



Innovation & Modernization Office

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<https://ac.cto.mil/pe/IM>

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Innovation & Modernization (I&M)

Our Mission

Accelerate defense innovation through prototyping to rapidly mature and transition capabilities aligned to DoD's strategic imperatives

Vision

Be an innovation leader for DoD modernization

Established in 2003 as the Rapid Reaction Technology Office (RRTO), our strength is the ability to discover innovative and emerging ideas, turn them into executable projects, and quickly transition them to the Services and warfighter



I&M Innovation Activities



Innovative Prototyping Investments

Prototyping programs that emphasize lightweight processes and agile execution to **develop novel capabilities and transition them to acquisition markets**

Annual Program Numbers

- FY23:
- 80+ active projects
 - 93% transition rate to Service or warfighter
 - \$103M in prototyping investments



Innovation Outreach

Business-friendly matchmaking service that **helps DoD find innovative solutions**. Discovers new technologies, and connects performers with Services and others with technology needs

- FY23:
- 495 companies or universities
 - 83 tech presentations
 - 25+ follow-on negotiations



Innovation Discovery Venues

Three agile venues that **discover new technologies**, and enable innovators through hands-on understanding of DoD needs

- FY23:
- 14 multi-day events
 - 830 technologies showcased
 - 110+ transitions/transfers
 - 281 small/non-traditional performers

Multiple opportunities for innovative performers to mature their ideas and transition their capabilities



Operating Model Encourages Innovation

- **Emphasis on innovative concepts, particularly from small businesses and non-traditional performers**
- **Iterative proposal review and selection process**
- **Low barrier to entry; three-page white paper and quad**
- **Streamlined process for accelerated decisions**
- **Awards made in the year of execution**
- **Execute through partnership with transition offices**

Guiding principles

1. Emphasis on **innovative**, leap-ahead capabilities
2. **Co-funding** from other government stakeholders
3. Clear **transition** path to programs or people
4. **Jointness**
5. Closely aligned with the Department's **strategic guidance**



A deep-rooted culture of agility and innovation



Example Prototypes

NIGHT

- An advanced scramjet engine that can exploit targeted energy deposition with novel plasma techniques to improve performance and operability of air-breathing hypersonic missiles
- Partnered with Spectre Aerospace, formerly FGC Plasma, a small business looking to build the next generation of hypersonic vehicles
- Transitioned to the Air Force Life Cycle Management Center (AFLCMC) Armament Directorate, the acquisition office for the Hypersonic Attack Cruise Missile



Chariot

- A novel DevOps approach to AI/ML that reduces the time and cost to build, deploy, retrain, and redeploy models, delivering agile AI/ML capabilities that can quickly flex in response to changing operational conditions
- Partnered with Striveworks Inc., a small business transforming data by building and deploying models rapidly at scale
- Transitioned to five USSOCOM applications in FY 2022



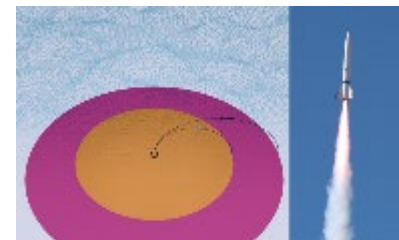
Vanilla

- A low-cost, ultra-long endurance unmanned aerial vehicle supporting multiple payloads
- Partnered with Vanilla Unmanned, a small business challenging the vendor lock of special-use, high-cost UAVs developed by traditional industry aerospace giants
- Vanilla successfully demonstrated world-record endurance and is capable of multi-mission beyond visual line of sight operations providing days of time-on-target or thousands of miles of search capacity on a single flight



ALITEC: High Performance Solid Rocket Propellant

- Novel solid rocket propellant formulation incorporating Al-Li alloy to provide significantly higher performance than traditional state-of-the-art solid rocket propellants
- Partnered with Adranos, Inc., the winner of the U.S. Army's inaugural xTechSearch Competition
- Transitioned to Industry and JPEO(A&A) in FY 2022





Innovation Outreach

- Innovation Outreach engages widely across the innovation ecosystem to quickly find innovative solutions relevant to DoD
- 3-4 topics per year posted as SAM.gov “Solutions Meeting”
- Ultra-lightweight process fosters high levels of industry participation through 100-word applications and a large VC network

<u>2023 Numbers</u>	<u>2023 Activities</u>	<u>2024 Activities</u>
<ul style="list-style-type: none">• <u>495</u> Companies applied to participate• <u>83</u> Companies presented to the requesting government audience• <u>25+</u> companies in follow-on discussions/ negotiations	<ul style="list-style-type: none">• Fog and Edge Computing• Commanding Energy• Counter AI/Autonomy Enhanced Multi-Domain Uncrewed Systems	<ul style="list-style-type: none">• Data Over the Horizon• AI/ML for Mission Critical Applications• Breaking the Kill Chain• Emerging Technologies

Diamond Unclonable Security Tag (DUST)

- DUST Identity, a small business, originally focused on preventing counterfeiting of luxury commercial goods (e.g., watches)
- Received DoD funding to develop their nano-material to mark, scan, and catalog critical military components to detect tampering
- In FY23, DUST Identity transitioned their solution to the Navy, and partnered with Parker Aerospace to incorporate DUST on the F-35





Innovation Discovery Venues



**Multi-Intelligence & ISR Technology
Discovery Venue**

Thunderstorm is a campaign of land-based innovation discovery events that provides performers the opportunity to showcase new technologies in the field and collaborate with DoD stakeholders and other businesses. Prototypes are showcased in various settings depending on the technology focus area, such as autonomy, and Joint All-Domain Command and Control. In FY 2023, Thunderstorm showcased 653 technologies, including systems from 185 small businesses.



Multi-domain Technology Discovery Venue

Joint Prototyping & Experimentation - Multidomain (JPME) enables rapid integration of technologies on an authentic military maritime platform. JPME's mobility enables showcasing joint and multi-domain technologies that are difficult to observe outside of DoD test ranges or laboratories, including electronic warfare, communications systems, and novel sensors. In FY 2023, JPME showcased 72 technologies for DoD representatives, including prototypes developed by 19 small businesses.



Joint Interagency Technology Discovery

JIFX leverages its rich Naval Postgraduate School academic expertise and west coast location to extend the ID program's reach to more small businesses and non-traditional performers. In partnership with the CA National Guard at Camp Roberts, JIFX provides a flexible flight range for unmanned aerial systems. Recent events focused on autonomous systems and data visualization. In FY 2023, JIFX introduced the DoD to 105 prototype technologies, including 77 from small businesses.

FY23:	110+	Technologies Transitioned	281	Small Businesses Mentored	830	Technologies Showcased	950+	DoD/Government Attendees
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2024 I&M Opportunities for Engagement

	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEPT	OCT	NOV	DEC
Pitch Days		PSU-ARL MITRE	AFRL	JHU-APL Sandia NL	NRL	MIT-LL	GTRI	PSU-ARL	JHU-APL Nebraska		Boston	GTRI
Industry Events	CES	Military Sensing Sym	SXSW NDIA POST		SOF Week	Modern Day Marine	MC Industry TEM	NDIA ETI	Fed SuperNova	AUSA		NDIA Small Biz
JIFX		FEB 6-8 JIFX 24-2 Multi-Domain UXS & Countermeasures			MAY 14-16 JIFX 24-3 C5ISR & Countermeasures			AUG 6-8 JIFX 24-4 Non-Standard Comms & Nav		OCT JIFX 25-1 TBD		
THUNDERSTORM				APR 8-10, Thunderstorm 24-1 SOF Lethality			JUL 22-26 Thunderstorm 24-2 Persistent Sensing		SEPT Thunderstorm 24-3		OCT Thunderstorm 24-4 Robotics Partners & HMI	
JPEM	JAN JPEM Passive Low Emission Sensing						JUL JPEM Maritime Security				OCT JPEM Nav in GPS Denied Environment	
TIDE		FEB Outreach and Discovery						AUG TIDE 2024 Anticipating Technology Surprise				
Innovation Outreach				APR 15-16 Solutions Meeting: Unleashing Data	MAY Solutions Meeting: Disruptive Tech Trends		JUL Solutions Meeting: AI Enhanced Battle Mgt		SEPT Solutions Meeting: TBD			

- I&M's engagement campaign discovers and drives emerging prototypes toward fieldable solutions**
 - Conducts a campaign of technology showcases for 'Modernizing the Kill Chain' throughout the year; additional engagement efforts discover and catalyze innovative and disruptive technologies from small businesses, academia, and non-traditional developers
- FY23 engagement impact by the numbers:**
 - Connected with more than 1,600 representatives from across industry and academia to explore their innovative prototyping concepts and introduced over 1,000 DoD stakeholders with innovative performers through Innovation Outreach and Discovery events



I&M Outreach and Discovery Events

- April 08-10, 2024: Thunderstorm “SOF Lethality”. Nellis Air Force Base, Nevada
- April 15-16, 2024: “Unleashing Data at Speed and Scale” Solutions Meeting. McLean, VA
- May 13-17, 2024: JIFX 24-3 “C5ISR and Countermeasures”. Camp Roberts, CA
- May 2024: “Disruptive Technology Trends” Solutions Meeting. McLean, VA (*Tentative*)
- July 2024: Thunderstorm “Persistent Sensing”. Fort Huachuca, AZ
- July 2024: “AI/ML-Enhanced Battlespace” Solutions Meeting. McLean, VA (*Tentative*)
- August 05-09, 2024: JIFX 24-4 “Non-Standard Comms and Navigation”. Camp Roberts, CA
- August 2024: TIDE 2024 “Anticipating Tech Surprise”. National Capital Region.
- September 2024: Thunderstorm “Human Machine Teaming”. Austin, Texas (*Tentative*)
- September 2024: Solutions Meeting TBD (*Tentative*)
- October 2024: Thunderstorm TBD (*Tentative*)

GREEN: Actively Accepting Submissions to Participate on SAM.gov

Let me know if you'd like to be added to our email distro list announcing upcoming events





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