

REQUEST FOR INFORMATION (RFI)

Since 2012, the Department of Defense (DOD), the Federal Communications Commission (FCC), and the National Telecommunications and Information Administration (NTIA) have been engineering a solution for commercial wireless to share 3550-3650 MHz band without needing modifications to the federal spectrum-dependent systems already operating in that band. These efforts have resulted in the Citizen Broadband Radio Service (CBRS) that incorporates Spectrum Access Systems (SAS) and Environmental Sensing Capabilities (ESC).

The Defense Information Systems Agency (DISA) Defense Spectrum Organization (DSO) plays a critical role in managing this spectrum transition for the DOD. Specifically, DISA DSO will implement dynamic spectrum sharing systems that enable DOD spectrum usage scheduling inside the target band and that enable automated interference prevention, detection, and resolution in the target band. The provided capabilities will enable DOD to maintain the sharing structure and continue support to enduring DOD mission requirements.

THIS IS A REQUEST FOR INFORMATION (RFI) NOTICE ONLY. THIS IS NOT A REQUEST FOR PROPOSALS (RFP). NO SOLICITATION IS AVAILABLE AT THIS TIME.

1. OVERVIEW/PURPOSE/DESCRIPTION OF PROCUREMENT:

DISA DSO is planning the procurement of tools/systems/capabilities, which will assist and enhance the dynamic spectrum sharing environment fielded for CBRS. **DISA DSO seeks industry feedback on the projected acquisition approach.**

The Government desires an Agile and DevSecOps approach to deliver an initial, minimum viable product (MVP) for the spectrum scheduling system within six months of award and delivering a second MVP for the interference prevention, detection, and resolution capability within nine months of award. Improvement, productization, and operational implementation of these capabilities through the year 2025 are planned. DISA DSO expects the performing vendor(s) to play a critical role interacting with key stakeholders including DOD operators, the National Telecommunications and Information Administration (NTIA), and CBRS users within the target band.

The Government is planning to develop these capabilities by implementing robust agile software development and DevSecOps techniques. These are new operational capabilities for the DOD, and they will improve systems used by the Armed Forces. The Government intends to prototype several tools and processes through the execution of this project. Specifically, the Government intends to apply this agile development activity to create, design, develop, demonstrate the operational utility of, and eventually productize the spectrum scheduling system and interference prevention, detection, and resolution capability. From a process perspective, the Government intends to pilot, and eventually operationalize the administration of user-based coordination and sharing within the target band. In support of these development efforts, DISA DSO intends to leverage the Air Force Cloud One and Platform One capabilities to provide a DevSecOps toolchain, development environment, and operational environment. For more information on Cloud One and Platform One, see: <https://software.af.mil/team/platformone/>. When possible, and where applicable, to supplement the development efforts, DISA DSO will leverage existing Basic Ordering Agreements for Platform One capabilities (i.e. cloud services, DevSecOps pipeline and platform integration and licensing services, and software DevSecOps services).

The Government is considering the use of an Other Transaction Authority (OTA) for the Prototype, in order to support this unique acquisition. Additionally, the Government is considering instituting a Challenge Based Acquisition (ChBA) to understand industry capabilities and to reduce execution risk

early in the process. To implement ChBA, the Government would provide short challenge scenarios prior to awarding an OTA, enabling industry partners to demonstrate their technical capabilities, as they specifically apply to this procurement. For more information on ChBA, please reference the ChBA guide at: <https://www.mitre.org/publications/technical-papers/challenge-based-acquisition-5th-edition>.

Additionally, the Government is exploring options to allow companies the opportunity to participate in a reverse industry day following this RFI. If the Government pursues a reverse industry day, companies will be given the opportunity to provide a presentation on their capabilities referenced in their RFI responses. Additionally, each company will be able to participate in a collaborative question and answer (Q&A) session with the Government following this presentation. If the Government goes forward with conducting this event, further details will be distributed after all RFI responses are received and reviewed.

Through responses provided to this RFI, the Government intends to obtain the following information:

- Industry's capability to meet the acquisition and technical characteristics of this requirement (see Appendix 2 for future capability descriptions)
- Industry's input and suggestions that would help refine and improve the Government's technical, acquisition, and management approaches
- Industry's interest in a Reverse Industry Day to further inform both the Government and Industry about the requirements

2. TECHNICAL CHARACTERISTICS:

The Defense Spectrum Organization seeks information from respondents with software development experience in the following areas:

- Continuous integration/continuous delivery/deployment (CI/CD)
- Cloud native computing
- Container orchestration using an open source system (e.g. Kubernetes)
- Microservice development using an open source service mesh (e.g. Istio)
- Business Process Automation
- Electromagnetic spectrum propagation/channel modeling and simulation
- User-centered design experience
- Test-driven design experience
- Agile software development in small iterations (e.g. 1-2 week sprints)
- Infrastructure as Code (IaC)
- Managing interfaces between commercial and military networks (e.g. utilizing a Zero Trust Security Model)
- Application deployment across concurrent information impact level environments (i.e. simultaneous Impact Level (IL)-2, IL-5, and IL-6 production environments), and bi-directional cross domain solutions between impact levels
- Electromagnetic interference (EMI)/Electromagnetic compatibility (EMC) analysis

Operationally, military users will need to access schedules, access interference analysis outputs, and input data at IL-5 and IL-6. Commercial users will need to access these same (or obfuscated versions of) schedules, access these same (or obfuscated versions of) interference analysis outputs, and input data at IL-2 in near-real-time. There must be enduring and constant synchronization between the different Impact Levels.

3. REQUESTED INFORMATION:

All requested information is intended to facilitate the Government's market research efforts and inform the Government's acquisition approach.

4. CONTRACTOR PARTICIPATION:

Non-Government personnel will be used in the evaluation of RFI responses. The non-Government advisor may have access to all aspects of the offeror's response. The non-Government advisors are from the following company:

Justin Raines – MITRE Corporation
Corey McRae – MITRE Corporation
Adam Bouffard – MITRE Corporation

RESPONSE GUIDELINES:

Interested parties are requested to respond to this RFI **with a white paper in accordance with the White Paper Format provided in Appendix 1. Submissions will not exceed one (1) page table with the requested vendor demographic information, two (2) pages for the response to Acquisition questions, four (4) pages for the response to Technical Capability questions, and one (1) page for additional recommendations.** Submissions should be single spaced, 11-point type with at least one-inch margins on 8 1/2" X 11" page size. Cover pages are not included in the page limit. The response should not exceed a 5 MB e-mail limit for all items associated with the RFI response. Responses must specifically describe the contractor's ability to meet the requirements of this effort. Oral communications are not permissible. Companies who wish to respond to this RFI should send responses via email no later than **03 July 2020 at 4:00pm EST** to Vanessa McCollum, Agreements Officer, at vanessa.a.mccollum.civ@mail.mil and Craig Carlton, Agreements Specialist, at craig.j.carlton.civ@mail.mil.

INDUSTRY ENGAGEMENT:

As described above, DISA representatives may choose to conduct a Reverse Industry Day as described above. Vendors who opt-in to this engagement within their RFI responses will be contacted upon completion of RFI Evaluation to coordinate these engagements, if applicable.

QUESTIONS:

Questions regarding this announcement shall be submitted in writing by email to Vanessa McCollum, Agreements Officer, at vanessa.a.mccollum.civ@mail.mil and Craig Carlton, Agreements Specialist, at craig.j.carlton.civ@mail.mil. Verbal questions will NOT be accepted. Answers to questions will be posted to BetaSAM. The Government does not guarantee that questions received after **26 June 2020** will be answered. The Government will not reimburse companies for any costs associated with the submissions of their responses.

DISCLAIMER:

This RFI is not an RFP and is not to be construed as a commitment by the Government to issue a solicitation or ultimately award a contract. Responses will not be considered as proposals nor will any award be made as a result of this synopsis. All information contained in the RFI is preliminary as well as subject to modification and is in no way binding on the Government. The Government does not intend to pay for information received in response to this RFI. Responders to this invitation are solely responsible for all expenses associated with responding to this RFI. This RFI will be the basis for collecting information on capabilities available. This RFI is issued solely for information and planning purposes. Proprietary information and trade secrets, if any, must be clearly marked on all materials. All information received in this RFI that is marked "Proprietary" will be handled accordingly. Please be advised that all submissions become Government property and will not be returned nor will receipt be confirmed. Responses to this RFI are not offers and cannot be accepted by the Government to form a binding contract.

Appendix 1: White Paper Format

1.0 Vendor Information (1 Page Max)

Provide the following Company information in the same format as the table below.

Company Name	
Company Address	
Point of Contact (Primary)	
Phone Number	
E-mail Address	
Cage Code	
DUNS	
Suggested NAICS	541511 (projected) Others applicable or suggested?
Company Web Page	
Other Classifications (e.g. large business, small business, SDB, HUBZone, 8(a), SDVOSB, WOSB, etc.)	
List Government Wide, DOD, or DISA contracts you are on that are applicable as a Prime or a Subcontractor (Includes partnering on Platform 1)	
Interest in this Acquisition as a Prime, Subcontractor, Teaming Arrangement, etc.	
Would like to take part in the reverse industry day? (Yes/No)	

2.0 Acquisition Strategy Questions (2 Page Limit)

2.1 Cloud 1 and Platform 1 as a Procurement Vehicle

Please provide feedback on the Government's intent to leverage Cloud One and Platform One and the Cloud One and Platform One Basic Ordering Agreements (BOA), including your company's ability to support those existing BOAs for a potential procurement.

2.2 Other Transaction Authority (OTA) and Challenge-Based Acquisition (ChBA)

Please provide feedback on the Government's proposed acquisition strategy, including the use of OTAs and ChBA. Please address any OTA consortia (of which you are a member) that may apply to this procurement.

2.3 Compliance with United States Code (USC) Title 10 Section 2371b(d)

Please describe your approach to satisfying USC Title 10 applicability for OT authority. Describe whether your company qualifies as a non-traditional defense contractor and/or your approach for including nontraditional defense contractors, including small businesses, and/or implementing cost sharing.

2.4 Other Acquisition Strategy Recommendations

Please provide other relevant information regarding the Acquisition Strategy for this procurement.

3.0 Technical Capability Questions (4 Page Limit)

3.1 Electromagnetic Coexistence and Interference Expertise

Please explain your company's ability, including leveraging requisite Electromagnetic Coexistence (EMC) and Electromagnetic Interference (EMI) expertise, to develop an interference prevention, detection, and resolution capability and a spectrum scheduling system.

3.2 Communication Interface Management

Please explain your company's experience and ability to manage interfaces between commercial and military communication systems. Specifically, describe approaches to ensure near-real-time access and data exchanges between IL-2, IL-5, and IL-6.

3.3 CI/CD Strategy/Approach

Provide a description of your approach to managing the CI/CD process for this system.

3.4 Agile Framework and Methodology

Specifically, how this Agile Framework can utilize short sprints, and how you would build to a Minimum Viable Product (MVP) and then continue that development to a Minimum Viable Capability Release (MVCR)

3.5 How Automated Testing is Utilized in the Development Process

Provide a basic description of your approach to implementing and utilizing automated testing techniques.

3.6 A Potential User Feedback System

How would User Feedback be collected and integrated into the development cycle.

3.7 Product Backlog Management

Provide any other corporate information relevant to this requirement.

3.8 Management of Cloud Infrastructure and Infrastructure Costs

Cloud Infrastructure costs will fluctuate throughout the life of this development, describe your approach to ensure that there is access to both growth and reduction in Cloud facilities as necessary.

3.9 Processes, Tools, Documentation to Enable Continuous Development

Describe your approach to ensuring that Continuous Development is both possible and efficiently performed.

3.10 Suggested Program Office Integration

Provide a description of your approach to ensuring there is clear communication with the Government Program Office and to ensuring the Government has sufficient access to development tools for monitoring.

4.0 Recommendations (1 Page Limit)

Provide any other recommended acquisition or technical approaches that the Government should consider for this effort.

Appendix 2: Future Capability Descriptions

In pursuit of the DOD's objective to ensure negligible impact to critical national security missions, DISA DSO will develop a spectrum scheduling system and interference prevention, detection, resolution capability for the DOD. This development will expeditiously communicate spectrum use and resolve interference in the 3550-3650 MHz band through autonomous negotiation with spectrum access systems to quickly identify potential sources of electromagnetic interference and effectively manage user interactions through an intuitive user interface that is responsive to each user's individual requirements.

The spectrum scheduling system will replace a calendar-based spectrum portal being employed and maintained by a SAS administrator for the purposes of reserving spectrum for systems that do not have permanent spectrum access. DOD users have identified challenges accessing the commercial calendar web application due to information system security limitations. The DSO capability developed under this effort will be designed for all test and training ranges that require spectrum access in the 3550-3650 MHz band and may be extensible to other DOD operations currently monitored by an environmental sensing capability (ESC). This capability will provide advanced notice of DOD operations to spectrum access systems (SASs) within the specified band(s) to protect range operations.

The interference prevention, detection, resolution capability is envisioned to support the full lifecycle of interference incidents through early preventative measures to minimize the probability of actualized interference, rapid detection of interference should preventative measures fail, and expeditious resolution in response to verified interference incidents.

Interference prevention may be accomplished through integration of a knowledge management service that allows DOD users to browse best practices for operational employment of DOD systems within the 3550-3650 MHz band and upload spectrum planning data to evaluate likelihood of interference. Bulletins may be posted to the front page of the user-facing web page to highlight potential sources of interference for planners to avoid.

Interference detection may be accomplished through user submitted reports, DOD radar system submitted reports, DOD EMS C2 system submitted reports, and a sensor aggregation service that is made available for netted environmental sensors to provide electromagnetic environmental data that feeds an interference identification service to identify potential sources of interference.

Interference resolution may be accomplished through an automated negotiation service to exchange relevant data between Federal and non-Federal systems (e.g. DOD C2 systems, Spectrum Access Systems (SASs)) and a business process management service to accommodate human-in-the-loop intervention for the unlikely event that the automated negotiation services fail to adequately resolve the interference.

The DOD interference prevention, detection, resolution capability will be developed using an agile approach to iteratively develop a minimum viable product (MVP). An initial useful capability will be deployed to DOD users quickly to obtain vital end-user feedback as the development team transitions to scaling the capability with increased functionality across an expanding user base. Development will focus on regular and repeated delivery of incremental improvements. The development team will work with DOD stakeholders to identify operational, cybersecurity, and quality assurance requirements. Software testing will be automated to enable critical updates to be deployed in days to weeks as opposed to months or years.