



DEFENSE ★ ★ ★ ★ ★
INNOVATION UNIT
CELEBRATING 5 YEARS



DIU & USCG Overview

3 August 2021

CDR Mike Nordhausen, USCG
DIU Liaison | Project Manager

DIU's MISSION

DIU is a fast-moving DoD organization that contracts with commercial companies to solve national security problems.

ACCELERATE

DoD adoption of commercial technology

TRANSFORM

Military capacity and capabilities

STRENGTHEN

The national security innovation base



WHY COMMERCIAL?

\$70.5B

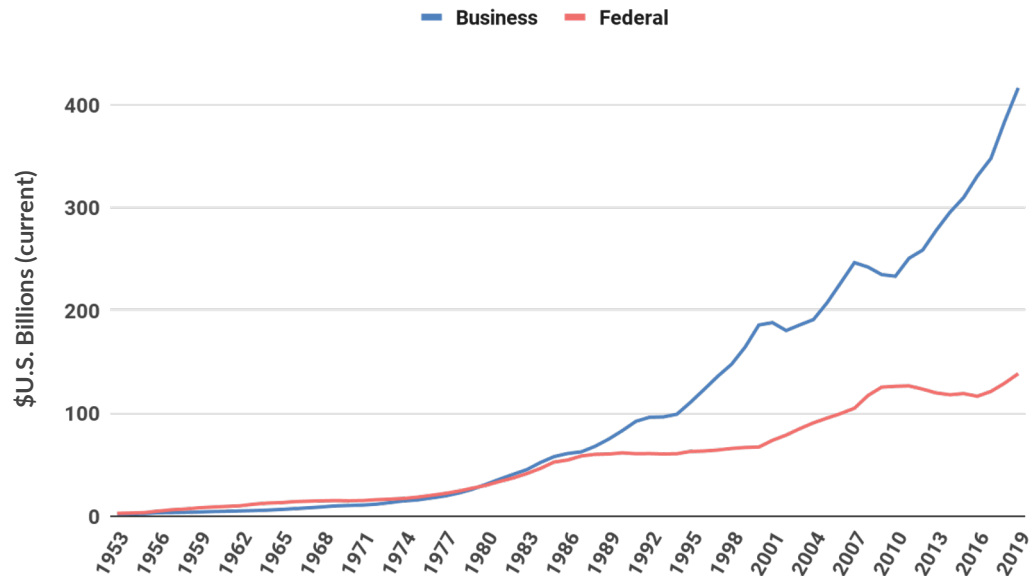
Top Tech Companies
Outspend
Primes 11x
in R&D

\$6.2B

Facebook
Alphabet
Microsoft
Amazon
Apple

Lockheed Martin
Raytheon
Northrop Grumman
General Dynamics
Boeing

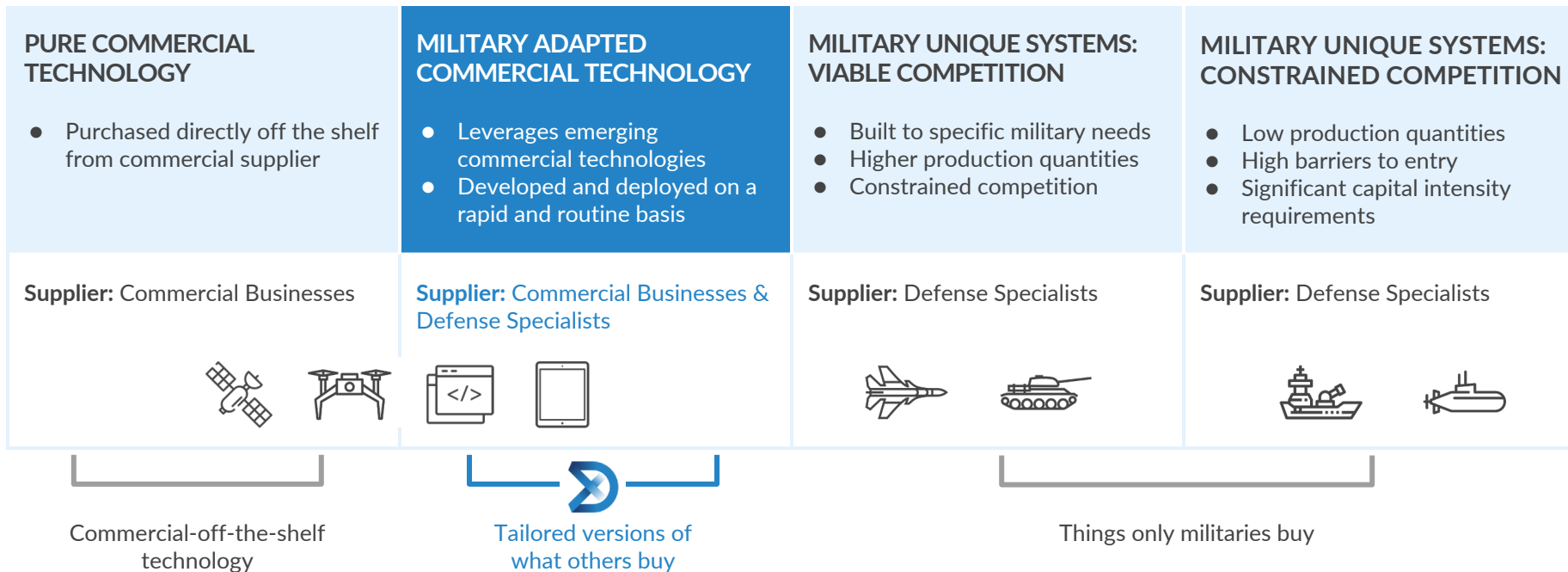
U.S. R&D Expenditures by Source: 1953 - 2019



Source: National Science Foundation, National Patterns of R&D Resources



WHY COMMERCIAL?



TECHNOLOGY FOCUS AREAS

Where the Commercial Sector is in the Lead



Advanced Energy
& Materials



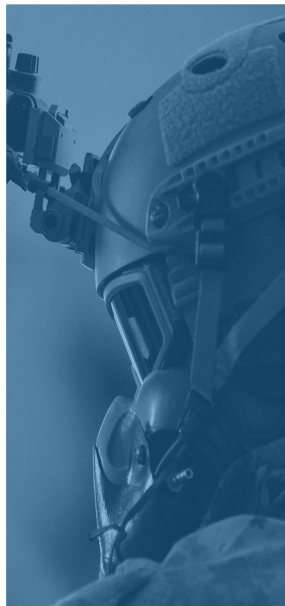
AI/ML



Autonomy



Cyber



Human Systems



Space



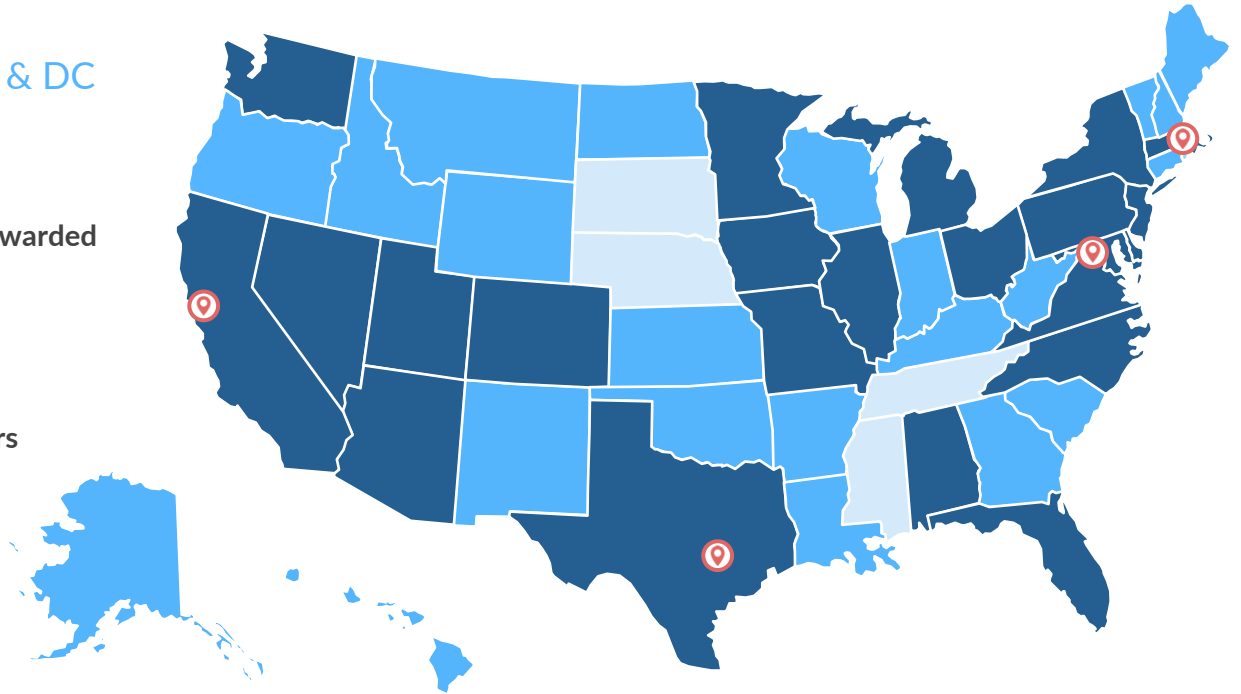
STRENGTHENING THE NATIONAL SECURITY INNOVATION BASE

2300+ companies in 46 states & DC
competed for DIU contracts

180+ companies in 24 states awarded
DIU contracts

- 65 to first-time DoD vendors
- 165 to non-traditional vendors

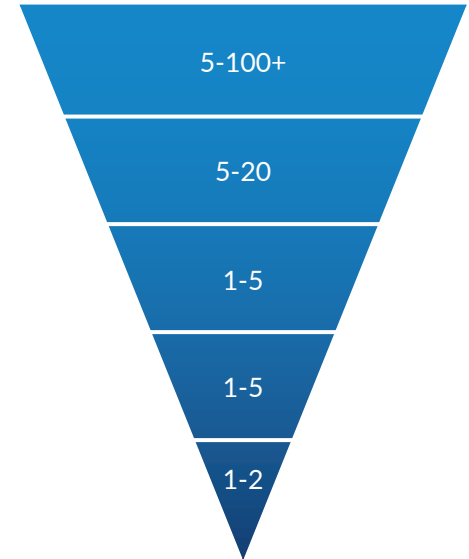
 DIU Locations



UNIQUE 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	
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 follow-on agreement to successful performers● Deliver and scale solution to transition partner/s and beyond	

Approximate Number of Vendors Participating



A blue-tinted photograph of a sailboat on the water. The sailboat has a tall, white mast with the word "SAILDRONE" written vertically on it. The hull is dark and has "SAILDRONE" written on the side. The boat is moving across the water, leaving a wake. In the background, a large suspension bridge is visible, spanning across the water. The sky is clear and blue.

USCG RESERVES



LT Felix Bustos
Reserve AI/ML SME




CAPT Kimberly Guedry
Joint Reserve Detachment



OS1 Mark Stevenson



PAC Michael Anderson
Strategic Communications

A blue-tinted photograph of a sailboat on the water with a suspension bridge in the background. The sailboat is white with a tall mast and is moving across the water, leaving a wake. The bridge is a large suspension bridge with multiple towers and cables. The text "USCG OTHER TRANSACTION AUTHORITY" is overlaid in white, bold, sans-serif font in the center of the image.

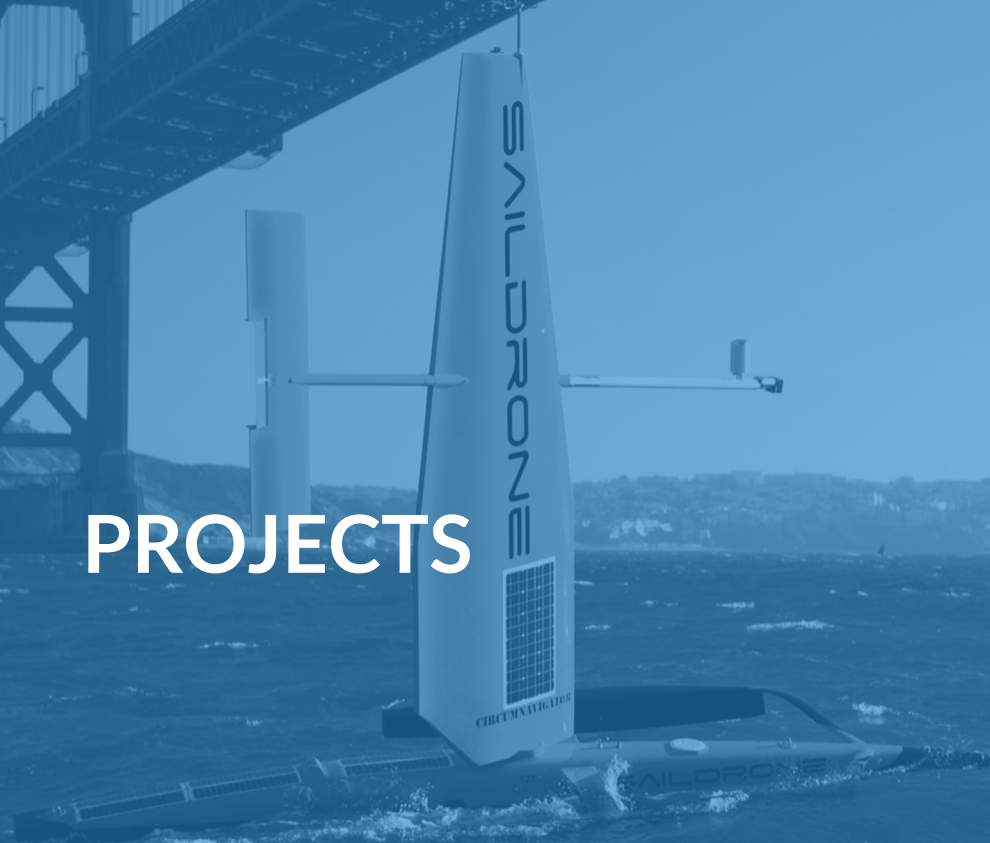
USCG OTHER TRANSACTION AUTHORITY

Coast Guard Authorization Act 2021

SEC 8218

(a) The Commandant may enter into (other transactions) ... agreements with ... the Secretary of a military department, or any other official designated by SecDef under **section 2371b** of title 10 to participate in **prototype and follow on production** ... directly relevant to the USCG's **cyber capability and C4I initiatives**.

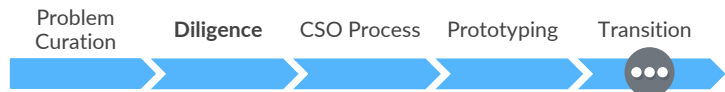
PROJECTS



AI FOR PREDICTIVE MAINTENANCE

Improving Mission Readiness

Problem: Distributed global logistics operations, legacy systems with maintenance challenges, and the volume of performance data are cross-DoD challenges that can be solved through the use of industry-leading Artificial Intelligence.



Solution

- Integrate all relevant data: sorties, operator comments, maintenance logs, oil samples, etc.

Impact

- Applying AI anticipates potential equipment failures, ensuring available supply, and optimizes maintenance schedules.
- Projecting 3-6% mission capability improvement and up to 40% unscheduled maintenance reduction



DoD/USG Customers

- USAF (U-2, F-16) (F-35 PO)
- Undersecretary of the Army
- Army Aviation PMO
- NAVSEA 05
- Bradley PMO
- USMC
- NEXLOG



Commercial Vendors

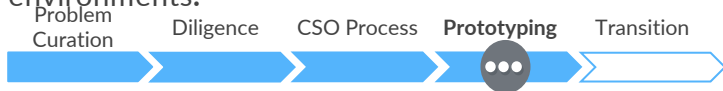
- C3.ai
- Uptake



HUNT FORWARD

Enable Hunt Missions in Contested Environments

Problem: The DoD lacks a secure cyber incident response and threat hunting platform to securely analyze malicious cyber activities in unprotected and uncontrolled environments.



Solution

- A portable threat hunting platform that includes hardware and software designed to find, report on, and eliminate adversary activities on non-US infrastructure.
- Relays information back to Government networks for aggregation, analysis, and threat reporting on non-IT systems.

Impact

- Find malicious cyber activities and actors that pose a threat to the DoD's information networks and weapon systems.



DoD Partners

- USCYBERCOM
- CNMF
- Service Cyber Components



Commercial Vendors

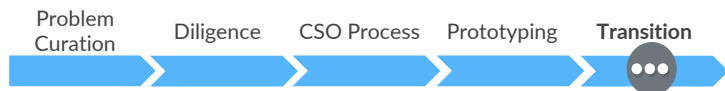
- Sealing Technologies
- JFL Consulting



SECURE CLOUD MANAGEMENT

Fast, Secure, Controlled Access to Cloud Apps via Internet

Problem: The DoD's cloud access architecture impacts DIU's ability to efficiently collaborate with the technology community using cloud services.

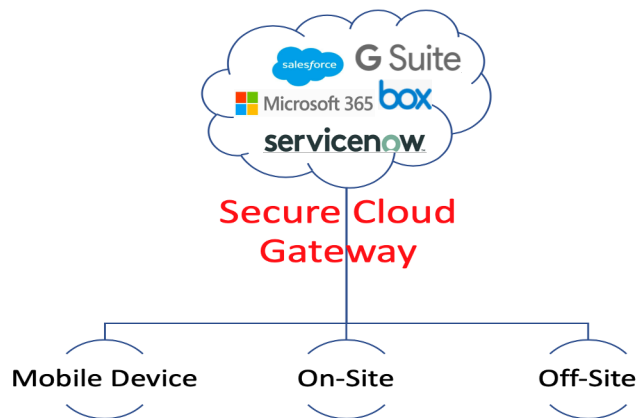


Solution

- An off-the-shelf multi-cloud security gateway that:
 - Controls access to cloud apps using ZT principles.
 - Supports secure cloud access through government and personal endpoints globally.
 - Adds minimal latency for videoconferencing.
 - Seamlessly integrates into multi-cloud services.
 - IL2 authorized; path to IL4/IL5 authorization.
 - Is authorized as an alternative to DoD's cloud access technology.

Impact

- Fast, secure, controlled access to commercial cloud services, enhancing DIU's ability to engage with non-traditional technology vendors.



DoD Partners

- DIU
- Army NETCOM



Commercial Vendors

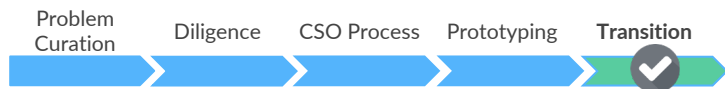
- Google (+Palo Alto Networks)
- Zscaler
- McAfee



CYBERSPACE DECEPTION

Use Endpoint Realism to Thwart Adversary Activities

Problem: Cyber operators lack the technological platform and capabilities to withstand and gather intelligence from an ongoing cyber attack.

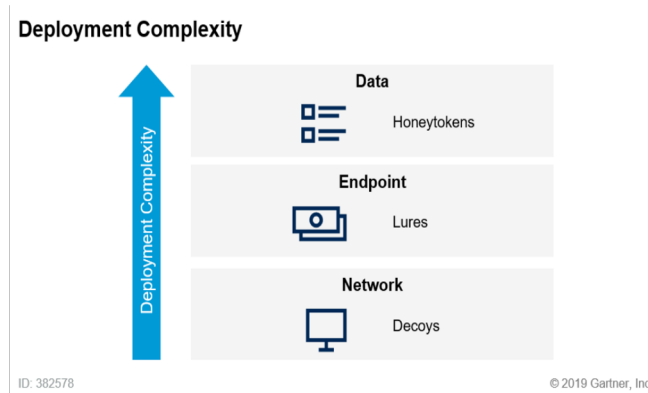


Solution

- A series of decoys that can rapidly generate virtual resources, servers, endpoints, and artifacts to deceive, disorient, and disrupt malicious cyber activities.
- Provides a comprehensive collection capability that enables the strategy of defending forward.

Impact

- **CounterCraft** awarded a GSA Contract June 2021.
- Provides a risk-tolerant network to observe adversary behaviour as it is happening.
- Empowers USCYBERCOM strategy of persistent engagement and presence in cyberspace.



DoD Partners

- AFCYBER
- CNMF
- CIA



Commercial Vendors

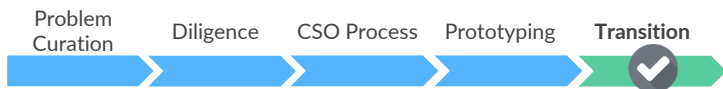
- CounterCraft (Transitioned)
- Attivo



MOBILE ENDPOINT SECURITY

Protect Mobile Users and Endpoints from Cyber Attacks

Problem: Mobile endpoint security is needed to protect against threats, vulnerabilities, and intrusions on mobile devices.



Solution

- Combine a global sensor network with machine learning to predict and identify complex patterns that indicate risk overlooked by human analysts.
- Autonomous on-device threat detection and remediation for mobile devices.

Impact

- Reduces adversaries' ability to successfully attack mobile devices.
- Zimperium transitioned to a production contract to protect up to 205,000 Government furnished devices. Award has a 5-year, \$16.68 M ceiling.



DoD Partners

- DISA



Commercial Vendors

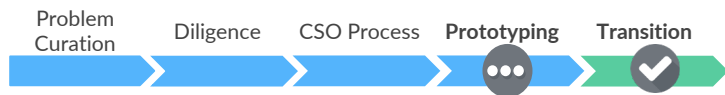
- Zimperium (Transitioned)
- PCMG/Lookout (Complete)



AUTOMATED VULNERABILITY DETECTION AND REMEDIATION (VOLTRON)

Leverage Ai To Detect System Vulnerabilities

Problem: Current methods of finding unknown software vulnerabilities in current weapon systems do not scale, a \$1.795 Trillion problem. (Source: GAO-19-128: GAO-20-439)

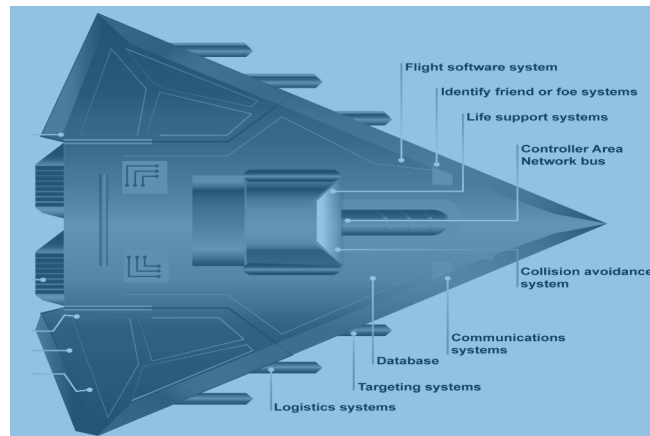


Solution

- Automate software vulnerability detection in weapons systems and other critical software.

Impact

- **ForAllSecure** transitioned to a production contract with \$45M ceiling to enable access across DoD. **Grammatech** is wrapping up prototype.
- Integration into agile software development pipelines finds vulnerabilities in software before it is pushed out into production systems.
- Tools provide zero false positive detection of previously unknown vulnerabilities, maximizing the efficiency of human experts.



DoD Partners

- USCYBERCOM
- TRMC
- NAVAIR, NAVSEA
- 96 CTG, 90 COS
- MDA
- CCDC C5ISR
- ARCYBER CTD



Commercial Vendors

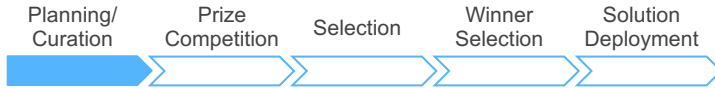
- ForAllSecure (Transitioned)
- Grammatech (Transitioning)
- Trail of Bits (Complete)
- Kudu Dynamics (Complete)



xView 3

Computer Vision for IUU Fishing Detection

Problem/Need Statement: IUU fishing is a major threat to human food supply, marine ecosystem health, and geopolitical stability. Rapid detection of IUU fishing facilitates interdiction/prosecution, mitigating damage.



Solution

- Host an international prize competition to develop machine learning algorithms that automate IUU fishing detection using data from persistent space-based Synthetic Aperture Radar (SAR) alongside other modalities.

Impact

- Optimize deployment of US and partner country assets to combat IUU fishing.
- Promote rules based maritime governance.
- Increase rate of IUU fishing detection and information sharing.



Partners

- USG: USCG, NOAA, NIWC, NMIO, DoS, SOUTHCOM, INDOPACOM,
- Nonprofit: Global Fishing Watch

Prize Challenge Details

- Open Source/Commercially Available Data
- Government Purpose Rights
- Evaluation Only Competition
- Award IAW 10 U.S.C. § 2374a





STAY UP TO DATE

www.diu.mil

USCG@diu.mil

