DEFENSE
INNOVATION UNIT

DIU Overview to CENSEC

January 31, 2023

Katherine Koleski, Director of Global Partnerships

WHY COMMERCIAL

$173.3B

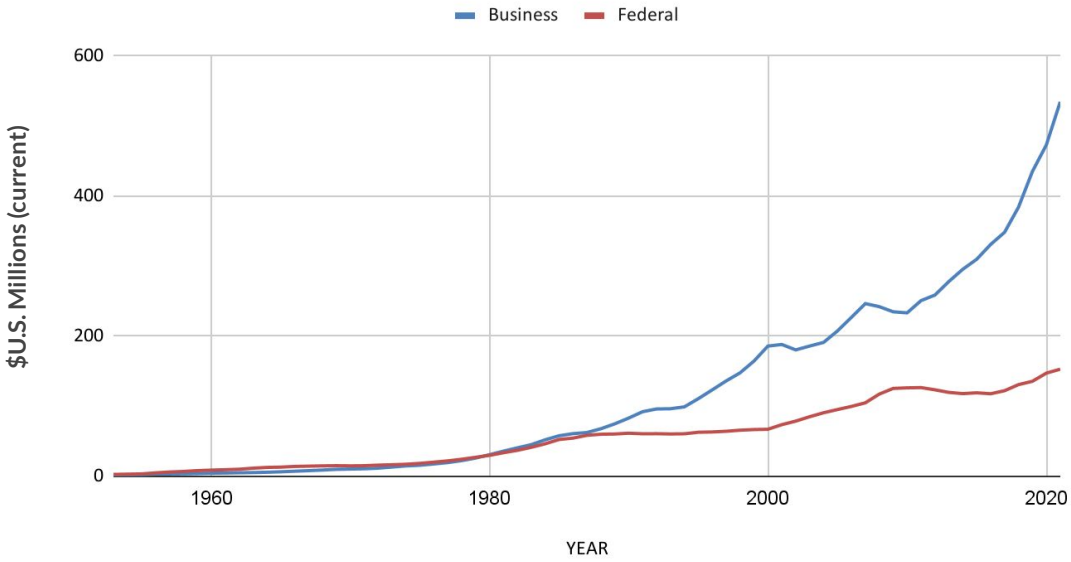
Top Tech Companies Outspend Primes 30x in R&D

$5.7B

Amazon
Alphabet
Microsoft
Apple
Meta

Lockheed Martin
Raytheon
Boeing
Northrop Grumman
General Dynamics

U.S. R&D Expenditures by Source: 1953 - 2021



COMMERCIAL TECH IS DIFFERENT FROM DEFENSE PLATFORMS

1. VOLUME

- DoD is not developing the technology
- Businesses or consumers are the early adopters
- DoD needs to leverage external R&D and commercial volume

2. SPEED

- Commercial technologies move at a much faster pace
- Product cycles are every 12-18 months instead of every decade

3. CROSS-SERVICE

- Commercial technologies are not Service-specific
- DoD does not know where to buy them

4. GLOBAL

- Global talent, investments, and markets are driving rapid development and diffusion of advanced dual-use technology available to any consumer or adversary
- DoD cannot dictate the speed of adoption by adversaries

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

CORE 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

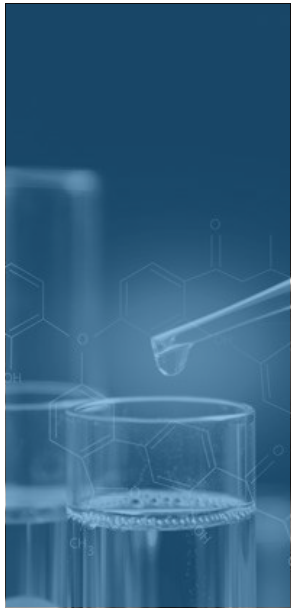
TECHNOLOGY FOCUS AREAS

Key technology domains where the commercial sector is in the lead

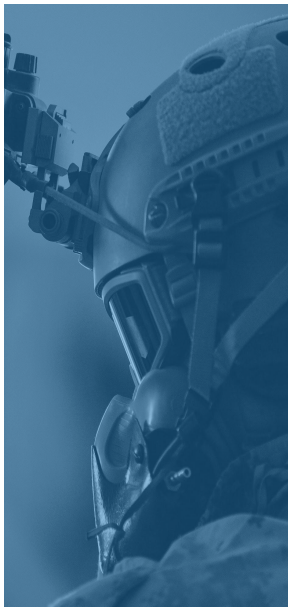
AI/ML

Autonomy

Cyber & Telecommunications



Energy



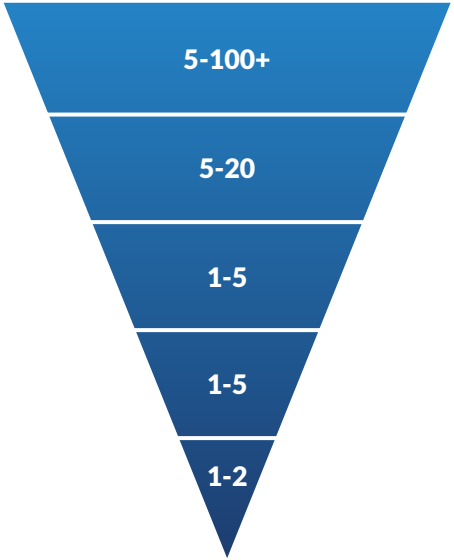
Human Systems

Space

UNIQUE PROJECT LIFECYCLE - FAST & COMPETITIVE

Problem Curation & Diligence		• Receive, understand, and evaluate DoD partner problem • Confirm commercial market exists to address problem	No Requirements
Commercial Solutions Opening (CSO)	**Phase 1**	• Solicit digital proposals in response to a problem statement	~10 business days
	Phase 2	• Evaluate proposals and invite a short list of bidders to pitch	60-90 days to contract award (goal)
	Phase 3	• Select contract awardee/s and negotiate agreement	
Prototyping		• Execute prototype project	12-24 months
Transition		• Award non-competitive agreement to successful performers • Deliver & scale solution to transition partner/s	No Recompete FAR Not Req'd

Approximate Number of Vendors Participating



DIU GENERATING OUTSIZED IMPACT

Expanded Capacity: 95 ongoing + 57 completed projects

>$30B
In private investments leveraged since time of award; **>$90B** to date

125
First time DoD vendors

264
Non-traditional vendors

60-90 days
Goal: from closing solicitation to vendor(s) on contract

47%
Transition rate (FY17-FY22)

52
New projects started in FY22

47%
Increase in vendor submissions in FY22

360
Prototype OT contracts awarded

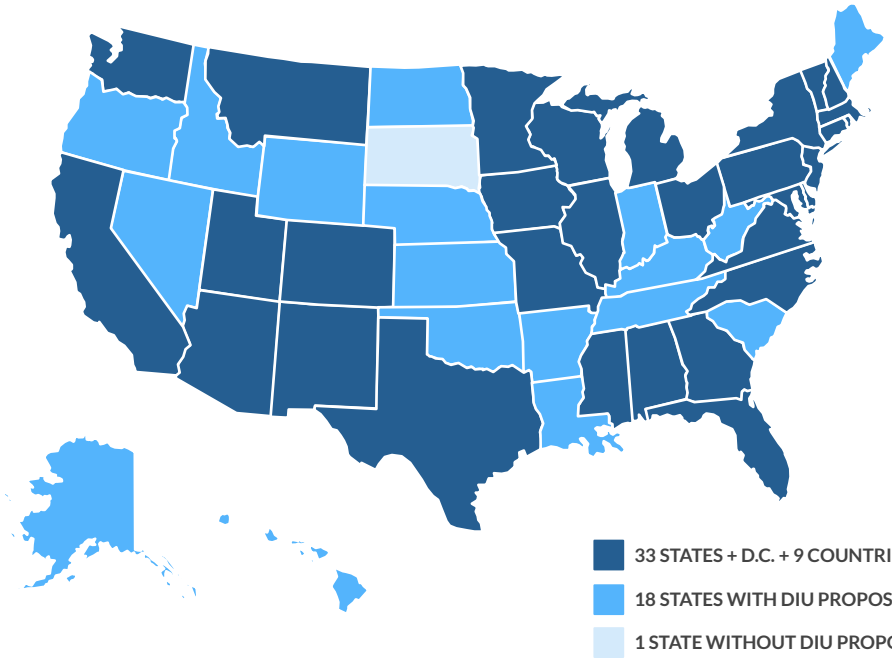
$1.2B
DoD funds obligated

Most data from June 1, 2016 - September 30, 2022

STRENGTHEN THE ALLIED TECHNO-INDUSTRIAL BASE

Broad & Deep Integration Into Tech Ecosystems

United States Awards by Company Location



33 STATES + D.C. + 9 COUNTRIES WITH DIU AWARDS

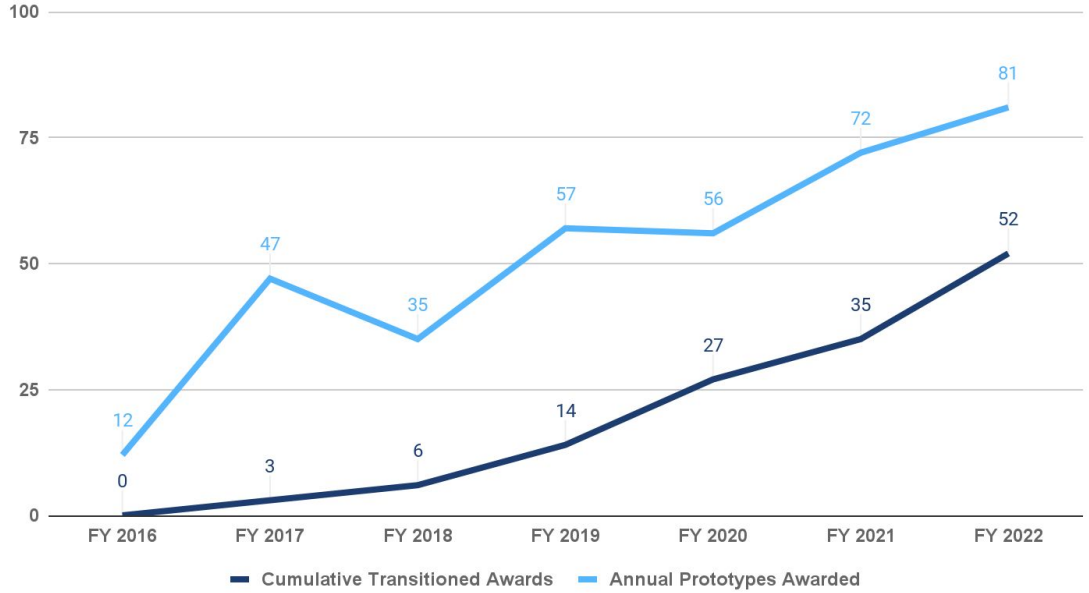
18 STATES WITH DIU PROPOSALS ONLY

1 STATE WITHOUT DIU PROPOSAL

International Awards by Company Location

Data period: June 1, 2016 - September 30, 2022. Does not include U.S. Territories.

ADOPTING COMMERCIAL TECHNOLOGY = TRANSITIONS



52 transitions (47% transition rate) since FY16

Transitions Deliver Capability to the Warfighters:

1. Prototype successfully completed, **and**
2. Results in a production or service contract with DoD or U.S. Government, **and**
3. Budget in place to field a solution in an operational environment supporting warfighters.

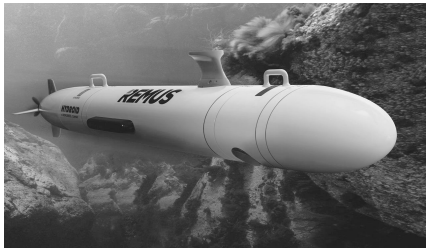
Data period: June 1, 2016 - September 30, 2022

For a full list, https://www.diu.mil/solutions/portfolio/catalog

EXAMPLES OF DIU PROVEN CAPABILITIES AVAILABLE TODAY

Small Drones

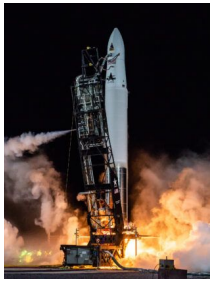
Critical Supply Delivery



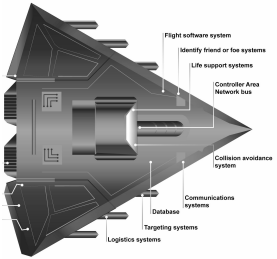
Unmanned Underwater Vehicles

Illness Diagnostic

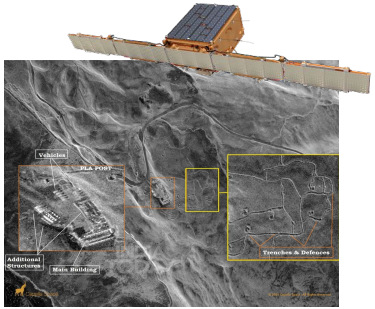
Unmanned Maritime Surface Vessel



Launch as a Service



Automated Cyber Vulnerability Remediation

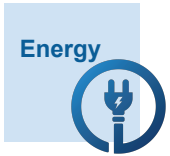
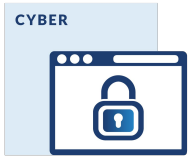
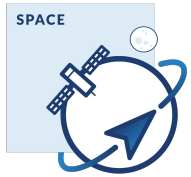


Commercial Satellite Imagery

C-UAS

Key Technologies of Interest (as of 2023 Q2)

Exploring the Potential of Commercial Sector Solutions

	• Foundation Models • Generative AI • Modeling & Simulation • Training and Inference Hardware • Operational Decision Support		• Advanced Batteries • Vehicle electrification • Grid-Scale Energy Generation • Environmental Remediation • Waste to energy
	• Small drone swarming technology • Unmanned Maritime Surface Vehicles for ISR • Autonomous Navigation Software for Ground Vehicles • Counter Unmanned Aerial Systems • Logistics and Advanced Manufacturing • 3D Interior Navigation and Mapping • Fast Mesh Communications		• Bioeconomy resilience • Biodefense threat detection, prevention & countermeasures • Human-centered tactical solutions • Training (AR/VR) • Human performance
	• Software Asset Management • Automated Security Validation • Distributed, trustless data and execution model • Post-Quantum Cryptography		• Digital infrastructure in space • In-space logistics and modularity • Hypersonics • Persistent remote sensing • Commercial delivery beyond LEO

WORK WITH US

www.diu.mil

OPEN SOLICITATIONS

diu.mil/work-with-us/open-solicitations

SIGN UP FOR UPDATES

https://www.diu.mil/newsletter-sign-up

FOLLOW US

FAR-BASED PROTOTYPING OR DIU

Buy what you can, build what you must

PURE COMMERCIAL TECHNOLOGY	MILITARY ADAPTED COMMERCIAL TECHNOLOGY	MILITARY UNIQUE SYSTEMS: VIABLE COMPETITION	MILITARY UNIQUE SYSTEMS: CONSTRAINED COMPETITION
• Purchased directly off the shelf from commercial supplier	• Leverages emerging commercial technologies • Developed and deployed on a rapid and routine basis	• Built to specific military needs • Higher production quantities • Constrained competition	• Low production quantities • High barriers to entry • Significant capital intensity requirements
Supplier: Commercial Businesses	**Supplier:** Commercial Businesses & Defense Specialists	**Supplier:** Defense Specialists	**Supplier:** Defense Specialists

Commercial-off-the-shelf technology

Tailored versions of what others buy

Things only militaries buy

GSA — **DIU** — **FAR-BASED**

Chart adapted from: "Future Foundry: A New Strategic Approach to Military-Technical Advantage," Center for a New American Security (December 2016)

OTHER TRANSACTION (OT) AGREEMENTS & DIU

OT authority history:

- Began with NASA Space Act in 1958
- DARPA received Research OT authority in FY 1990 & Prototype OT authority in FY 1994
- **Authority expands across DoD in FY 1997 and permanently codified under 10 USC §2371 in FY 2015**
- **Renumbered to 10 USC §4022 in 2022**

DIU primarily awards two types of OT agreements:

- **Prototype OTs (10 U.S.C. §4022)** - directly relevant to enhancing mission effectiveness of personnel, supporting platform, systems, components, or materials to be acquired by DoD or improvements thereto
- **Production OTs (10 U.S.C. §4022(f))** - noncompetitive follow-on to a Prototype OT agreement that was competitively awarded and successfully completed

Prototype OT basics:

- **Competitive procedures** must be used to the maximum extent practicable
- Significant **nontraditional** and/or **small business** participation (or ⅓ of cost must be paid by parties other than the Government)
- Completed, successful prototypes may result in the award of noncompetitive, **follow-on Production OT** agreements
- Prototype projects must be directly relevant to enhancing mission effectiveness of the military

To learn more, visit:
www.aaf.dau.edu/aaf/ot-guide