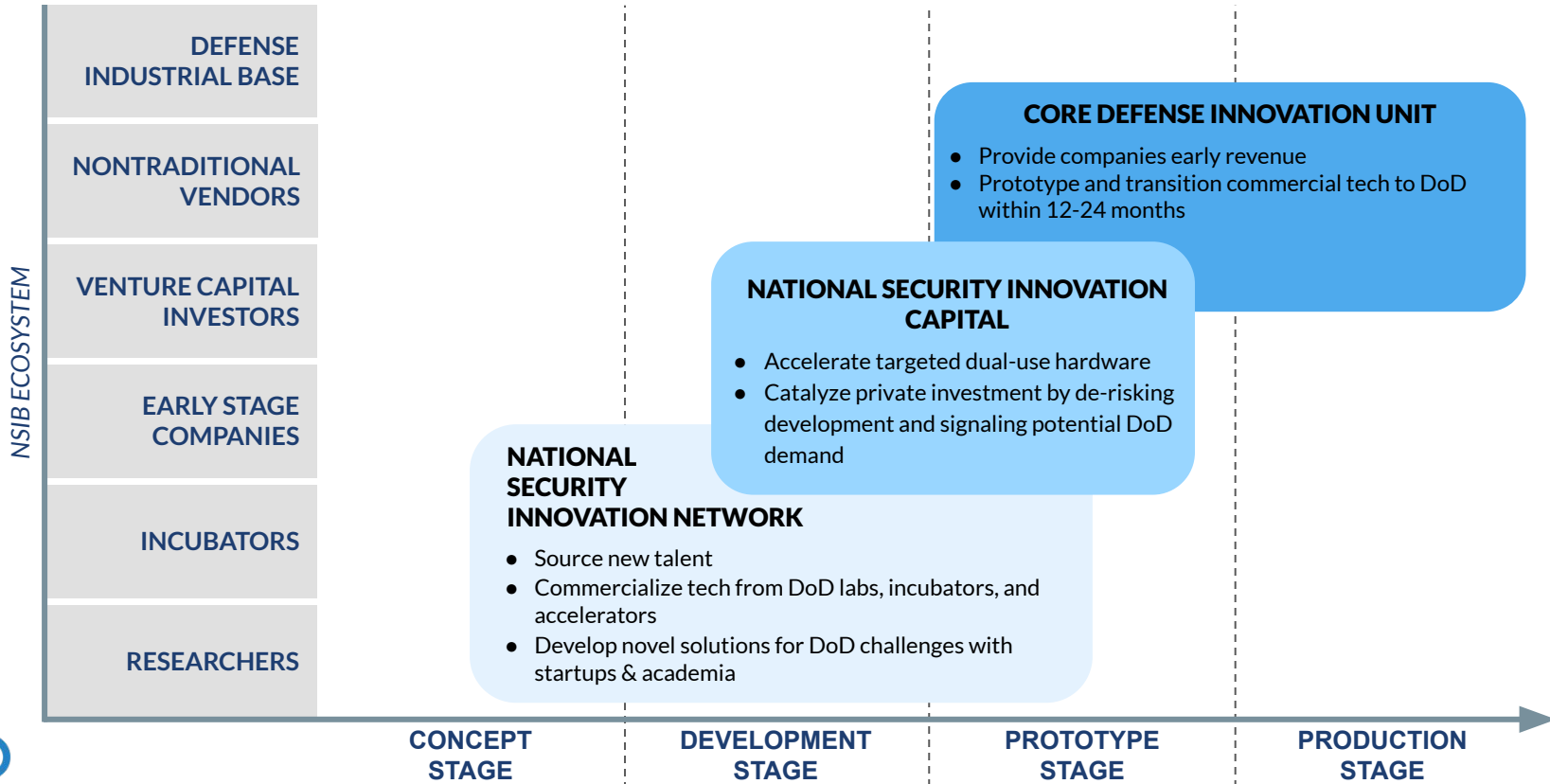
Core DIU: Rapidly scale DoD adoption of commercial tech

"Success no longer goes to the country that develops a new technology first, but rather to the one that better integrates it and adapts its way of fighting."



3 COMPONENTS OF DIU

INCREASING ADOPTION OF EMERGING COMMERCIAL TECH ACROSS DOD



DIU BY THE NUMBERS

Generating impact, but just scratching the surface

CORE DIU (FY17-FY22)

\$4.9B

follow-on contract ceiling across 52 transitions (49 companies).

321

Unique companies won **>\$1B** in prototype contracts (49 states + DC).

>\$90B

In total private investment leveraged

NSIC (Mar 2021-Sep 2022)

\$20M

Funds awarded and 96% total obligated.

12

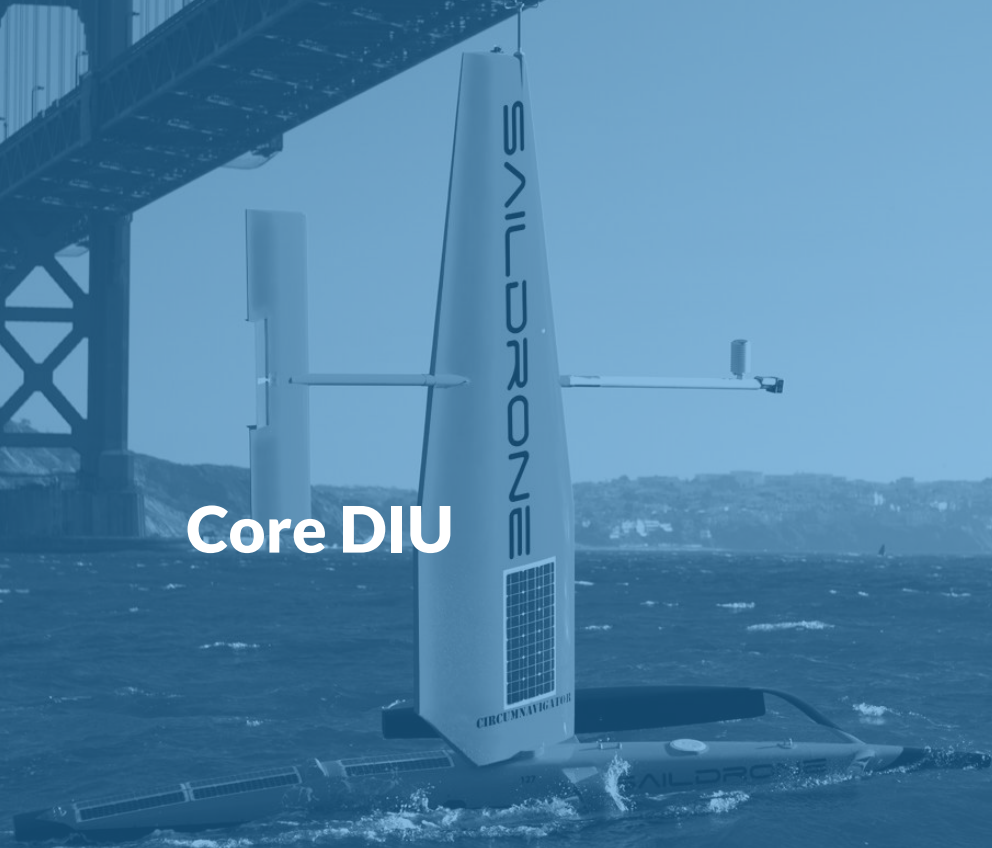
Total companies funded (across 8 states); adversarial capital removed from 3 companies.

3

companies raised Seed/Series A rounds at 3x NSIC's funding.

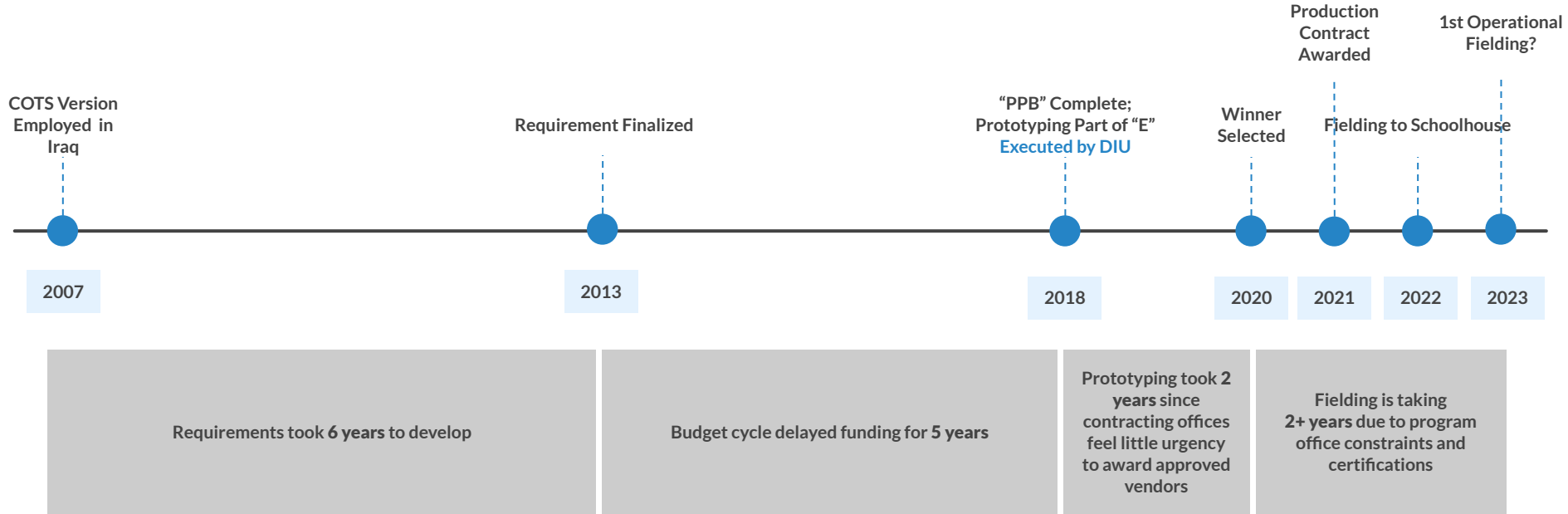


Core DIU



XYZ ACQUISITION

16 year journey rooted in PPBE & how DoD translates warfighter demand into marketplace demand



DIU MISSION

DIU is a fast-moving, cross-DoD organization focused exclusively on commercial companies to solve national security problems.

Elements of our Mission

Accelerate DoD adoption of commercial technology

Transform Military capacity and capabilities

Strengthen the national security innovation base

Key Differentiators

Unique project lifecycle from curation to transition

Joint force & mandate to scale value across DoD

Broad and deep **integration** into key tech ecosystems

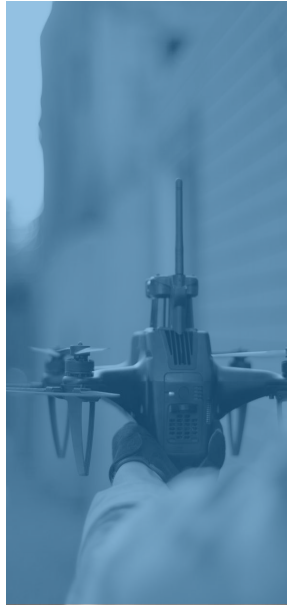


TECHNOLOGY FOCUS AREAS

Key technology domains where the commercial sector is in the lead



AI/ML



Autonomy



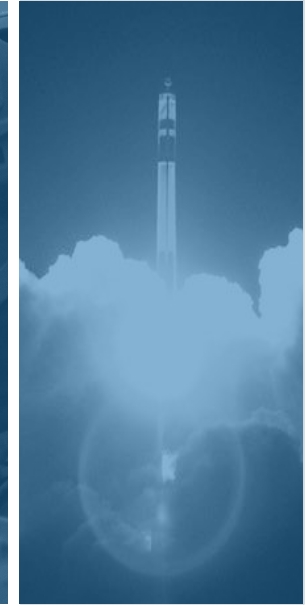
**Cyber &
Telecommunications**



Energy



Human Systems



Space



CORE DIU: STRENGTHENING THE NATIONAL SECURITY INNOVATION BASE

5,000+ companies in 49 states & DC

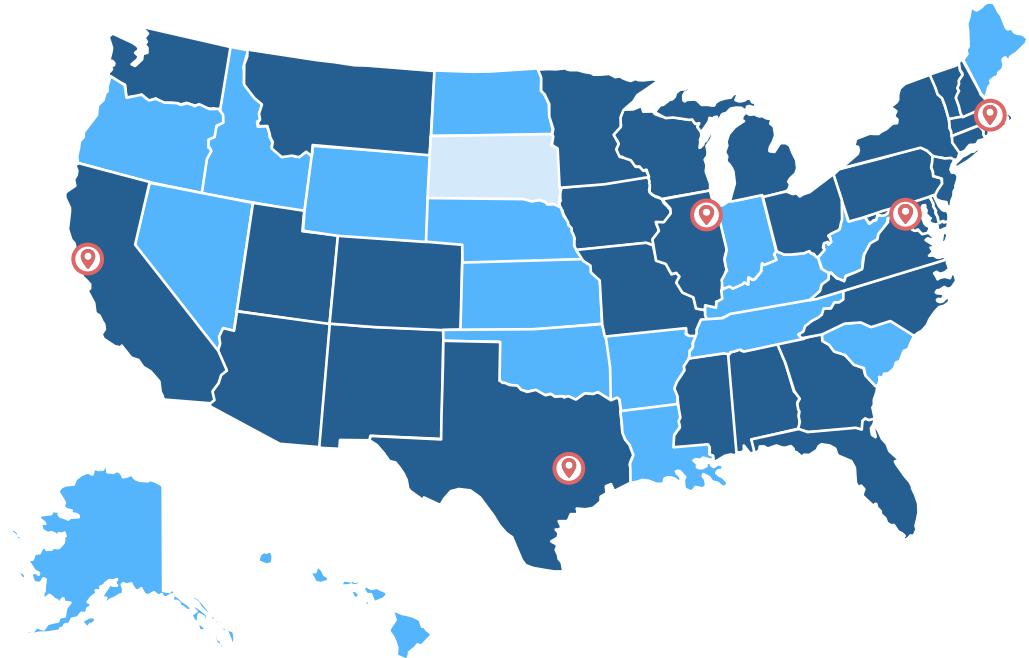
have competed for DIU contracts

321 unique companies

awarded DIU contracts

- **125** to first-time DoD vendors
- **264** to nontraditional vendors
- **224** to small businesses

 DIU Locations



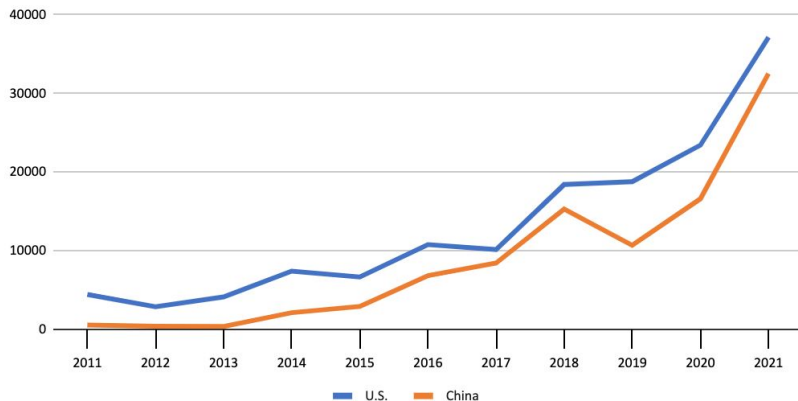


**National Security Innovation
Capital (NSIC)**

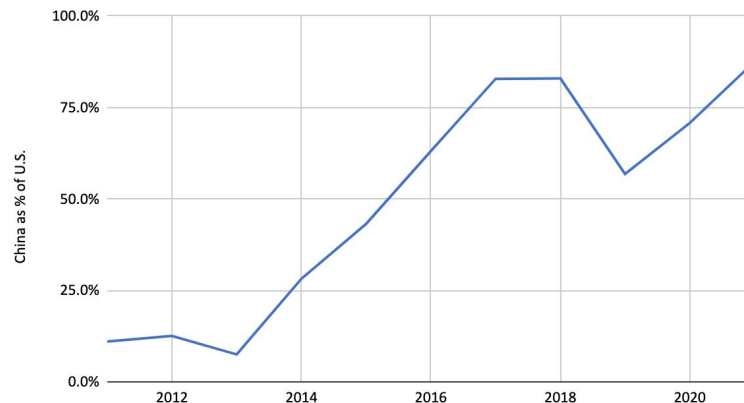
China's Technology is Catching Up with the United States'

China's VCs invest almost as much in its domestic hardware (HW) startups as the U.S. VCs invest in its HW startups.

U.S. vs China HW Funding



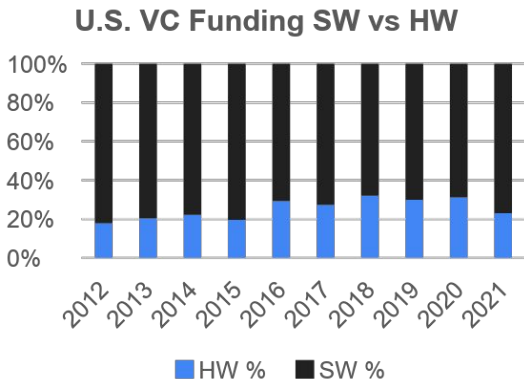
China as % of U.S.



U.S. VCs Under Invests in Early-stage Hardware Companies

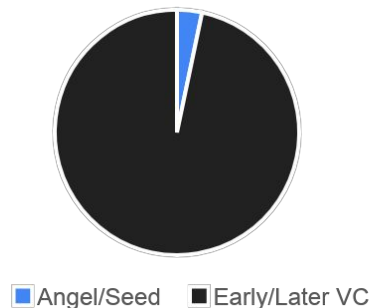
Limiting the number of U.S. suppliers and creating openings for adversaries.

U.S. VCs invest <30% of total capital in hardware



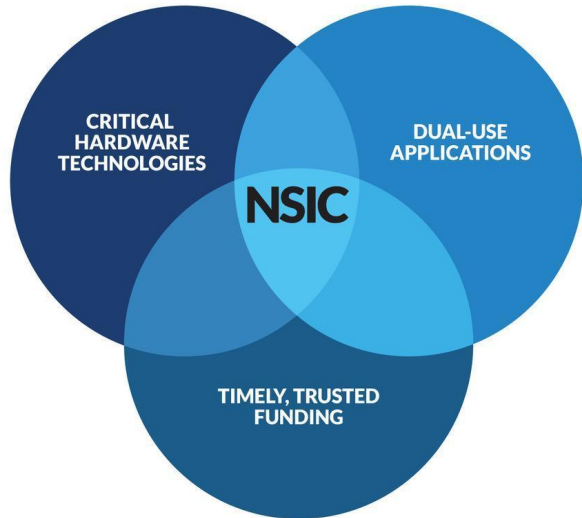
<4% of those funds go into the earliest stage, highest risk companies

2021 HW Funding by Stage



NSIC - Accelerating Technology Development

DoD initiative that enables dual-use hardware startups to advance key milestones in their product development by addressing the shortfall of private investment from trusted sources.



FOCUSED ON:

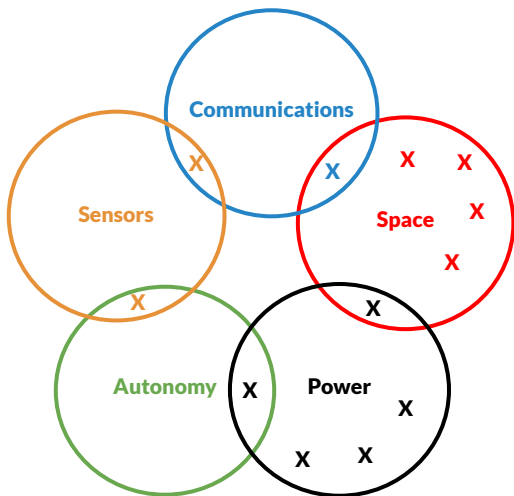
- Accelerating critical and emerging hardware tech
- Driving commercial & defense applications (dual-use)
- Stimulating private VC investment through timely funding, which will
 - Reduce technology risk & accelerate development
 - Signal future DoD demand
 - Support company development
- Blocking adversarial investment

NSIC provides non-dilutive funding using prototype development contracts under OTA

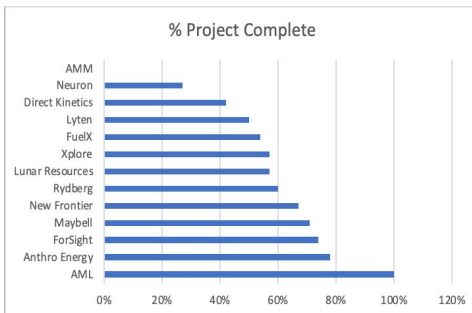
Results: First Two Fiscal Years

After 18 months of operation: 230 companies submitted proposals and NSIC funded 12 companies, totaling ~\$20M.

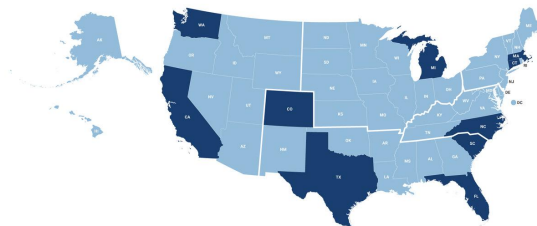
ToI Distribution
Multiple companies relevant to more than one ToI



Project Performance
11/12 tracking to SOWs (some supply chain issues)



Geo Distribution
Eight states across the country



Adversarial Capital
3 resolved; vetting all for subsequent private rounds



Private Capital
3 companies raised new private funding at up to 3.4X prior valuation.



Sample Portfolio Companies



- **Betavoltaics**
- Chip-based, long-lived electricity generation for remote sensors and IoT
- NSIC funding supports development of final/near-final product design plus key manufacturing process development



- **Li-S batteries**
- Advanced chemistry with higher energy density than Li-ion; low/no flammability; low cost
- Completely domestic supply chain
- Planned U.S. gigafactory (Midwest or South)
- NSIC funding supports initial production process; obtains up to 20% of capacity for USG use



- **Quantum sensor**
- Highly sensitive, broad frequency, omnidirectional RF detection and reception (antenna)
- Based on quantum phenomenon
- Portable prototype for technology demonstration and customer acquisition



- **Hypersonic engine**
- Novel, highly reusable rocket motor which enables hypersonic systems to operate like jet aircraft
- Utilizes liquified natural gas as fuel – lower cost
- NSIC funding supports development of one of three key subsystems (others funded through VC investment)



**Commercial Solutions Opening (CSO) - DIU
and the
Commercial Acceleration Opportunity (CAO) - NSIC**

WHAT IS THE COMMERCIAL SOLUTIONS OPENING?

The DIU CSO is a business process

- Created by DIU & ACC-NJ in 2016
- Merit-based, competitive evaluation to award **prototype-OTs** (*not a consortium model*)
- Simplified process lowers barriers to entry for nontraditional companies

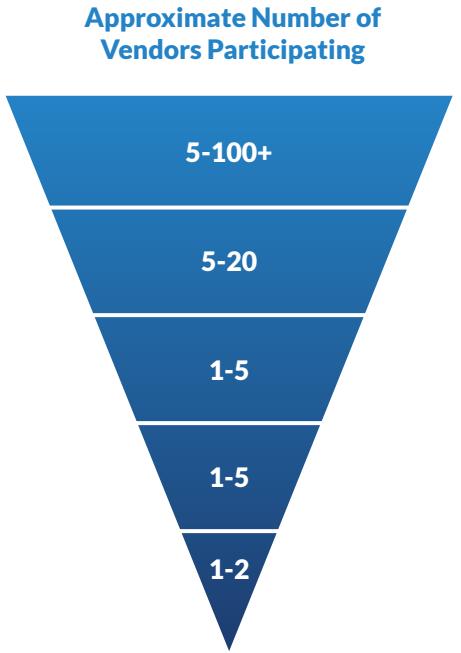
Not all CSOs are the same

- WHS, DIA, GSA, USCYBERCOM, USSOCOM, Dept. of the Air Force, Dept. of the Navy, & Dept. of the Army all have their own CSO



COMMERCIAL PROJECT LIFECYCLE - FAST & COMPETITIVE

Problem Curation & Diligence	<ul style="list-style-type: none"> Receive, understand, and evaluate DoD partner problem Confirm commercial market exists to address problem 	No Requirements	
Commercial Solutions Opening (CSO)	Phase 1	<ul style="list-style-type: none"> Solicit digital proposals in response to a problem statement 	~10 business days
	Phase 2	<ul style="list-style-type: none"> Evaluate proposals and invite a short list of bidders to pitch 	60-90 days to contract award (goal)
	Phase 3	<ul style="list-style-type: none"> Select contract awardee/s and negotiate agreement 	
Prototyping	<ul style="list-style-type: none"> Execute prototype project 		12-24 months
Transition	<ul style="list-style-type: none"> Award non-competitive agreement to successful performers Deliver & scale solution to transition partner/s 	No Re compete FAR Not Req'd	



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