

# Forging the Future: Strategic Innovation Pathways for National Defense

### **Speakers:**

- Lieutenant Colonel Ian Clowes, Program Manager, AFWERX
- Nicole Fox, S&T Portfolio Manager, Contested Logistics & Sustainment, CATALYST Team Lead, Army Applied SBIR|STTR Program, Office of the Deputy Assistant Secretary of the Army, Research and Technology, Assistant Secretary of the Army for Acquisition, Logistics, and Technology
- James "JJ" Barry, Assistant Chief of the Mineral Commodity Section, US Geological Survey National Mineral Information Center (NMIC)
- Programs, Applied Research Institute



# VEAX

Overview

### VEMESX & SDVCEMESX

### **MISSION**

AFWERX accelerates agile and affordable capability transitions by teaming leaders in innovative technology with Airman and Guardian talent.

### **VISION**

Forge an innovation ecosystem that delivers disruptive Air & Space capabilities.

### **MANTRA**

Unleashing American Ingenuity



## **UNLEASHING AMERICAN INGENUITY**

Historical Innovation



## **AFWERX SUCCESS STORY**

## **AR/VR Training Tools**Specular Theory

### **Technology**

Specular Theory has developed immersive AR/VR training tools that extend and enhance the availability of training for C-17, KC-46, C-130, KC-135, B-52, T-1, T-1AMP and T-6 aircrews.

We have recently cut 1 sortie from 3 different syllabi which will save the government \$13.42M a year. ??

- Col Patrick Schuldt

Chief, MAF/SOF/PR Graduate Training Division, 19th Air Force

### **Operational Impact**

Specular Theory's flagship products, MAT and EARL, enable aircrews to train outside of the sim and aircraft, not only reducing time and costs but producing higher quality graduates.

### **Fielding**

Currently supporting mobility and bomber aircrew training at the FTUs and Wings across the USAF. Interest in expanding training to more aircraft.

### **Funding Organizations**

AMC, AFLCMC/WNS, AFGSC, AETC

### **TOTAL FUNDING**

\$1.5M SBIR I \$12.5M Phase III Gov't Funding



## **AFWERX SUCCESS STORY**

## Hyperspectral Imagery Orbital Sidekick LLC

### **Technology**

Orbital Sidekick (OSK) provides a low-cost, high-fidelity monitoring capability to defense and intelligence, as well as to energy infrastructure, with a major focus on the \$10 Billion pipeline monitoring market.

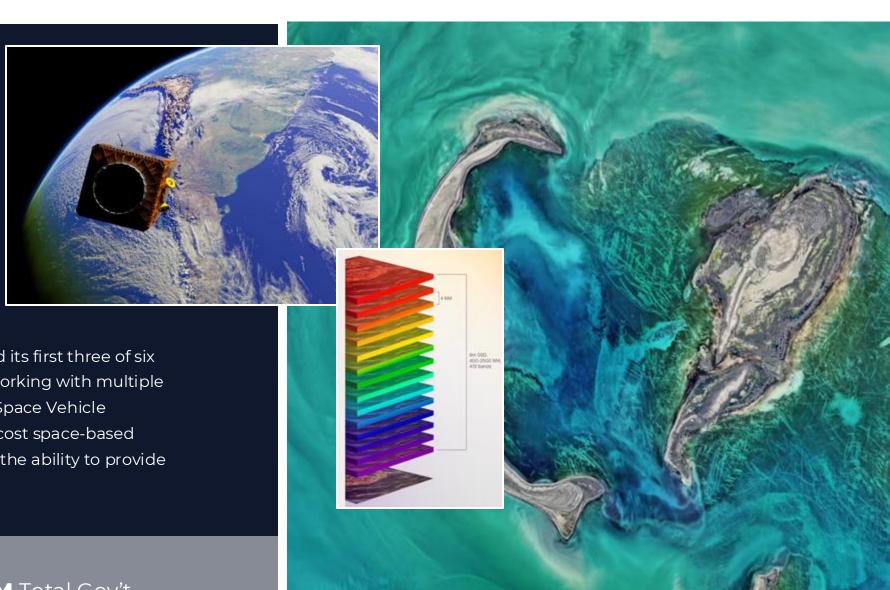
### **Operational Impact**

As of June 2023, OSK successfully launched its first three of six GHOSt(™) constellation satellites. OSK is working with multiple commercial partners, including the AFRL Space Vehicle Directorate, towards implementing a low-cost space-based hyperspectral imaging infrastructure with the ability to provide frequent revisit rates across the planet.

### **TOTAL FUNDING**

2 Contracts Funding

**\$16.82M** Total Gov't



Distribution A. Approved for public release;

distribution unlimited. AFRL-2023-4555

Λ F W ∃ R X

## **AFWERX SUCCESS STORY**

## **Viper Hot Refuel Kit** 2021 Spark Tank Finalist

### **Technology**

SPARK TANK 2021 Top 5 Finalist, VIPER Hot Refuel Kit, is a rapid refueling sled (kit) enabling "hot pit refueling," or faster aircraft refueling with one engine left on while the crew stays onboard. Two Airmen invented VIPER by configuring all existing AFapproved parts for a universal adapter that replaces the need to send fuel trucks to austere locations.

When you are working on solving a problem, keep asking "Why can't we do this?" No one could tell us why not. ??

- Master Sgt Jason Yunker

52nd Logistics Readiness Squadron

### **Operational Impact**

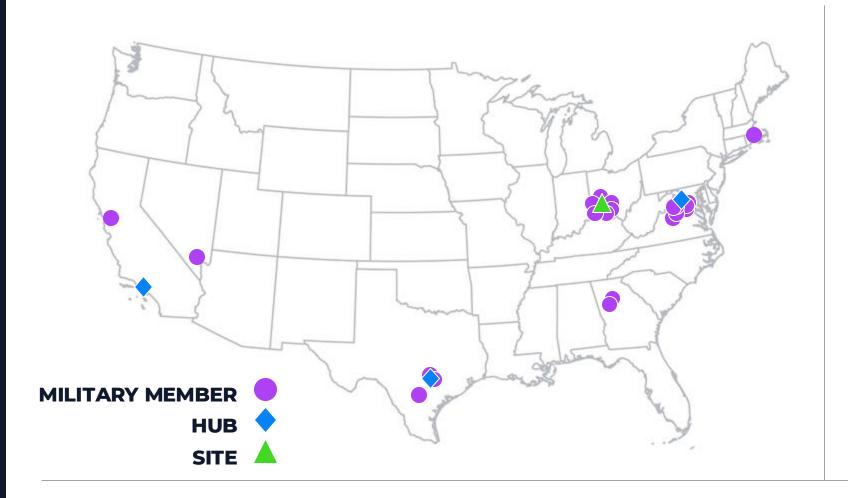
VIPER Hot Refuel Kit supports agile combat deployment.
As of July 2023, 60 kits have been deployed and this USAFE-AFAFRICA effort has saved \$142M in cargo shipping costs.

### **TOTAL FUNDING**

**\$1.2M** in Air Force funding



## **AFWERX: WHERE WE ARE**







Dayton, OH



Los Angeles, CA HUB

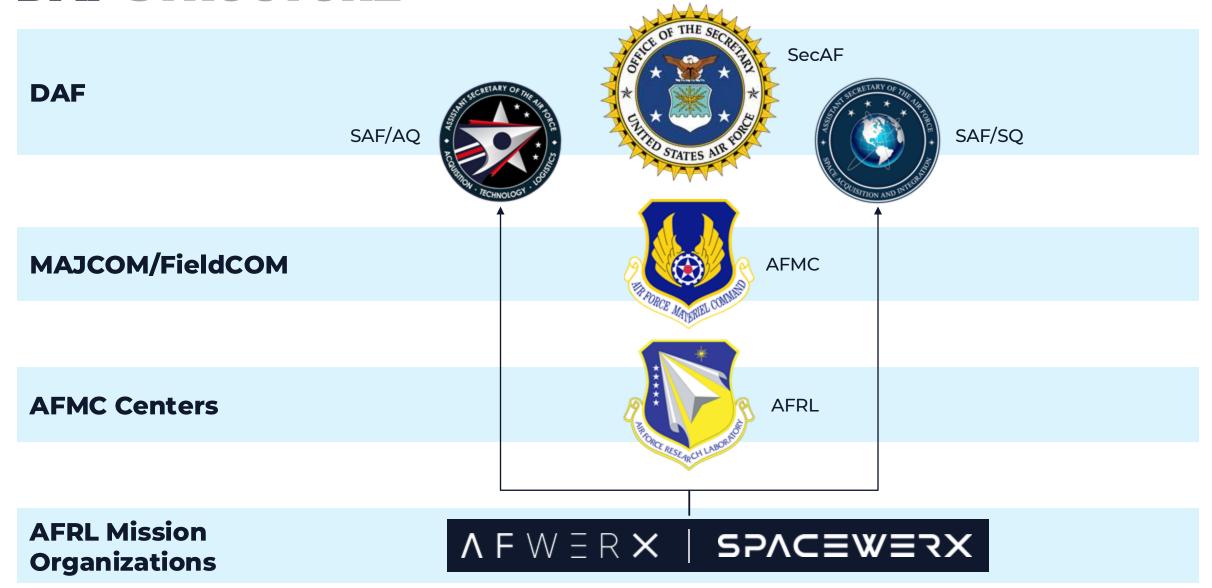


**Washington DC** HUB



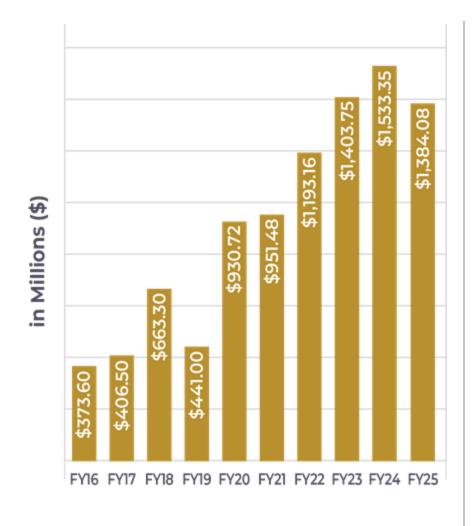
Geographically dispersed military members

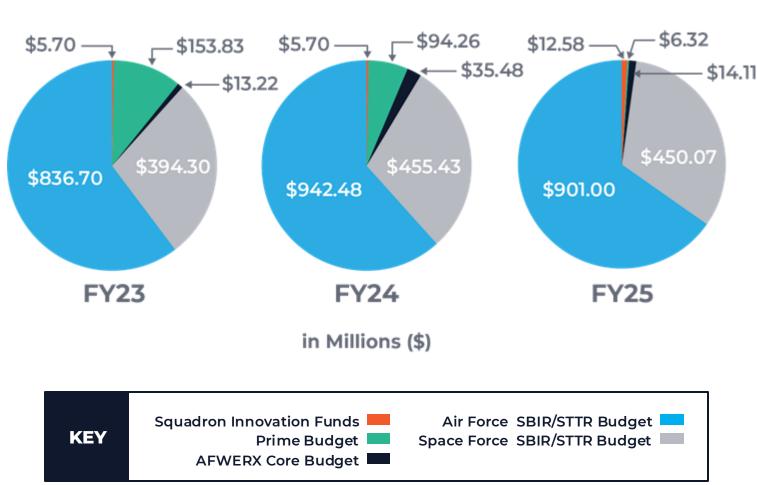
## **DAF STRUCTURE**



## **FUNDING THE FUTURE**

### **AFWERX Funding Profile**





### Russia's Anti-Satellite Weapons: An Asymmetric Response to U.S. Aerospace Superiority

THE WARZONE China's Big New Twin-Jet Lo Endurance Armed Combat D **Emerges** 

ARMS CONTROL TODAY



China's 'Carrier-Killer' & Russia's 'Super-Weapon' - W Sarmat & YJ-21 Missiles Are Creating Ripples In The

INDEPENDENT

China tests army of tiny drone ships that can 'shark swarm' enemies during sea battles



EDITORS' PICK | Jun 18, 2021, 06:15am EDT | 1382 views Chinese AI Learns To Beat Top Fighter Pilot Simulated Combat

M politics The Biden Presidency Facts First

Top military leader says China's hypersonic missile test 'went

around the world'

China Acquiring New Wear Five Times Faster Than U **Warns Top Official** 

China's Moon Base to Rival NASA Advances After Russia Deal



Geopolitical Monitor

ATTACK OF THE DRONES US is 'not ready' for a drone war with China as Washington has been 'preoccupied' with ISIS terror threat, expert warns

Backgrounder: China's Military Modernization Com Age

WIRED

Russian Missiles and Space Debris Could Threaten Satellites

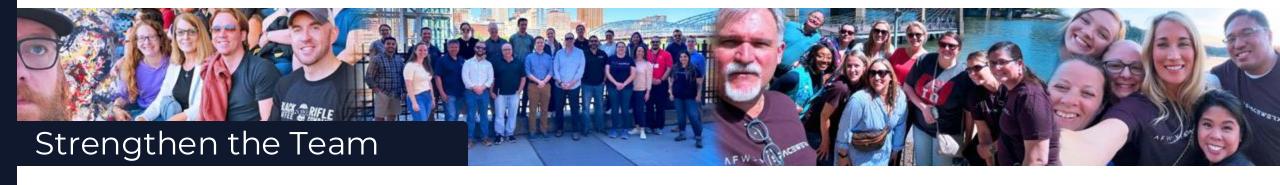
As the war in Ukraine continues, the growing debris in low Earth orbit is a matter of national security.



## STRATEGIC **MILITARY AND TECHNOLOGICAL** COMPETITION

Competitors, adversaries rapidly moving to challenge and surpass the U.S. Air and Space advantage

## **DIRECTOR'S PRIORITIES**

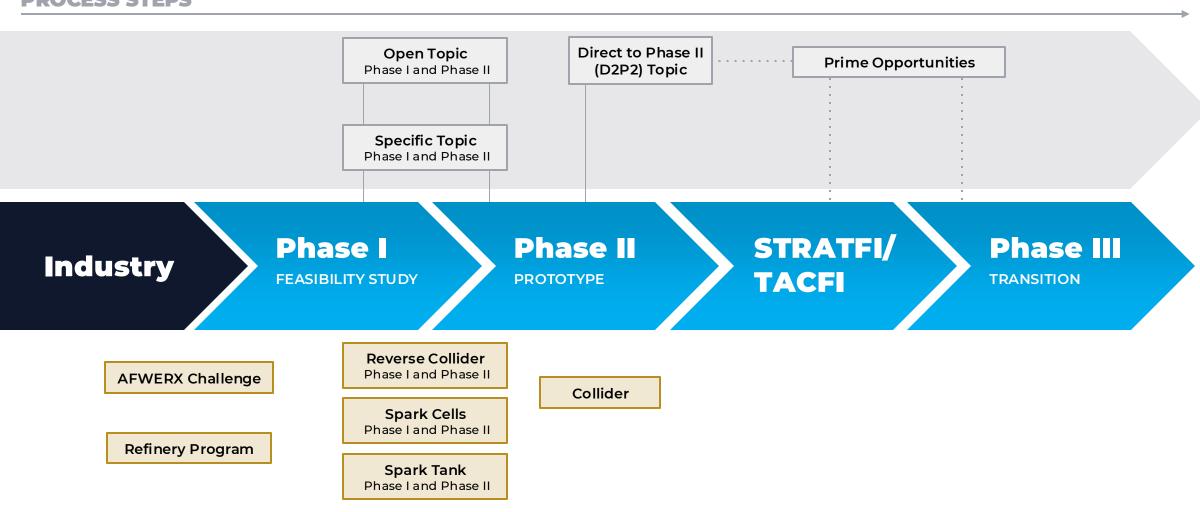






## THE AFWERX / SPACEWERX PROCESS

**PROCESS STEPS** 



**AIRMEN AND GUARDIAN INNOVATIONS** 

## **SPARK CONNECTIONS**

CONNECT **Empowering Innovators, Accelerating Results** Build, empower and mobilize innovation **Global Spark Network** networks **DEVELOP** Develop DAF innovators through curriculum and AFSOC experience USSF 7 AFCENT ANG AETC USAFE V AFGSC V AMC V ACC **SUPPORT** ▼ AFMC **V**PACAF Support DAF innovators through facilitation and advocacy

## **VENTURES OPPORTUNITIES**



## PHASE I Feasibility Study

Open & Specific Topics

#### **OPEN TOPIC**

- Up to \$75K per award (\$110K for STTR)
- 3 month period of performance
- ~700 awards per year
- "Open door for innovation"

#### SPECIFIC TOPIC

- Up to \$180K per award
- 6 month period of performance
- ~300 awards per year
- · Built in Air Force Customer

2

### **PHASE II**

**Prototype** 

Open, Specific & Direct to Phase II (D2P2) Topics

#### **OPEN TOPIC**

- Up to \$1.25M per award (\$1.8M for STTR)
- Up to 21 month period of performance
- ~300 awards per year
- Customer Memorandum required
- Matched funding encouraged
- D2P2 opportunity if customer is already known and Customer Memorandum is signed

#### **SPECIFIC TOPIC**

- Up to \$1.8M per initial award
- Up to 24 month period of performance
- ~200 awards per year
- Built in Air Force Customer
- D2P2 opportunities

\*Cost base max and period of performance are determined at the topic level and can be found within the solicitation instructions.



### STRATFI/TACFI

Strategic Funding Increase (STRATFI) and Tactical Funding Increase (TACFI) Program

- Notice of Opportunity
- TACFI \$375K \$2M SBIR/STTR funds
- STRATFI \$3M \$15M SBIR/STTR funds
- Defense only or dual use matching options
- Private Investor Opportunities



- Continuation, derivation, or extension of SBIR/STTR Phase I, II or STRATFI/TACFI work
- Contract with partnering US Government customer
- Utilizes non-SBIR funds

## STRATEGIC PARTNERING DIRECTORATE

Collaborative R&D

**Technology Licensing** 

**Educational Partnerships** 

Regional Hub Network

K-12 STEM

**S&T Front Door** 

Internships, Faculty Sharing

## TOGETHER, WE WIN.



afresearchlab.com

### AFWERX / SPACEWERX

Small Business Funding

**Venture Matching** 

**Rapid Acquisitions** 

**Challenge Workshops** 

**Priming Emerging Markets** 

**End-User Collider Events** 

Innovation Inject, S&T to Operations

## PARTNER WITH US

## 1 A F W E R X SPACEWERX

**CONNECT WITH US** 



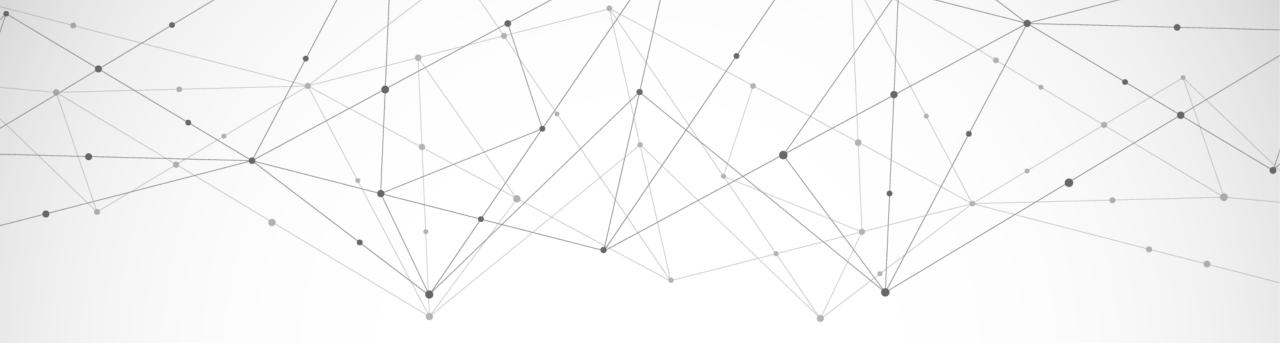




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- Karen Krause-Bencal, Vice President, Federal Programs, Applied Research Institute



### The U.S. Army xTech and SBIR | STTR programs empower innovators to partner with the Army.

### Nicole Fox

Contested Logistics & Sustainment Portfolio Lead and Army SBIR CATALYST Lead







## The xTech and Army SBIR STTR programs offer two approaches to lower barriers for innovative companies to work with the Army.



### Target Participants (varies by competition)

- Entrepreneurs, innovators, and businesses
- > Academic institutions
- ▶ Investors



Serves as a friendly front door for innovators



Awards cash prizes



Explores innovative S&T ideas



Provides stakeholder feedback, education, and networking



### **Target Participants**

- □ U.S. based small businesses
- ▶ Nontraditional businesses



Solicits emerging needs from Army partners



Awards contracts through the Army SBIR|STTR Contracting Center of Excellence



Funds research, prototyping, and testing



Supports technology transition



## Army SBIR CATALYST drives transition of technology prototypes through increased funding and collaboration.

### **Incentivizes relationships**

between small businesses, Army transition partners, and technology integrators to catalyze transition potential.

Army SBIR CATALYST awards have a potential total value of \$15 million or more





## Focus on these technology ecosystems maximizes the likelihood of successful transition and integration with Army programs.



## Artificial Intelligence/ Machine Learning

- Automated Detection
- Biometrics
- Synthetic Data
- ► Training Algorithm



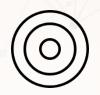
### **Energy Resiliency**

- Adv. Energy Generation
- Energy Storage
- ► Micro-grid
- ► Transp. Power Systems
- ► Efficient Industry Tech.



## Immersive & Wearables

- ► AR/VR/MR Solutions
- Physiological Monitoring
- Protective Equipment
- Human Machine Interface



### Sensors

- Detection
- Sensing
- Signal Processing Algorithms
- Onboard Processing Hardware



## Contested Logistics & Sustainment

- ► Tactical Communications
- Sustainment Materials
- ► Field-Repair Technologies
- Advanced Manufacturing



## Stay up to date with program releases and developments.



- www.xtech.army.mil
- usarmy.xtech@army.mil
- in xTechPrograms
- **X** xTechProgram
- **A** xTech Programs

- www.armysbir.army.mil
- usarmy.sbirsttr@army.mil
- in Army SBIR STTR Program
- X Army\_SBIRSTTR
- Army SBIR STTR Program



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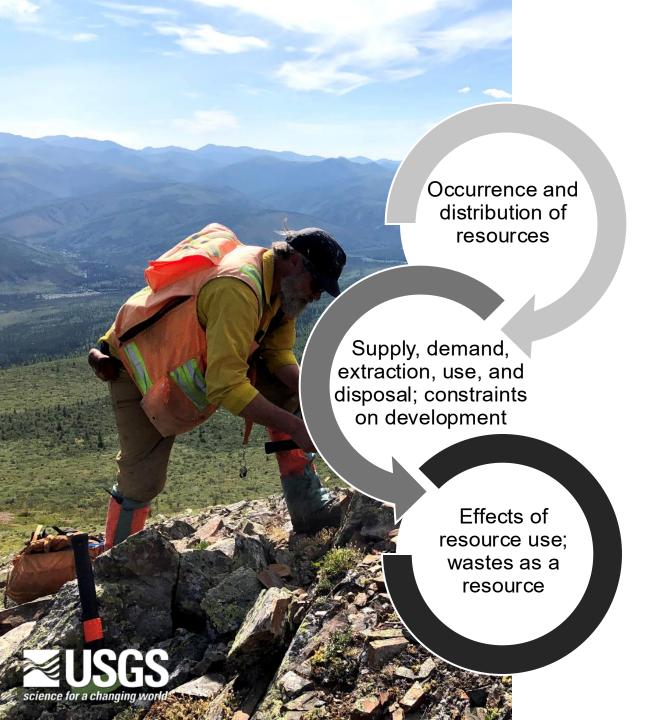
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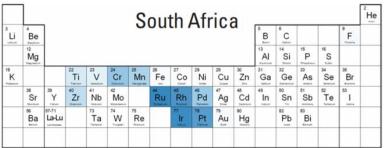
# U.S. Geological Survey Overview of Critical Mineral Supply Chains

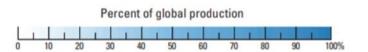
JJ Barry
Assistant Chief, USGS National Minerals Information Center



## USGS ENERGY AND MINERAL RESOURCES MISSION AREA

- Energy Resources Program
- Mineral Resources Program
- The Mission Area informs:
- Resource management decisions by both federal and state land managers.
- Billions of dollars in investments by the private sector and federal government.
- Through impartial science, supply chain analysis, and decision support.









## Mineral Intelligence and Supply Chain Analysis

- Analyze global supply, demand, and trade of mineral commodities.
- Forecast supply chain disruptions.
- Develop and update the Nation's critical minerals list.

### **Research and Assessments**

- Understand mineral systems and deposits.
- Understand impacts of mineral development.
- Quantify mineral resources across the resource life cycle and produce mineral resource assessments for Federal, State and international partners.

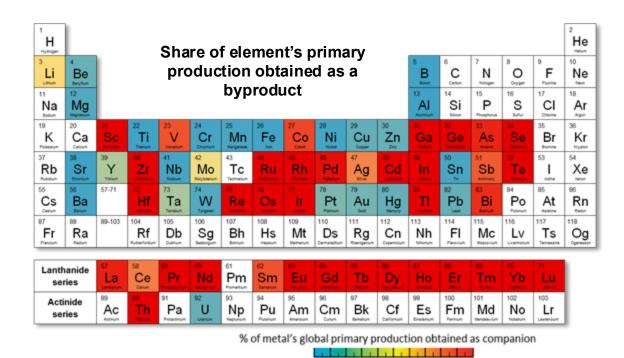
## **Earth Mapping Resources Initiative (Earth MRI)**

- Data collection, mapping, and synthesis for understanding the Nation's geologic framework and mineral resources, including
  - Mineral resources still in the ground.
  - Above-ground resources in mine wastes and other waste streams.



## MINE WASTE AS A RESOURCE

- Mine waste is an environmental and physical concern on legacy mine lands.
- Many critical minerals have been left behind in mine waste during past mining.
- At some mine sites both remediation and critical mineral recovery are possible.
- There is no comprehensive, nationwide inventory of these mine wastes.
- USGS and partners (Federal, State) mine waste-related efforts:
  - National mine site database (map to right)
  - National mine waste inventory
  - National mine waste resource assessments
  - Database of abandoned mines (for physical and environmental hazards) with DOI

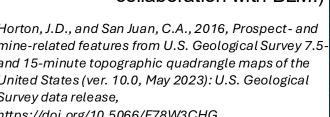


Nassar et al., 2015, By-product metals are technologically essential but have problematic supply, Science Advances 1 (3), e1400180

New USMIN geospatial database of current and historical mining locations. Yellow dots are mine features captured from historical USGS topographic maps. (In collaboration with BLM.)

Horton, J.D., and San Juan, C.A., 2016, Prospect- and mine-related features from U.S. Geological Survey 7.5and 15-minute topographic quadrangle maps of the United States (ver. 10.0, May 2023): U.S. Geological Survey data release,

https://doi.org/10.5066/F78W3CHG.





## 2023–2024 CRITICAL MINERAL ASSESSMENTS WITH AI SUPPORT

(CRITICALMAAS)

**SAM**\*GOV°

Critical Mineral Assessments with Al Support (CriticalMAAS)

Broad Agency Announcement: https://www.darpa.mil/program/critical-mineralassessments-with-ai-support

### <u>Goal</u>

To accelerate USGS mineral resource assessment workflows using Al/ML to automate parts of the process.

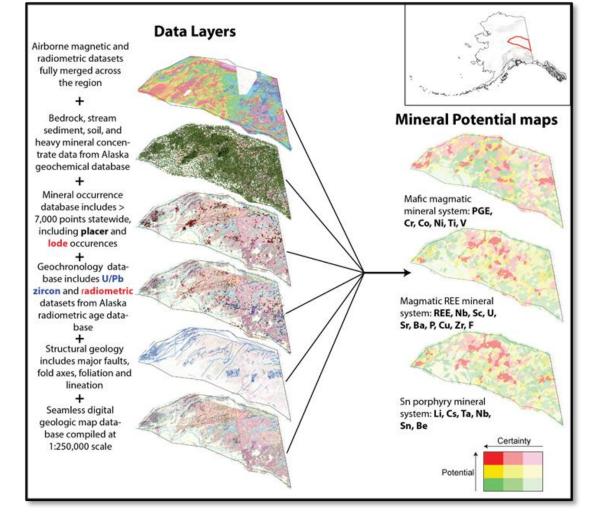
### Four Technical Areas (TAs)

TA1 – Extracting geospatial data from maps and documents.

TA2 – Model extraction from knowledge.

TA3 – Mineral potential mapping exploiting multi-modal fusion.

TA4 – Human-in-the-loop learning (HITL) and mixed-initiative modeling.





### CRITICALMAAS: EARLY OUTCOMES

Initial vision was to accelerate assessment workflows by a factor of 100 to 1,000

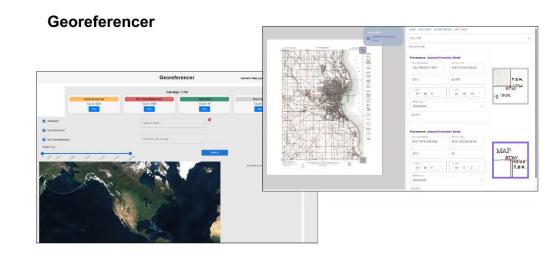
#### Outcomes so far:

- Reproduced qualitative elements of regional tungsten assessment (2-year project) and US portion of global copper assessment (overall 10year project) in ~1 week each.
- With these techniques, the USMIN geospatial database of current and historical mine features (right) which took USGS staff 10 years to digitize, could now be mostly automated in a fraction of the time.
- Broader application for automated digitizing and use of data from many types of legacy records beyond mineral assessments, or even geoscience.
  - The 2022 pilot project solved (most of) a problem that's existed since the dawn of GIS. The new Georeferencer app can be applied to many types of paper maps.



USMIN geospatial database of current and historical mining locations. Yellow dots are mine features captured from historical USGS topographic maps.

Horton, J.D., and San Juan, C.A., 2016, Prospect- and mine-related features from U.S. Geological Survey 7.5- and 15-minute topographic quadrangle maps of the United States (ver. 10.0, May 2023): USGS data release, https://doi.org/10.5066/F78W3CHG.



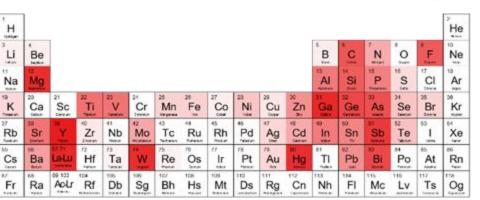
## Mineral Information

## Tracking Supply Chains and Identifying Critical Minerals: Supply, Demand & Trade Data

- The USGS collects the Nation's data on the global supply, demand, and trade of minerals.
- Analyze supply chain dependencies for current and emerging technology sectors including:
  - Defense
  - Advanced manufacturing
  - Consumer technologies
  - Renewable energy generation and storage
- Advise the State Dept., Dept. of Commerce, U.S. International Development Finance Corp., and U.S. Trade Representative on strategic investments and trade partnerships for mineral commodities, processing, and related manufacturing.
- Leads the interagency development of the Nation's list of critical minerals under the Energy Act of 2020.



## Share of each element's global production from China





### Mineral Demand Drivers

**End-Use Sector Growth** 

Technology Innovation

Policy & Regulation

**Price Elasticity & Substitution** 

Geopolitical Strategy

Consumer Preferences & Market Trends

Global Economic Conditions

### Denser



Photo credit: Telsa, Inc.

### Lithium-ion batteries

Nickel-Manganese-Cobalt (NMC) and Nickel-Cobalt-Aluminum (NCA) lithium-ion batteries have high energy densities allowing for greater energy storage in smaller volumes and less mass

## Lighter



Photo credit: Airbus

### **Aluminum-lithium alloys**

Al-Li alloys are lighter and stronger than standard aluminum alloys thus providing better fuel efficiency and lower maintenance costs

### Hotter Superalloys

Single-crystal turbine blades utilizing cobalt, rhenium, chromium, tantalum, hafnium, ruthenium, and other elements improve design tolerances that increase thrust and enable higher operating temperatures



Master Sgt. Joh

R. Nimmo, Sr

## 2024 U.S. NET IMPORT RELIANCE

#### All minerals evaluated

- The U.S. was 100% reliant on imports for 15 minerals
  - 15 minerals in 2023
- Over 50% import reliant for 46 minerals
  - O 49 minerals in 2023

#### Critical minerals

- The U.S. was 100% import reliant for 12 critical minerals in 2024
  - 12 critical minerals in 2023\*
- Over 50% import reliant for an additional 28 critical minerals
  - 29 additional critical minerals in 2023\*

<sup>\*</sup>The 2022 list of critical minerals identified 50 critical minerals; the 2018 list identified 35. The primary reason for the increase was that the 2022 list identified individual rare earths and platinum group metals instead of grouping these commodities.

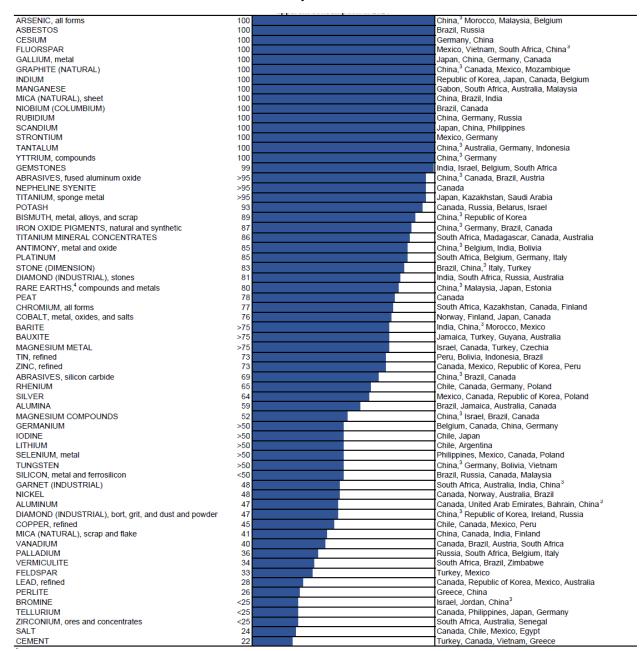


Figure 2 in MCS

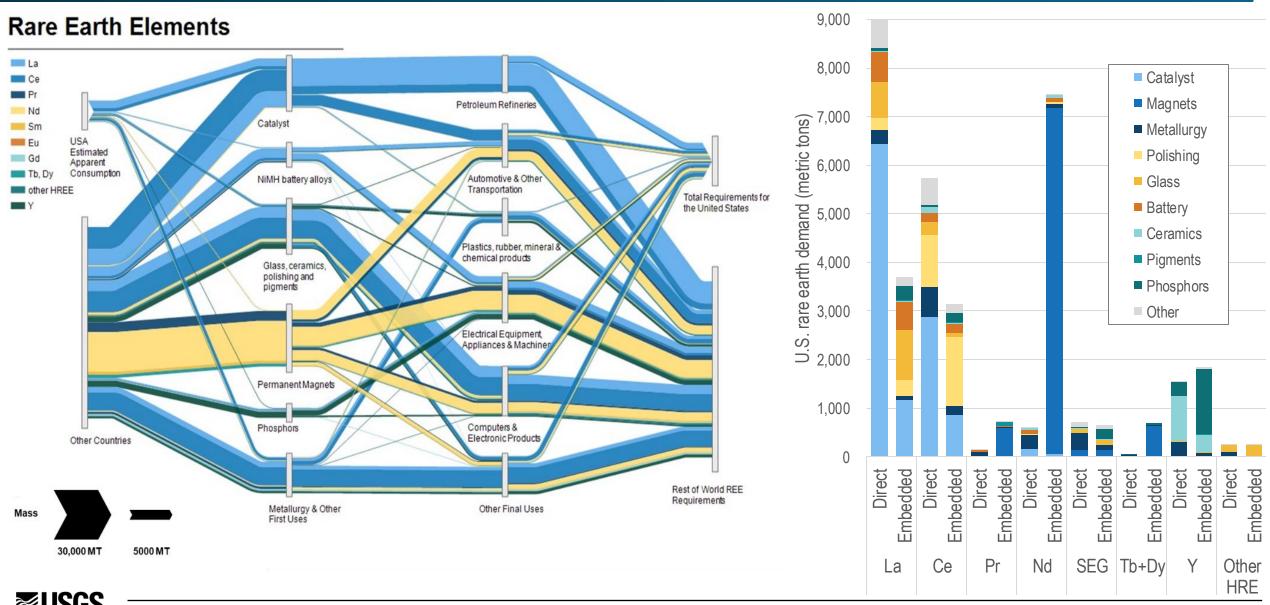
#### Commodity

#### Net import reliance as a percentage of apparent consumption in 2024

### Leading import sources (2020-2023)



## Quantifying the demand of mineral commodities embedded in finished and semi-finished goods provides a more comprehensive assessment of import reliance.



## Mineral Supply Drivers

Geological Availability

Capital Investment & Financing

Permitting & Regulatory Environment

**Processing & Refining Capacity** 

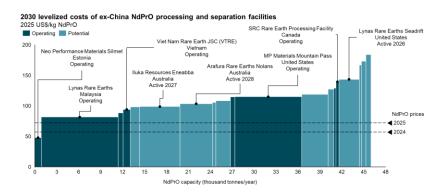
Workforce & Technical Expertise

Infrastructure & Logistics

Geopolitical Risk & Trade Policy

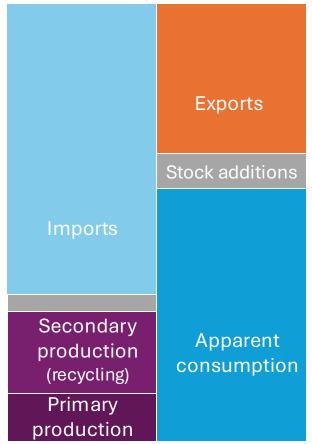
Recycling & Secondary Supply













# DARPA PARTNERSHIP: OPEN PRICE EXPLORATION FOR NATIONAL SECURITY (OPEN)

**OPEN goal:** Increase the transparency of price, supply, and demand predictions and forecasts in critical materials markets.

**Challenge:** Commodity purchases are negotiated using opaque and flawed pricing data from futures or spot transactions.

**USGS role:** Subject matter expertise/Deputy Program Manager for DARPA's effort.

**USGS interest:** We receive frequent inquiries from Congress, the Administration, and industry (manufacturing, healthcare, biomedical research, aerospace) about commodities for which supply risk and pricing shocks are intertwined factors in commodity availability.



# DLA STRATEGIC MATERIALS REQUIREMENTS REPORT



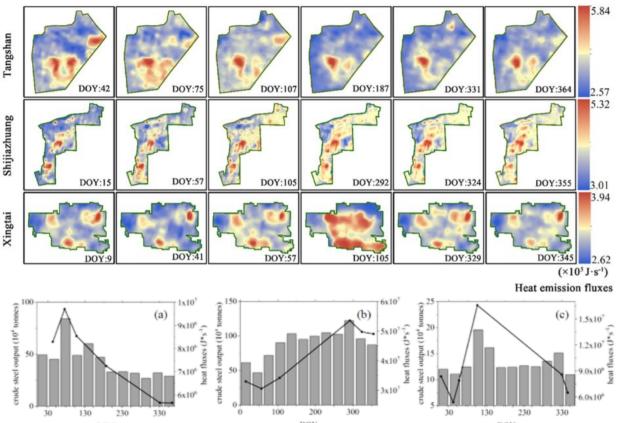
Туре	Domestic	International
Production (Mine and Refined)	X	X
Imports	X	
Exports	X	
Stocks	X	
Consumption	X	X
Prices	X	
Capacity	X	X
Capacity Status	X	X
Applications Areas	X	
Substitution	X	



# Remote sensing techniques can significantly enhance our understanding of mineral production.

#### Remote sensing techniques can be developed to provide:

- Early-warning system that detects near real-time stoppages at individual facilities.
- Insights on countries for which reliable data are not available (e.g., North Korea).
- Validation of production data obtained from traditional means.



#### Nanguo copper smelter Guangxi, China





DOI: 10.1021/acs.est.9b0264



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# CONNECT DISCOVER · COLLABORATE · CONTRIBUTE

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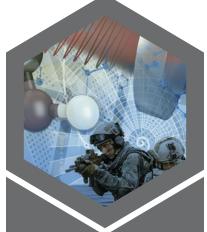


#### **DARPA Technical Offices**



#### Biological Technologies Office

- Warfighter
  - Tactical combat casualty care
  - Performance optimization
- Warfighting
  - Edge manufacturing
  - Create operational advantages
- Frontier technologies
  - Data factories
  - Simulation



#### Defense Sciences Office

- Materials, manufacturing, and structures
- Sensing, measuring, and affecting
- Math, computation, and processing
- Complex, dynamic, and intelligent systems



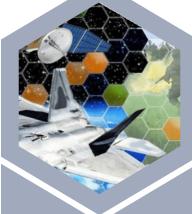
#### Information Innovation Office

- Transformative artificial intelligence
- Offensive and defensive cyber
- Fighting in the information domain
- Resilient, adaptable, and secure systems



#### Microsystems Technology Office

- Quantum, photonic, and organic circuits
- New microsystems manufacturing ecosystem
- Dual-use by design



#### Strategic Technology Office

- Advanced sensors and processing
- Battlefield effects
- Command, control, and communications
- Systems Warfare
- National Resilience
- Economic Warfare
- Protracted War
- National Mobilization



#### Tactical Technology Office

- Reimagination of hardware design, development, and test
- Rapid, affordable, and scalable manufacturing
- Decisive long-range effects
- Novel approaches that radically change the military advantage calculus



# Supporting Untapped Innovators: Breaking Down Barriers to Entry

# **The Connect Journey**

We transform potential into impact by guiding individuals through a comprehensive framework designed to foster a vibrant community of contributors.



## **Key Offerings**



- Full-Day Pop-Up Events
- Monthly Webinars and Trainings
- Support for Regional Partner Engagements
- Workshops and Conferences



#### **CURATED CURRICULUM**

- Continuously Expanding Topics
- Navigates DARPA's Unique Needs and Intricacies
- Filled with Succinct and Actionable Guidance and Best Practices



# COACHING AND SUPPORT

- One-on-One Office Hours and Coaching Sessions
- Tailored Recommendations and Action Planning



#### **ROBUST NETWORKING**

- Program Manager Engagement
- Outreach Guidance
- Teaming Opportunities
- Regional and Strategic Partnerships



# Regional Pop-Up Events



#### **Deep Dive into DARPA**

These full-day events cover a breadth of topics key to working with DARPA. Hear directly from a speaker list packed with DARPA PMs, leadership, and staff on hand to give you insider insights.

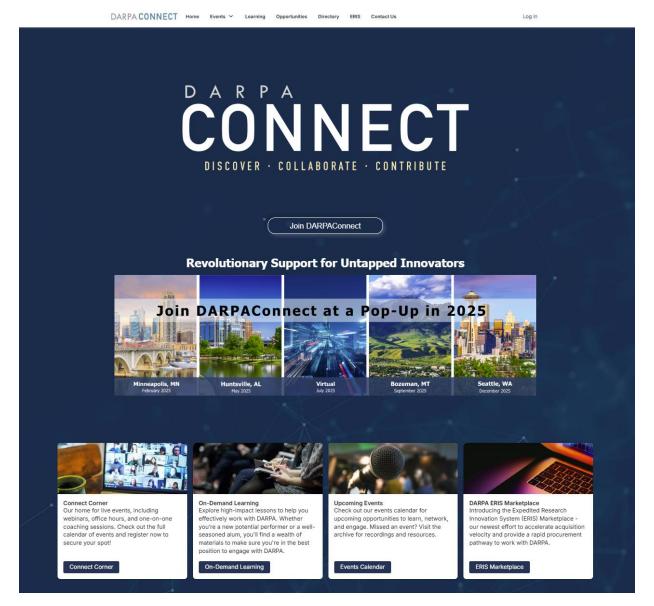
#### **Sessions Include**

- Engaging DARPA Program Managers
- Heilmeier Catechism: Understanding Effective DARPA Communication
- Understanding DARPA Announcements and Contract Vehicles
- Reviewing and Analyzing a DARPA Opportunity

- DARPA SBIR and STTR Program
- Understanding DARPA Security Resources
- Preparing Your DARPA Proposal
- Tying It All Together: Strategies for Success
- Opportunities for Networking



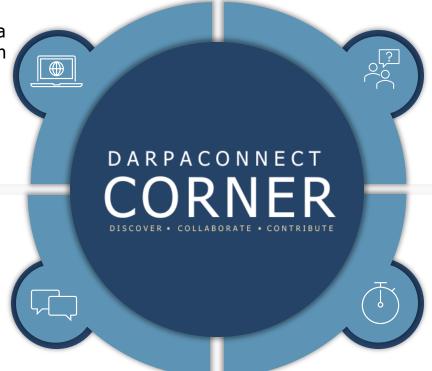
### Join DARPAConnect



# **The Connect Corner**

#### **Webinars**

Online sessions that offer a unique opportunity to learn about the mechanics of working with DARPA directly from DARPA presenters.



#### **Ask Me Anything**

An open forum where participants send in their questions and DARPA presenters answer them in a group setting

# One-on-One Coaching

30-minute private session where participants introduce their research interests and explore how they may fit at DARPA

#### **Office Hours**

10-minute sessions during which participants ask specific questions about working with DARPA in a private setting



DARPA's new monthly 30-minute quick-hit session that brings you the latest from DARPA's tech offices— key announcements, funding opportunities, upcoming events, and more.

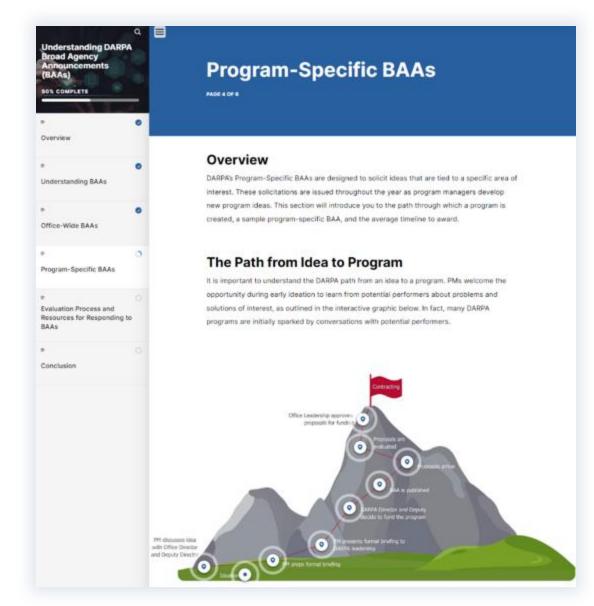


#### **Customized Curriculum**

#### **Current Lessons Include:**

- DARPA101: Introduction to DARPA
- The Heilmeier Catechism
- DARPA Award Vehicles and Solicitations
- Understanding DARPA Broad Agency Announcements (BAAs)
- Making the Most of a DARPA Proposers Day
- Introduction to DARPA Security
- DARPA SBIR/STTR Small Business Programs
- Tips for DARPA Proposal Success
- Opportunities to Work with DARPA
- Working with DARPA: Global Participation and Engagements

And more!





## **DARPA Entry Points**

#### Pitch Days

Small, same-day awards based on white paper and presentation

#### Office-wide Broad Agency Announcements

Each Technical Office maintains an open BAA where researchers can propose ideas that fall outside of current DARPA programs

#### SBIR/STTRs

Small business funding to develop technology and chart a path towards commercialization

Advanced Research Concepts
Rapid, limited, and targeted efforts

#### **Young Faculty Awards**

Expose early-career researchers to DoD needs and DARPA's mission

#### **ERIS Marketplace**

7-Minute pitch videos readily available to be viewed, selected, negotiated, and awarded

#### Challenges

Compete on unique DARPA research & development problems

#### Seedlings

Small, short duration (6-9 months) projects to move concepts from "disbelief" to "mere doubt" that may lead to the next generation of program ideas

**Disruption Opportunities** 

Small, high-risk programs through DSO

Microsystems Explorations
Small, targeted awards through MTO

# Al Explorations Small, targeted awards through I2O

**DARPA** 

And More! We are constantly innovating our business practices and announcing new entry points to DARPA.



# Meet DARPA ERIS Marketplace

#### **DARPA's Marketplace of 7-Minute Post-Competitive Videos**

#### **Current ERIS Topic Areas**



ERIS offers a range of core Topic Areas and periodically introduces limited-time Special Topics.

Explore each area to see where your solution may fit.

#### **Elusive Objects**

Detecting and tracking across air, land, and space.

#### **Next-Gen Sensing**

Overcoming size, weight, power, cost, and performance limits.

#### **Resilient Systems**

Advanced tech for critical infrastructure, command, and control.

#### **Chem/Bio Defense**

Protection of people, agriculture, and bioeconomy from threats.

# Operational Resilience

Human performance, biotech for supplies, AI/ML in bio/chem.

#### **Emergent Science**

New metrology and methods for quantum, materials, and adaptive human–AI ecosystems.



#### How It Works

- Monthly intake: submissions open the 1st end of each month; feedback by midmonth
- Rolling assessment: 30-day evaluation cycles with two-week decision targets and direct, actionable feedback
- Direct award: any .mil user can view solutions and issue awards inside the platform

#### **ERIS Submission Process:**



**Create & Upload 7-Minute Pitch Video** 



**Video Assessment by SME Panel** 



**Panel Determines Acceptance into the Marketplace** 



**Video Reaches DARPA PMs and DoD Organizations** 



**Pre-qualified for rapid contracting** 

DARPA ERIS MARKETPLACE

# JOIN NOW

www.darpaconnect.us/eris

eris@darpa.mil





DISCOVER · COLLABORATE · CONTRIBUTE





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