

DCOMP Innovation Challenge

SUBJECT TO CHANGE

Please direct ALL questions to this Signal chat:



1. Introduction

The DCOMP Innovation Challenge is designed to serve as a collaborative bridge between Academia, Industry, and the Department of Defense (DoD). This competition seeks to uncover and highlight innovative solutions that can advance training, operational readiness, and the development of cutting-edge technologies. By engaging students, researchers, and academic institutions, the challenge creates a unique environment where fresh ideas, unconventional thinking, and rapid problem-solving can directly inform the needs of Industry and DoD.

Unlike traditional competitions that focus solely on final products, the DCOMP Innovation Challenge emphasizes exploration, experimentation, and discovery. Academia provides a unique perspective, often unbound by rigid processes or entrenched methods, allowing for the rapid creation of novel approaches to modern-day challenges. This competition enables these ideas to be demonstrated and evaluated in ways that may shape future requirements, acquisition pathways, and partnerships.

2. Purpose

The primary objective of the DCOMP Innovation Challenge is to identify Commercial Off-The-Shelf (COTS) solutions for training purposes. This includes, but is not limited to, near-peer, conventional, and unconventional robotics systems, as well as “DIY” or improvised robotics constructed from non-

traditional materials. These systems may range from small-scale, experimental platforms to adaptable solutions that can be integrated into training environments.

While NDAA compliance is not required, it is highly recommended to ensure greater applicability and scalability of solutions. By fostering collaboration among Academia, Industry, and DoD, the challenge aims to accelerate the discovery and fielding of technologies that enhance readiness, expand training realism, and prepare the force for the evolving operational environment.

3. Scope of Interest

The event is mainly interested in UAS solutions that can fulfill the following roles and capabilities:

- **Threat Replication:** UAS capable of realistically replicating the capabilities and tactics of adversary UAS, including:
 - Reconnaissance and surveillance
 - Autonomous flight and waypoint navigation
 - Payload delivery (e.g., simulated explosives, propaganda)
 - Multi-frequency operation
 - Swarming capabilities (multiple aircraft operating in coordinated fashion)
 - First-Person View (FPV) style flight
 - Target drones for kinetic and/or RF defeat training
- **UAS Characteristics:**
 - **Variety of UAS types:** We are interested in **all** types of UAS platforms, including:
 - **Multi-rotor (e.g., quadcopter, hexacopter, octocopter)**
 - **Fixed-wing**
 - **Hybrid Vertical Take-Off and Landing (VTOL)**

Materials: Including UAS constructed from non-traditional materials (e.g., 3D-printed components, readily available electronics).

- **Modularity and Customization:** Systems that can be easily modified or customized to simulate specific threat profiles.
- **Battery Considerations:**
 - **Hot-swappable battery capability** to minimize downtime and eliminate the need for pre-flight checks after each battery change.
 - **Long flight times** for certain systems to support extended training scenarios.
- **Operational Considerations:**
 - **Ease of Use:** Systems that are relatively simple to deploy and operate, with varying levels of complexity depending on the specific training objective.

- **Environmental Robustness:** While not all systems need to be fully weatherproof, they should demonstrate resistance to moisture and the ability to operate in a range of temperatures (hot and cold environments).
- **Cost:** Information on the cost of each system, including initial purchase price, maintenance costs, and training requirements. Information for low-cost systems up to high-end systems.

4. Information Requested

Respondents are requested to provide the following information for each UAS solution proposed:

- **Company/Organization Name and Contact Information:**
- **System Name and Description:** A detailed description of the UAS system, including its key features and capabilities.

Technical Specifications:

- Dimensions and weight
- Flight range and endurance
- Payload capacity
- Communication frequencies
- Navigation and control systems
- Materials of construction
- Environmental operating range
- Battery type, capacity, and charging time
- Battery hot-swapping capability (yes/no)
- Typical flight time

Operational Capabilities:

- Specific mission profiles the UAS can support (e.g., reconnaissance, payload delivery, swarming).
- Level of autonomy (e.g., manual control, waypoint navigation, AI-driven flight).
- Ease of deployment and operation.
- Maintenance requirements.

Cost Information:

- Unit cost
- Maintenance costs
- Training costs
- Any associated licensing fees

Maturity and Availability:

- Current availability (e.g., in production, prototype).
- Lead time for delivery.

Supporting Documentation:

- Brochures, data sheets, videos, or other relevant materials.

5. Submission Instructions

To be considered in the competition please contact Alison Beatty at abeatty@ncinnovation.org

6. Questions

Questions regarding this competition should be directed Alison Beatty at abeatty@ncinnovation.org.

7. Disclaimer

- Respondents are solely responsible for all costs associated with preparing and submitting a response to this event.
- Proprietary information should be clearly marked.

Bottom line, participants should approach the DCOMP Innovation Challenge as if they are a robotics startup company presenting at a major robotics expo, with the goal of capturing the interest of larger industry partners or even the Department of Defense. While the primary focus of this competition is on Unmanned Aircraft Systems (UAS), participants are strongly encouraged to expand their efforts to include Unmanned Ground Vehicles (UGV) and Unmanned Surface Vehicles (USV), as demonstrating capabilities across multiple domains showcases innovation and adaptability. Only one type of robotics platform is required to compete; however, developing all three types significantly strengthens the potential impact of the submission. Unlike traditional technology showcases, participants will not be penalized for lacking extensive documentation or polished data sheets. Instead, the minimum requirements consist of a component list, total build cost, spectrum information, and a functional working robotic platform. This streamlined approach emphasizes practical creativity, rapid prototyping, and tangible solutions over presentation polish, aligning with real-world challenges faced by both Industry and DoD.

Some examples of non-traditional UAS below:

https://www.youtube.com/watch?v=CC4_xjLhC8I

<https://www.youtube.com/watch?v=u5y2tyNhyaE>

<https://www.youtube.com/watch?v=iCEGgSJTXvc>

https://www.youtube.com/watch?v=H_GWEQBZBcl

<https://www.youtube.com/watch?v=lwOxeZucUrQ>

<https://www.youtube.com/shorts/flrlTAU1KNg>
<https://www.youtube.com/shorts/GpiqURWHg2I>
<https://www.youtube.com/shorts/wGwtunkD15s>
<https://www.youtube.com/shorts/CLe7LCUSzzA>
<https://www.youtube.com/watch?v=q0DcBXtxSe8>
<https://www.instagram.com/reel/DMmQU0pO52H/#>

Thank you for your interest and participation.

- **The DCOMP Team**