**Electronic Warfare (EW) Innovation Challenge Event Announcement**

*Signal Classification using Artificial Intelligence (AI)*

The Army Rapid Capabilities Office (RCO) is initiating a challenge to industry in the area Electronic Warfare (EW) signal classification. The intent of this challenge is to seek expert machine learning prototype solutions and evaluate their technical feasibility within a complex electromagnetic environment for the warfighter.

This RCO is continuing their investigation of priority capability areas, initiating this challenge event as a follow on to the previous EW request for information (RFI)[[1]](#footnote-0). The RCO seeks industry’s support in providing an increased understanding of individual signals and behavior across relevant spectral bands for U.S. Army EW officers. U.S. Army soldiers are responsible for understanding a vast amount of information presented to them, thus the need for assistance in understanding the spectrum and classifying an expansive set of signals. Existing algorithms are not adequate for time-critical systems. Detecting signals and identifying the threat requires new techniques including the advanced detection of anomalous behavior.

As this information increases in complexity and volume, conventional processing techniques become insufficient, with existing human-driven methods burdensome, slow, and inaccurate. As a result, the Army must investigate the application of machine learning and AI in the electronic warfare domain to minimize and alleviate potential delays in human response and the overall burden placed on Army officers.

It is envisioned that this EW challenge effort helps minimize and address the following gap areas.

* Limited ability to detect, identify, and characterize the Signals of Interest and Electromagnetic Spectrum (EMS)
* Limited ability to identify and classify red emitters
* Limited ability to infer adversaries intent based on C2 traffic behavior (types, density, and frequency of emissions)
* Limited ability to associate spectrum utilization to affiliation
* Inability to learn the optimum blue spectrum utilization based on the threat and existing spectrum usage
* Inability to assess the effectiveness of EA given monitoring of the spectral environment

The Government is developing the training, validation, and test datasets to be provided as Government Furnished Information (GFI) for interested vendors to work and support the ability to assess vendor algorithm efficiency, ultimately reducing the cognitive burden on the warfighter. These datasets will seek to provide a realistic representation of the environment and will be the basis for evaluation of vendor submissions and prototype solutions. Furthermore, these datasets will seek to account for all segments of the battlespace (i.e., blue, red and grey) incorporating various types of signal protocols (i.e. radar, communications, jamming).

The high level draft milestone planning timeline for this event is per the below.

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| December 2017 | RCO EW Challenge Announced via FedBizOpps |
| January 2018 | Needs statement released to industry (through C5) |
| February 2018 | Vendor Down-Select and Invitation to Challenge Demonstration |
| March 2018 | Execute Innovation Challenge Event |
| March 2018 | Award DCO Maneuver Innovation Challenge Vendor(s) |
| April 2018 | Signal Classification and Understanding Pilot/Prototype Delivery |

Additional details of this opportunity will be provided in a forthcoming notice, which will contain additional details on the timeline and government furnished information for this EW Innovation Challenge event. Interested vendors are encouraged to reach out to the government to communicate any interest in sharing existing datasets to help facilitate this event. Advance information can be obtained by contacting Mr. Robert Monto at [robert.monto.civ@mail.mil](mailto:robert.monto.civ@mail.mil).

The requirement will be released through the [Consortium for Command, Control, and Communications in Cyberspace (C5)](https://c5technologies.org/) and will utilize Other Transaction Authority (OTA) as the framework, allowing industry to engage with government.

This notice is not a Request for Proposal or Request for Quote, but for planning purposes only. A contract award will not be made from this announcement. Any information received as a result of this announcement may contribute to determining the method of procurement future requirements as well. The purpose of this announcement is to provide members of industry advanced notification of government intent.

1. Army Rapid Capability Office RFI, <https://www.fbo.gov/index?s=opportunity&mode=form&tab=core&id=7f2f41809e37e4729d74033bc5e9f9dd>, 6 July 2017. [↑](#footnote-ref-0)