

Telecommunications Advanced Research and Dynamic Spectrum
Sharing Systems (TARDyS3) Tool Suite
Request for White Papers
Project Number: DISA-OTA-20-9-TARDyS3



DEFENSE INFORMATION SYSTEMS AGENCY
The IT Combat Support Agency



Other Transaction Authority (OTA)
Request for White Papers (RWP)

Project Number	DISA-OTA-21-9-TARDyS3
RWP Title	Telecommunications Advanced Research and Dynamic Spectrum Sharing Systems (TARDyS3) Tool Suite
Issued by	Defense Information Systems Agency (DISA) Other Transaction (OT) Agreement Team www.DISA.mil
White Papers Due Date/Time (Suspense)	December 04, 2020 / 0800 CST
Submit White Papers To	disa.scott.ditco.mbx.pl84-other-transaction-authority@mail.mil

Note: Please advise DISA as soon as possible via email to disa.scott.ditco.mbx.pl84-other-transaction-authority@mail.mil if your organization intends to submit a White Paper to DISA in response to this RWP.

Amendment 0001 is issued for the purpose of the following:

- 1. Respond to vendor questions.**

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2. Attach Platform One Bus Ticket document not previously accessible in the original RWP posting.

The Defense Information Systems Agency (DISA), Emerging Technology (EM) Directorate through the DISA Procurement Services Directorate (PSD) is seeking an Other Transaction (OT) Agreement to fulfill the prototyping need for a radically new set of tools to deconflict, manage, and predict spectrum interferences while producing a capability for bi-directional Impact Level (IL)-2 (unclassified), IL-4/5 (controlled unclassified), and IL-6 (Secret) communications. The sum of these tools creates a new paradigm for spectrum sharing between the Department of Defense (DoD) and commercial users that are entering the 3550-3650 megahertz (MHz) spectrum band.

This work is novel and has never been accomplished before within DoD. Thus, innovative solutions will be critical to prototyping and overall acquisition success. The solution must leverage new ideas and concepts to prototype the tools and processes needed to enable near-real time spectrum sharing with industry.

SECTION 1 OVERVIEW/DESCRIPTION

1.1 PURPOSE

This Request for White Paper (RWP) is being issued to conduct research, development, and testing activities associated with acquiring a prototype Spectrum Scheduling System (S3) and Interference Prevention, Detection, Resolution (IPDR) system. The intent of this OT agreement is to successfully develop a prototype and award a follow-on non-competitive production effort. This prototype OT will be competed amongst non-traditional defense contractors (or vendors with significant participation from non-traditional defense contractors) that can solve Electromagnetic Interference/Coexistence (EMI/EMC) and Cross Domain Solution (CDS) communications technology problems for an electromagnetic spectrum sharing use case. The prototype developed under this effort will be tested, evaluated, and refined for production. The result of the successfully completed prototype OT will be through minimum viable capability releases (MVCRs) for both a Spectrum Scheduling System (S3) capability and an interference prevention, detection, resolution (IPDR) capability. These MVCRs will enable DoD and the Citizens Broadband Radio Systems (CBRS) users to expeditiously resolve spectrum use conflicts, to schedule spectrum use, and to enable sharing between CBRS users and DoD's developmental Test and Evaluation (T&E) and experimental DoD operations in the 3550-3650 MHz band. After the completion of the prototype effort, production systems will need to be deployed based on these successful MVCRs; production may be completed under a follow-on procurement to this effort.

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The results of this prototype project are directly relevant to enhancing the mission effectiveness of warfighter systems. Without these capabilities there is a risk that interference between CBRS and DoD warfighters could impact mission-critical DoD systems, resulting in potential degradation of these systems. The output of this OT prevents potential mission failures due to spectrum use conflicts, and the results of this OT will minimize the impact of spectrum sharing on DoD systems within the affected spectrum band.

1.2 STATEMENT OF NEED

Since 2012, the DoD, the Federal Communications Commission (FCC), and the National Telecommunications and Information Administration (NTIA) have been engineering a solution for commercial wireless equities to share 3550-3650 Megahertz (MHz) band with federal equities, without requiring modifications to the federal equities 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 Capability (ESC). “Auction 105,” which offers licenses for the 3550-3650 MHz band, was concluded by the FCC on August 25, 2020. More details and information can be found on the FCC’s website:

<https://www.fcc.gov/auction/105>

The 3550-3650 MHz band institutes band use prioritization with three different tiers. Spectrum Access Systems (SAS’s) manage commercial spectrum access to deconflict competing spectrum use amongst the different tiers. Existing federal equities (hereafter referred to as “incumbents”) receive permanent priority as well as site-specific protection for certain registered sites. The FCC auction (Auction 105) offered Priority Access Licenses (PALs) inside the band as the next prioritization tier. Organizations were able to bid for up to four 10 MHz PALs in a county-based license area for ten years. The lowest prioritization tier, General Authorized Access (GAA) is open for use, subject to SAS authorization.

In pursuit of the DoD’s objective to ensure negligible impact to critical national security missions, DISA Defense Spectrum Organization (DSO) will develop an S3 and IPDR 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 prototype developed under this effort will be tested, evaluated, and refined in preparation for a potential follow-on production effort. The result of the successfully completed prototype OT will be MVCRs for both a S3 capability and an IPDR capability. These MVCRs will enable DoD and CBRS users to expeditiously resolve spectrum use conflicts, to schedule DoD spectrum use,

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and to enable sharing between CBRS users and DoD's developmental Test & Evaluation (T&E) and experimental DoD operations in the 3550-3650 MHz band. Production systems will need to be deployed based on these successful MVCRs.

The capabilities developed under this Prototype OT Agreement will meet the following five attributes, which are necessary for the prototype effort to be considered successful:

- (a) **Successful Platform One DevSecOps** – Prototype capabilities are successfully delivered through iterative development cycles that (1) leverage a robust DevSecOps approach to Continuous Integration and Continuous Delivery (CI/CD) on the Platform One Party Bus, (2) maintain the Platform One Party Bus continuous Authority to Operate (c-ATO), (3) deliver high quality code, and (4) integrate the TARDyS3 program team with the development team to create mutually agreeable acceptance criteria.
- (b) **Successful Cross-Domain Implementation** – At a minimum, deploy an IL-5 environment that simulates a potential IL-6 implementation. Data is appropriately tagged and securely managed in accordance with classification and information security guidance that could enable a future Cross Domain implementation. An API is provided to enable migration of this IL-5 environment to IL-6 and support a future Cross Domain implementation.
- (c) **Successful Scheduling Capability** – End-users must be able to access and use a prototype S3 capability. Prototype S3 capability successfully supports scheduling spectrum access at all required DOD sites¹. An API is developed in coordination with FCC-certified SAS administrators to enable interference protection of scheduled DOD use in the 3550-3650 MHz band.
- (d) **Successful Electromagnetic Interference Resolution** – End-users must be able to access and use a prototype IPDR capability. Prototype IPDR capability successfully performs electromagnetic interference analysis based on validated modelling and simulation to determine likely sources of interference and develop courses of action to mitigate and resolve the electromagnetic interference in coordination with FCC-certified SAS administrators.
- (e) **Satisfied Users** – Supported users are satisfied with the delivered prototype capabilities, are able to intuitively and easily use the prototype, and are trained to understand and utilize the delivered prototype capabilities. This can be supported through user reporting, application telemetry, and/or other means.

Additional Statement of Need attributes and Specific S3 and IPDR technical requirements are found at Appendix A: Statement of Need.

¹ S3 supported sites: Barking Sands HI, Bath ME, China Lake CA, Dahlgren VA, McKinney TX, Moorestown NJ, Newport News VA, Portsmouth RI, Wallops Island VA, White Sands Missile Range NM, and Yuma Proving Grounds AZ

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SECTION 2 GENERAL SUBMISSION REQUIREMENTS

2.1 FORMATTING

Vendors are solely responsible for all expenses associated with responding to this RWP. White Papers shall follow the format described below. Evaluation and selection of the White Papers will be completed based on criteria in Sections 3 and 4. Responding to this RWP does not obligate the Government to reimburse for costs associated with responding to this notice. The Government reserves the right to cancel this requirement if no White Papers satisfy the criteria contained in Section 3.4 and/or funding is not available.

Subject to the availability of funds, the DISA/Defense Information Technology Contracting Organization (DITCO) at Scott AFB, IL intends to competitively issue this effort as an OT Agreement in accordance with 10 U.S.C. 2371b. If an OT is awarded from this subject request, the Agreement is not considered a procurement contract, and therefore not subject to the Federal Acquisition Regulation (FAR) in accordance with 10 U.S.C. Section 2371.

The following **White Paper** formatting requirements apply:

- Times New Roman 10 (or larger) single-spaced, single-sided, (8.5 by 11 inches)
- Smaller type may be used in figures and tables, but must be clearly legible
- Margins on all sides (top, bottom, left, and right) should be at least 2.5 cm (1 inch);
- Page limit is eleven (11) pages, does not include cover sheet and the *Affirmation of Business Status Certification, Rough Order of Magnitude (ROM) Basis of Estimate (BOE) Table, Data Rights Assertions, and Intellectual Property Statement/Agreements/Disclosures*. RWP submissions should follow the same order that response sections are presented in sections 2.3 and 3.4. Table 1 provides a summarized page Count

Response	RWP Reference	Page Limit
Intellectual Property Statement/Agreements/Disclosures	2.3	NO LIMIT
Technical	3.4.1	6 Pages
Security	3.4.2	1 Page
Communication/Collaboration Plan and Business Viability	3.4.3	2 Pages
Schedule	3.4.4	1 Page
ROM Narrative	3.4.5	1 Page
ROM BOE Table	3.4.5	NO LIMIT
Data Rights Assertions	3.4.6	NO LIMIT
Participants	3.4.7	NO LIMIT

Table 1 : Response Page Limits

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- Italic Red text with brackets borders (e.g. [company name]) indicate areas for entry of information by the vendor. Delete all italicized text contained within brackets before submittal of the White Paper.
- Page limitations shall not be circumvented by including inserted text boxes/pop-ups or internet links to additional information. Such inclusions are not acceptable and will not be considered as part of the response to this RWP.
- **DO NOT SUBMIT ANY CLASSIFIED INFORMATION.**

A White Paper **Cover Sheet**, which is not included in the page limit, is required for all submissions and must include the following:

- OTA Project Number
- Project Title
- Company Title/Name of Proposed TARDyS3 system
- Date of Submittal
- Primary point of contact (POC), including name, address, phone and e-mail contact information
- Total ROM cost for the twelve (12) month period of performance; and
- Disclosure of Information Statement (section 5.2).

2.2 MINIMUM ACCEPTABILITY

The Government will evaluate RWP submissions that are deemed as “complete.” To be considered “complete” submissions must contain, at a minimum, the following:

- Cover Sheet (Section 2.1)
- Signed Intellectual Property Statements / Agreements / Disclosures (Section 2.3)
- Signed Affirmation of Business Statement (Section 2.4)
- Address all of the Evaluation Criteria Factors (sub-Sections 3.4.1– 3.4.7)
- Compliance with the formatting requirements outlined in Section 2.1

If the vendor fails to include/address the minimum acceptability requirements (as defined above and throughout the RWP), the White Paper submission will be deemed non-compliant, inadequate for further evaluation, and removed from consideration.

2.3 INTELLECTUAL PROPERTY STATEMENT/AGREEMENTS/DISCLOSURES

2.3.1 SUBMITTER STATEMENT

Each participant shall complete the Submitter Statement below. The statement shall be included as an attachment to the White Paper and will not count toward the page limit.

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I, *[insert submitter's full name]*, of *[insert full postal address]*, do hereby declare that the TARDyS3 system prototype design overview, that I have submitted, known as *[insert name of TARDyS3 system]*, is my own original work, or if submitted jointly with others, is the original work of the joint submitters.

I further declare that *[check one]*:

I do not hold and do not intend to hold any patent or patent application with a claim which may cover the TARDyS3 system prototype design overview that I have submitted, known as *[insert name of TARDyS3 system]*;


OR *[check one or both of the following]*:

to the best of my knowledge, the TARDyS3 system design overview and standards that I have submitted, known as *[insert name of TARDyS3 system]*, may be covered by the following U.S. and/or foreign patents: *[describe and enumerate or state "none" if applicable]*;

I do hereby declare that, to the best of my knowledge, the following pending U.S. and/or foreign patent applications may cover the practice of my submitted TARDyS3 system design overview and standards *[describe and enumerate or state "none" if applicable]*.

I certify that, to the best of my knowledge, I have fully disclosed all patents and patent applications, which may cover my TARDyS3 system design overview and standards.

I do hereby agree to provide the statements required by Section 2.3.2 and 2.3.3, below, for any patent or patent application identified to cover the practice of my TARDyS3 system design overview or standards and the right to use such for the purposes of the evaluation process.

Signature (electronic signature is acceptable)	
Name	<i>[Insert Name of Representative]</i>
Title	<i>[Insert Title of Representative]</i>
Date	<i>[Insert Date of Signature]</i>

2.3.2 PATENT OWNER(S) STATEMENT

Each participant shall complete the Patent Owner(s) statement below. The statement shall be included as an attachment to the White Paper and will not count toward the page limit.

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If there are any patents (or patent applications) identified by the submitter, including those held by the submitter, the following statement must be signed by each and every owner, or each owner's authorized representative, of each patent and patent application identified.

I, *[insert full name]*, of *[insert full postal address]*, am the owner or authorized representative of the owner *[print full name, if different than the signer]* of the following patent(s) and/or patent application(s): *[enumerate]*, and do hereby commit and agree to grant to any interested party on a worldwide basis, if the TARDyS3 system design overview known as *[insert name of TARDyS3 system]* is selected for the DoD challenge development and/or prototype, in consideration of its evaluation and selection, a non-exclusive license for the purpose of implementing standards or algorithms *[check one]*:

without compensation and under reasonable terms and conditions that are demonstrably free of any unfair discrimination,

OR

under reasonable terms and conditions (identified in section 3.4.6 –Proposed Data Rights Assertion) that are demonstrably free of any unfair discrimination.

I further do hereby commit and agree to license such party on the same basis with respect to any other patent application or patent hereafter granted to me, or owned or controlled by me, that is or may be necessary for the purpose of evaluating the proposed cryptosystem prototype. Any future follow-on Production Contract could/will require re-negotiated terms and conditions.

I further do hereby commit and agree that I will include, in any documents transferring ownership of each patent and patent application, provisions to ensure that the commitments and assurances made by me are binding on the transferee and any future transferee.

I further do hereby commit and agree that these commitments and assurances are intended by me to be binding on successors-in-interest of each patent and patent application, regardless of whether such provisions are included in the relevant transfer documents.

I further do hereby grant to the U.S. Government, during the evaluation process, and during the lifetime of the standard, a nonexclusive, non-transferrable, irrevocable, paid-up worldwide license solely for the purpose of modifying my submitted cryptosystem's specifications (e.g., to protect against a newly discovered vulnerability) for incorporation into the prototype efforts.

Signature

(electronic signature is acceptable)


X

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Name	<i>[Insert Name of Representative]</i>
Title	<i>[Insert Title of Representative]</i>
Date	<i>[Insert Date of Signature]</i>

2.3.3 REFERENCE OWNER(S) STATEMENT

Each participant shall complete the Reference Statement below. The statement shall be included as an attachment to the White Paper and will not count toward the page limit.

<p>I, <i>[insert full name]</i>, <i>[insert full postal address]</i>, am the owner or authorized representative of the owner <i>[insert full name, if different than the signer]</i> of the submitted reference TARDyS3 system’s specifications and hereby grant the U.S. Government and any interested party the right to reproduce, prepare derivative works based upon, distribute copies of, and display such implementations for the purposes of the Spectrum Scheduler System and Interference Protection, Detection, and Resolution system evaluation process, and if the corresponding TARDyS3 system is selected for DoD TARDyS3 Tool Suite prototype, notwithstanding that the implementations may be copyrighted or copyrightable.</p>	
<p>Signature (electronic signature is acceptable)</p>	
Name	<i>[Insert Name of Representative]</i>
Title	<i>[Insert Title of Representative]</i>
Date	<i>[Insert Date of Signature]</i>

2.4 AFFIRMATION OF BUSINESS STATUS CERTIFICATION

Each participant shall complete the Business Status Certification below. The certification shall be included as an attachment to the White Paper and will not count toward the page limit. Note that some sections in the certification may be left blank due to the type of business completing this form (e.g. non-traditional contractor).

Please note that to be eligible to submit a response to the RWP, vendors must meet the requirements outlined in 10 U.S.C Section 2371b(d)(1). Vendors shall explain in their White Paper submission, not to exceed ten (10) pages, how they will meet these statutory requirements. Failure to provide the required explanation may result in the White Paper not being considered for this OT Agreement.

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Participant Name	<i>[Insert Participant Name]</i>
Proposed <u>North American Industry Classification System (NAICS) Code</u>	<i>[Insert Proposed NAICS Code]</i>
Industry Size Standard	<i>[Check one of the following boxes]</i> <input type="checkbox"/> Small <input type="checkbox"/> Large <input type="checkbox"/> Federally Funded Research & Development Center
Data Universal Numbering Systems (DUNS) Number	<i>[Insert DUNS Number]</i>
Commercial & Government Entity (CAGE) Code	<i>[Insert CAGE Code]</i>
Active System for Award Management (SAM) Registration	<i>[Check one of the following boxes and insert date]</i> <input type="checkbox"/> Yes <input type="checkbox"/> No Expiration Date:
Address 1	<i>[Insert Address Number and Street]</i>
Address 2	<i>[Insert suite, office, etc. Number]</i>
City/State/Zip Code	<i>[Insert City, State, Zip Code]</i>
Point of Contact (POC) Name/Title	<i>[Insert POC Name and Title]</i>
POC Phone/Email	<i>[Insert POC Phone and Email]</i>

[Check one of the following boxes:]

Nontraditional Defense Contractor (NDC): A NDC is an entity that is not currently performing and has not performed, for at least the one-year period preceding the issuance of this Request for White Papers by the DoD, any contract or subcontract for the DoD that is subject to full coverage under the cost accounting standards prescribed pursuant to section 1502 of title 41 of the U.S. Code and the regulations implementing such section. All small businesses are considered NDCs. A small business is a business concern as defined under section 3 of the Small Business Act (15 U.S.C. 632). To be considered a small business for the purposes of this RWP, a concern must qualify as a small business under the size standard for the North American Industry Classification System (NAICS) code, as described at 13 C.F.R. 121.201 and the proposed NAICS code above.

Traditional Defense Contractor: A traditional defense contractor is an entity that does not meet the definition of an NDC. Any traditional defense contractors must comply with 10 U.S.C Section 2371b(d)(1)(C) to be eligible to submit an RWP.

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This is to certify that the above is accurate, complete, and current as of *[MM/DD/YYYY]* for DISA-OTA-20-R-TARDyS3.

Signature (electronic signature is acceptable)	✕
Name	<i>[Insert Name of Representative]</i>
Title	<i>[Insert Title of Representative]</i>
Date	<i>[Insert Date of Signature]</i>

SECTION 3 EVALUATION APPROACH

The Government will employ a three-phased evaluation approach for the award of the TARDyS3 Tool Suite prototype OTA. An award for this OT will be based on all three phases of the evaluation approach. Responses to this RWP, as the first phase of this approach, will be based on the whitepaper evaluation criteria outlined in Sub-Sections 3.4.1 – 3.4.7.

Throughout the White Paper evaluation, the Government reserves the right, but is not obligated, to ask questions about individual vendor solutions. Furthermore, any response to the RWP that does not fully address all of requirements can be eliminated from further consideration. This RWP constitutes Phase I of the evaluation, described below. Figure 1 describes the notional timeline for evaluation events and activities.

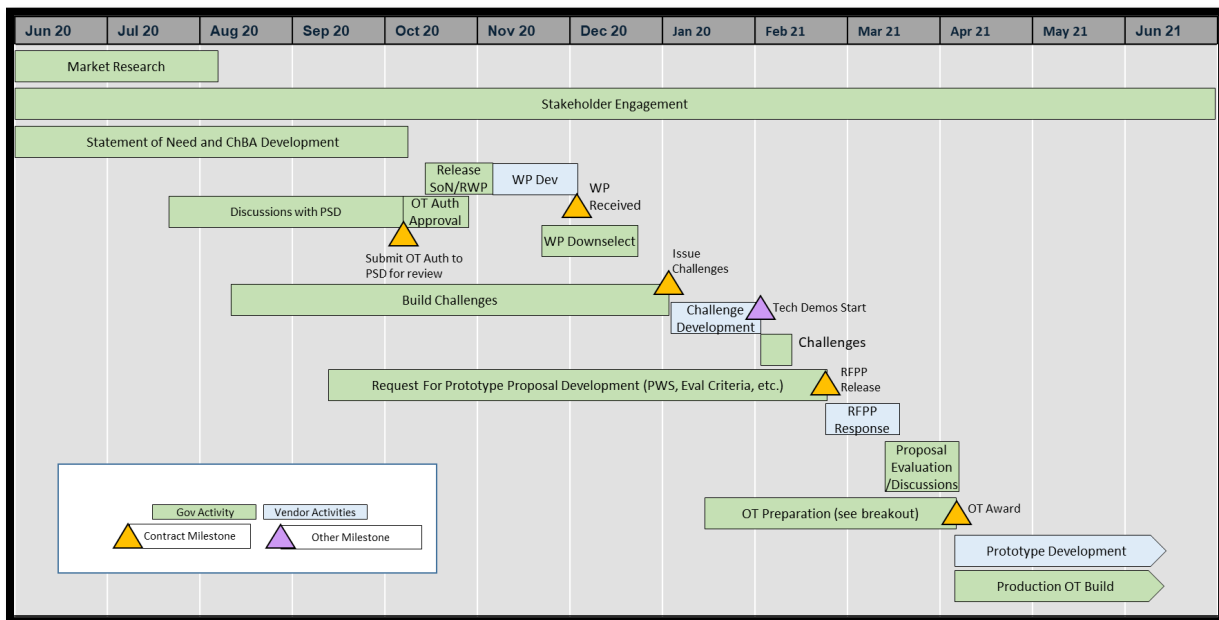


Figure 1: Notional Evaluation Approach Schedule

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3.1 PHASE I – WHITE PAPER EVALUATION

The Government will conduct an evaluation of all eligible White Paper(s) submitted in response to this RWP. The White Papers will be evaluated to determine whether it will proceed to the next phase.. Final selection(s) recommendation(s) will be made by the program management technical lead to the Agreements Officer. After the evaluation of White Paper(s), the Government may select one or more solutions to proceed to the next phase, “Phase II – Challenges”. Any vendor whose solution is not selected will be provided a letter containing a brief explanation for non-selection. Vendors selected to move on to Phase II may be provided a brief explanation for selection.

3.2 PHASE II – CHALLENGE DEMONSTRATIONS

The Government will invite Vendors proceeding from Phase I to participate in a challenge event, designed by the TARDyS3 technical team. Appendix B describes the approach for this challenge event.

This event will address technical risk areas and the vendor’s DevSecOps and Platform One development approach. Vendors will be given between two and four weeks to design their challenge solutions, and then these solutions will be demonstrated to the TARDyS3 Government team remotely (e.g., via Microsoft Teams) shortly thereafter. During the challenge demonstration, a vendor should be prepared to:

1. Apply the principles described in the white paper to further mature a proof of concept against the Government-provided Use Case(s), and
2. Present its demonstration in detail, which includes, but is not limited to:
 - a. How the demonstration solution has been engineered to meet the challenge requirements,
 - b. Lessons learned from conducting the demonstration challenge, and
 - c. Any risks, and associated mitigations, that should be outlined or that emerged during the challenge development and execution.

The challenge event also provides an opportunity for vendors to reassess their ROM price for the prototype OT. The Government will evaluate the vendor’s demonstration and execution of their solution and associated presentation to determine whether it will proceed to the next phase, “Phase III – Request for Project Proposal (RFPP).” Evaluation criteria for “Phase II – Challenges” will be provided with the invitation for challenges after the whitepaper stage. Any vendor whose solution is not selected to proceed to Phase III – Request for Prototype Proposals will be provided a letter with a brief explanation for non-selection. Vendors selected to move on to Phase III – Request for Prototype Proposals may be provided a brief explanation for selection

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3.3 PHASE III – REQUEST FOR PROJECT PROPOSAL (RFPP)

The Government will issue an RFPP to no more than two vendors from Phase II – Challenges. Vendors will be invited to meet with the Government to engage in negotiations. The Government will provide an initial model OT to the selected vendor(s), which will be the Government’s opening position for negotiations. Using a collaborative process, the Government and each selected vendor will proceed to develop a detailed Project Work Statement and agree on milestones, KPPs, Terms and Conditions, and deliverables. These activities will be conducted separately for each vendor.

The collaborative process will be governed by individual technical exchanges with each vendor that receives the RFPP. The technical exchange will not be evaluated, and it will be a time-boxed, vendor-run collaborative meeting with the TARDyS3 technical team. The process allows for discussion and for the vendor to ask questions, provide feedback, and present their understanding of the Government’s stated needs to reach S3 and IPDR MVCRs. The collaboration also allows the Government to provide feedback to each vendor and to collaboratively develop a detailed Project Work Statement with each vendor. The exchange will also allow for refining the technical documentation. Vendors will then submit project proposals.

The Government will perform an evaluation of the final Project Proposals to ensure they meet the requirements and then proceed with award based on availability of funding. At the conclusion of Phase III, the Government intends to award one prototype OTA. In the event that the Government is unable to reach an agreement with the initial selectee, the Government may negotiate with the other vendor invited to submit a Project proposal or may reevaluate White Paper Responses and make another selection. The vendor whose solution is not selected will be provided a letter with brief explanation for non-selection. In the event that the Government is unable to reach an agreement with either RFPP recipient, the Government may re-evaluate Challenge outcomes to make another selection.

3.4 EVALUATION CRITERIA

The overall evaluation of White Papers will be based on the integrated assessment of the criteria outlined in Sub-Sections 3.4.1 – 3.4.7. Each criterion below outlines the maximum length of the response. Evaluation Criteria and Challenge Scenarios for “Phase II – Challenges” will be released in conjunction with the invitations to participate in Phase II.

Vendors are required to meet all the evaluation requirements, objectives, and representations. Failure to respond to any of the follow evaluation factors listed below (Sub-Sections 3.4.1 – 3.4.7) may result in elimination from the competition. In addition, the Government has included several templates (e.g., tables, etc.), within several of the evaluation factors outlined below, that

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identify the minimum level of information that must be included with the final submission. If a vendor fails to include the Government-provided templates (identified as required), then such failure may result in the vendor's White Paper submission being deemed non-compliant, inadequate for further evaluation, and removed from consideration.

Responses to each section of the evaluation criteria should follow the page limit guidance found in Table 1.

3.4.1 TECHNICAL (6 PAGES)

Vendors shall provide their proposed technical approach to meeting the TARDyS3 prototype Statement of Need. The vendor shall also provide a brief overview of why they will be successful with performing the draft demonstration scenarios located at Appendix B. The Government will evaluate the vendor's technical merit, maximizing innovation while balancing risk, based on the criteria listed below:

- The degree to which the proposed solution meets or exceeds the intent, goals, and objectives of delivering prototype S3 and IPDR capabilities.
- The degree to which the proposed Agile, DevSecOps, and software development approach enables CI/CD within the Platform One Party Bus ABMS All Domain Common Environment, facilitates user satisfaction, and delivers high quality code. This should include the contractor's experience with successfully building software products using CI/CD pipelines.
- The degree to which the vendor's proposed approach to challenge scenario demonstrations is well-constructed and likely to be successful (reference Appendix B).

3.4.2 SECURITY (1 PAGE)

The Government will evaluate the vendor's personnel, facility, and product security approach to meet the Statement of Need:

- Personnel Security – The degree to which the vendor is able to supply sufficient cleared personnel to be able to develop and implement an S3 and IPDR capability at IL2, IL4, IL5, and IL6.
- Facility Security – The degree to which the vendor is able to access and use facilities capable of supporting development and operations of an S3 and IPDR capability at IL2, IL4, IL5, and IL6.
- Product Security – The degree to which the vendor applies risk based, cyber-security informed engineering that meets Platform One security practices and can support IL6 integration.

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3.4.3 COMMUNICATION/COLLABORATION PLAN AND BUSINESS VIABILITY (2 PAGES)

Communication/Collaboration Plan: The vendor shall provide a two-page communication and collaboration plan that describes the vendor's partnership integration approach. The communication and collaboration plan should articulate how the vendor team has successfully operated in previous projects and/or how the vendor plans to successfully operate on TARDyS3.

Business Viability: Business viability shall be included as an attachment to the White Paper and will not count toward the two-page limit for this section. Please address whether the company has the technical capability and resources to effectively accomplish the work. The White Paper should also address the following:

- Describe your company. How old is it?
- Where is it located (e.g. multiple locations, sales/R&D in U.S. and other countries)?
- How many employees does your company employ?
- Describe the management team – who are they? What are their backgrounds and history?
- What is your annual revenue (sales and costs)?
- Describe your company and partner's working capital cash position and your ability to remain viable throughout the prototype and possible production TARDyS3 efforts

The Government will evaluate the vendor's communication/collaboration plan and business viability:

- The degree to which the subvendor/partner/teaming approach (communication, collaboration, integration, past partnership successes, complimentary capabilities, etc.) maximizes synergy, stability, and efficiency to meet Statement of Need capabilities.
- The degree to which the partnership is viable (financials, turnover, working capital, etc.) to support this effort in both the prototype and production phases.

3.4.4 SCHEDULE (1 PAGE)

The Government will evaluate the risks and opportunities of the vendor's proposed schedule to deliver a prototype S3 capability and a prototype IPDR capability. The multifaceted concept exploration and design approach must demonstrate the vendor's ability to provide the Government with an Agile, DevSecOps, and Platform One development solution that meets the intent, goals, and objectives of the Statement of Need. The schedule shall include the following, at a minimum:

- Platform One Party Bus ABMS All Domain Common Environment onboarding complete and development begins
- First S3 Release & Platform One Certificate-to-Field (CtF) Obtained

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- S3 Release and Sprint Cadence
- S3 MCVR (in accordance with section 1.2 (C) of this document)
- First IPDR Release & Platform One CtF Obtained
- IPDR Release and Sprint Cadence
- IPDR MVCR (in accordance with section 1.2. (D) of this document)

Schedules may be provided in any format (graphic, Gantt chart, table, etc.), so long as it stays within the delivery guidelines of Section 2.1. No combination of schedule artifacts shall exceed one (1) page.

3.4.5 PRICE (1 PAGE FOR ROM NARRATIVE, NO LIMIT FOR BOE TEMPLATE)

The vendor shall submit pricing data utilizing the Government's supplied Rough Order of Magnitude (ROM) Template (i.e., Table 3). Failure to include the price information described within this section may result in the vendor's entire Price/Cost criteria/factor being deemed non-compliant and inadequate for further evaluation review.

In making a selection, the Government will consider affordability in comparison to the Government estimate to determine whether the proposed solution is in the best interest of the Government. The Government provided ROM Template (i.e., Table 3) shall be included as an addendum or appendix to the White Paper and will not count toward the page limit. The vendor is responsible for verifying that the totals within Table 3 are correctly calculated.

The vendor's ROM narrative shall discuss the approach, methodology and basis of estimate used to estimate the price of accomplishing all requirements. The vendor shall assume the Government knows nothing about the vendor's capabilities or estimating approach.

At a minimum, the ROM narrative shall also include the following cost categories for the ROM:

- **Prime Vendor Labor:** The ROM narrative shall include the basis of estimate from which the estimated labor was calculated. (i.e., labor category titles and fully burdened labor rates and hours for those individuals).
- **Sub-Vendor/Consultant Labor:** Provide a list of sub-vendor/consultant effort required to meet the technical approach as described in the white paper and the estimated cost. Include the basis for which the estimated labor was calculated, (i.e., labor category titles and estimated fully burdened hourly rates and hours for those individuals).
- **Material/Equipment:** Provide a list of the materials/equipment required to meet the technical approach as described in the White Paper and the estimated cost.
 - **Licensing:** Provide a list of the licensing costs required, to include the number of licenses, to meet the technical approach as described in the White Paper and the estimated per license cost and total cost. Please identify specific licenses with

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costs and any known license period-of-performances (e.g., multi-year licenses that exceed the prototype OT Agreement period of performance).

- **Platform One:** Provide a list of the Platform One costs (e.g., the number of Platform One accesses) required to meet the technical approach as described in the White Paper and the estimated cost.
- **Operational Infrastructure:** Beyond the Platform one costs, provide any additional cloud or infrastructure costs driven by your solution.
- **Cross Domain Solution:** As applicable, provide the CDS costs required to meet the technical approach as described in the White Paper and the estimated cost.
- **Other:** As applicable, provide any other anticipated material and equipment expenses not previously captured
- **ODCs/Travel:** Provide a list of the other direct costs required to meet the technical approach as described in the White Paper and the estimated costs with basis of estimate. Identify any business travel expenses (e.g., estimated costs for lodging, transportation, and meals) and identify the basis for how the travel costs were calculated.

The Government does not require supporting data to justify the estimated costs (e.g., copies of commercial/market price lists/rates, price history, subvendor quotes, invoices) with the submission of the White Paper. However, vendors will be required to supply the supporting data upon the Request for Project Proposal, if selected.

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Elements	FY2021	FY2022	FY2023	Grand Total
Program/Project Management				
Prime Vendor Labor				
Sub – Vendor/Consultant Labor				
Material/Equipment				
Other Direct Costs (ODCs)/Travel				
SUBTOTAL				
Prototype Capability of Electromagnetic Interference Resolution and Scheduling Capability				
Prime Vendor Labor				
Sub – Vendor/Consultant Labor				
Material/Equipment				
Other Direct Costs (ODCs)/Travel				
SUBTOTAL				
TOTAL ROM PRICE				
Prime Vendor Labor				
Sub – Vendor/Consultant Labor				
Material/Equipment				
Other Direct Costs (ODCs)/Travel				
TOTAL				

Table 1: ROM Basis of Estimate Template

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3.4.6 DATA RIGHTS ASSERTION (NO PAGE LIMIT)

The Government will evaluate the acceptability of the vendor’s data rights assertion(s). Vendors shall state whether there are any data rights issues that the Government should be cognizant of moving forward. Specifically, identify any intellectual property, patents and inventions involved in the proposed solution and associated restrictions on the Government’s use of that intellectual property, patents and inventions. Table 4 shall be presented for all assertions.

Technical Data/Computers Software/ Patent to be Furnished with Restrictions	Basis for Assertion	Asserted Rights Category	Name of Entity Asserting Restrictions
<i>[Identify the technical data/software/patent to be furnished with restriction]</i>	<i>[Indicate whether development was exclusively or partially at private expense. If development was not at private expense, enter the specific reason for asserting that the Government’s right should be restricted]</i>	<i>[Insert asserted rights category (e.g., limited rights (data), restricted rights (software), government purpose rights, SBIR data rights or specifically negotiated license)]</i>	<i>[Insert asserted rights category (e.g., limited rights (data), restricted rights (software), government purpose rights, SBIR data rights or specifically negotiated license)]</i>

Table 2: Data Rights Assertion

3.4.7 PARTICIPANTS

List all participants (i.e. other vendors), including description of contributions and significance of each participant.

Table 3 – Participants

Participant	Business Status (Check one)	Participant Contribution and Significance to Overall Project
<i>[Insert separate row(s) for each additional participant. Delete row(s) as applicable if Participant is the only participant.]</i>	<input type="checkbox"/> <i>Traditional</i> <input type="checkbox"/> <i>Non-Traditional</i>	<i>[Insert detailed, quantifiable description which addresses the following:</i> <ul style="list-style-type: none"> • <i>What is this Participant’s significant contribution?</i> • <i>Why is this Participant’s contribution significant to the overall project?</i> • <i>How is this Participant uniquely qualified to provide this significant contribution? (Note: number of years of experience is not deemed a unique qualification.)]</i>

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The facility(ies) where the proposed work is to be performed and the equipment or other Participant property which will be utilized for the prototype include: *[Insert a brief description of facility(ies)/equipment proposed for use on the project]*.

SECTION 4 AWARD

4.1 SELECTION DECISION

It is the Government's intention to negotiate, select, and fund the Prototype Project at the conclusion of the three-phased evaluation approach, described in Section 3. **Each phase will have separate evaluation criteria.**

The evaluation of White Papers (Phase I) and the selection for participating in the Challenge Demonstrations (Phase II) will be based on the evaluation criteria listed in Sub-Section 3.4. The White Paper selection will be conducted in accordance with Government procedures and the evaluation criteria in Sub-Section 3.4. The Government will decide whether to:

- Select the White Paper(s) for participation in Phase II, Challenge Demonstrations; or,
- Reject the White Paper(s) for further consideration.

The White Paper basis of selection decision will be formally communicated to vendors in writing. Once the selection of the best solution(s) is made, the Government team may proceed to the next phase of the evaluation. At any time during evaluations, the Government may choose to cancel this requirement. In case of cancellation, the Government will not be responsible for any expenses associated with responding to the RWP.

4.2 FOLLOW ON PRODUCTION

The Government intends to award one (1) prototype OTA. Prior to awarding a prototype OTA, the Government will ensure that the OT agreement is in compliance with 10 USC §2371b(d)(1). The Government will obtain approval from the appropriate approval authority, based on the dollar threshold projected for the prototype OTA. This will be done prior to entering the prototype OTAs with a selected vendor(s).

Provided that the prototype OTA is successfully completed, the Government may award a follow-on production FAR-based contract or production OTA to the participant in the transaction for the prototype project, without further competition. If it is determined that transition activities are in the best interest of the Government, then the Government reserves the right to bilaterally modify the Agreement by adding such activities. Prior to award of the production contract or transaction, the Government will ensure that the production effort is in compliance with 10 USC 2371b(f). In addition, the Government will again obtain approval from the appropriate approval

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authority, based on the dollar threshold projected for the production FAR-based contract or production OTA.

SECTION 5 ADDITIONAL INFORMATION

5.1 DOCUMENTATION CLASSIFICATION

Vendors shall not submit any documentation that is classified as “Confidential,” “Secret,” or “Top Secret” throughout the evaluation process. This includes, but is not limited to, submission of White Papers, Prototype Proposals, Prototype Work Statements, etc.

5.2 DISCLOSURE OF INFORMATION

White Papers, Prototype Proposals, PWS, etc. containing data that is not to be disclosed to the public for any purpose or used by the Government except for evaluation purposes shall include the following sentences on the cover page:

“This White Paper/Prototype Proposal/PWS includes data that shall not be disclosed outside the Government, except to non-Government personnel for evaluation purposes, and shall not be duplicated, used, or disclosed -- in whole or in part -- for any purpose other than to evaluate this submission. If, however, an agreement is issued to this Company as a result of -- or in connection with -- the submission of this data, the Government shall have the right to duplicate, use, or disclose the data to the extent agreed upon by both parties in the resulting agreement. This restriction does not limit the Government's right to use information contained in this data if it is obtained from another source without restriction. The data subject to this restriction are contained in sheets *[insert numbers or other identification of sheets]*.”

5.3 DATA SHEET MARKINGS

Marking requirements specify that data be “conspicuously and legibly” marked with a protective legend that identifies the OTA project number, vendor’s name and address, and the submittal date, along with the warning “*Use or disclosure of data contained on this sheet is subject to restriction*” on the title page of any restricted data sheets.

5.4 RECORDS, FILES, AND DOCUMENTATION

All physical records, files, documents, and work papers, provided and/or generated by the Government and/or generated for the Government in performance of this OTA project, maintained by the vendor which are to be transferred or released to the Government, shall become and remain Government property and shall be maintained and disposed of as applicable.

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Nothing in this section alters the rights of the Government or the vendor with respect to patents, data rights, copyrights, or any other intellectual property or proprietary information as set forth in any other part of this RWP (including all clauses that are or shall be included or incorporated by reference into the prototype OT Agreement). The Agreements Officer may at any time issue a hold notification in writing to the vendor. At such time, the vendor may not dispose of any Government data or Government-related data described in the hold notification until such time as the vendor is notified in writing by the Agreements Officer and shall preserve all such data in accordance with (IAW) Agency instructions. The vendor shall provide the Agreements Officer within ten (10) business days of receipt any requests from a third party for Government-related data.

5.5 SECURITY CLEARANCES

The vendor is responsible for providing personnel with appropriate security clearances to ensure compliance with Government security regulations. The vendor shall fully cooperate on all security checks and investigations by furnishing requested information to verify the vendor employee's eligibility for any required clearance.

The vendors proposed solution (e.g., data, integration with supporting DoD Infrastructure, architecture) will determine the personnel security clearance requirements for the prototype effort. The Government will provide additional details regarding the required security clearances in the RFPP.

5.6 DATA STORAGE

To protect against seizure and improper use by non-United States (U.S.) persons and government entities, all data stored and processed by/for the DoD must reside in a facility under the exclusive legal jurisdiction of the U.S. The vendor will be required to maintain all government data that is not physically located on DoD premises within the 50 States, the District of Columbia, and outlying areas of the U.S., unless otherwise authorized by the responsible Government, as described in DoDI 8510.01 and the DoD Cloud Computing Security Requirements Guide.

If the Government data is co-located with the non-Government data, the vendor shall isolate the Government data into an environment where it may be reviewed, scanned, or forensically evaluated in a secure space with access limited to authorized Government personnel identified by the Agreements Officer, and without the vendor's involvement. The vendor shall record all physical access to the cloud storage facilities and all logical access to the Government data. This may include the entrant's name, role, purpose, account identification, entry and exit time. Such records shall be provided to the Agreements Officer or designee in accordance with the agreement or upon request to comply with federal authorities.

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5.7 LAW ENFORCEMENT

The vendor shall acknowledge and affirm that United States (U.S.) Federal law enforcement officials do not need a warrant or a subpoena to access Government data on any system or media employed by the vendor or their sub-vendors or other partners, or allies, to deliver or otherwise support the contracted service for the U.S. Government, subject to requirements for access to classified information and release thereof, if applicable. As specified by the Agreements Officer, the vendor shall provide immediate access to all Government data and Government-related data impacting Government data for review, scan, or conduct of a forensic evaluation and physical access to any vendor facility with Government data.

5.8 NOTIFICATION

The vendor shall notify the Government Security Contacts (Disa.meade.bd.mbx.sd-security-managers@mail.mil), and the Agreements Officer within 60 minutes of any warrants, seizures, or subpoenas it receives, including those from another Federal Agency that could result in the loss or unauthorized disclosure of any Government data. The vendor shall cooperate with the Government to take all measures to protect Government data from any loss or unauthorized disclosure that might reasonably result from the execution of any such warrant, seizure, subpoena, or similar legal process.

5.9 VENDOR INCURRED EVALUATION COSTS

The costs associated with participating in Phases I through III, to include White Paper(s) preparation and submission, are not considered allowable charges and should not be included within the ROM or any pricing information.

5.10 EXPORT CONTROLS

Research findings and technology developments arising from the resulting White Paper may constitute a significant enhancement to the national defense and to the economic vitality of the United States. As such, in the conduct of all work related to this effort, the recipient will comply strictly with the International Traffic in Arms Regulation (22 CFR 120-130), the National Industrial Security Program Operating Manual (DoD 5220.22-M) and the Department of Commerce Export Regulation (15 CFR 730-774).

SECTION 6 RESPONSES

Questions should be addressed to disa.scott.ditco.mbx.pl84-other-transaction-authority@mail.mil, Agreements Officer, Vanessa McCollum (vanessa.a.mccollum.civ@mail.mil), and Agreements Specialist, Craig Carlton

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(craig.j.carlton.civ@mail.mil. Please provide any questions, in writing, no later than **November 20, 2020 0800 Central Standard Time (CST)**. The Government reserves the right to not answer questions submitted after this time. Any submissions that are received after the close of the solicitation period will receive no further consideration.

The response shall be due no later than **December 04, 2020 0800 CST**. The responses shall be emailed to disa.scott.ditco.mbx.pl84-other-transaction-authority@mail.mil, Vanessa McCollum (vanessa.a.mccollum.civ@mail.mil), and Craig Carlton (craig.j.carlton.civ@mail.mil).

**SECTION 7 IMPLEMENTATION OF SECTION 889(A)(1)(B) OF THE JOHN S. MCCAIN
NATIONAL DEFENSE AUTHORIZATION ACT (NDAA) FOR FISCAL YEAR 2019**

REPRESENTATION REGARDING CERTAIN TELECOMMUNICATIONS AND VIDEO
SURVEILLANCE SERVICES OR EQUIPMENT (AUG 2020)

The vendor shall complete the representation at paragraph (d)(1) and paragraph (d)(2) of this provision.

(a) Definitions. As used in this provision—

Backhaul, covered telecommunications equipment or services, critical technology, interconnection arrangements, reasonable inquiry, roaming, and substantial or essential component have the meanings provided in the clause 52.204-25, Prohibition on contracting for Certain Telecommunications and Video Surveillance Services or equipment.

(b) Prohibition.

(1) Section 889(a)(1)(A) of the John S. McCain national defense authorization Act for fiscal year 2019 (Pub. L. 115-232) prohibits the head of an executive agency on or after August 13, 2019, from procuring or obtaining, or extending or renewing a contract to procure or obtain, any equipment, system, or service that uses covered telecommunications equipment or services as a substantial or essential component of any system, or as critical technology as part of any system. Nothing in the prohibition shall be construed to—

(i) Prohibit the head of an executive agency from procuring with an entity to provide a service that connects to the facilities of a third-party, such as backhaul, roaming, or interconnection arrangements; or

(ii) Cover telecommunications equipment that cannot route or redirect user data traffic or cannot permit visibility into any user data or packets that such equipment transmits or otherwise handles.

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(2) Section 889(a)(1)(B) of the John S. McCain national defense authorization Act for fiscal year 2019 (Pub. L. 115-232) prohibits the head of an executive agency on or after August 13, 2020, from entering into a contract or extending or renewing a contract with an entity that uses any equipment, system, or service that uses covered telecommunications equipment or services as a substantial or essential component of any system, or as critical technology as part of any system. This prohibition applies to the use of covered telecommunications equipment or services, regardless of whether that use is in performance of work under a Federal contract. Nothing in the prohibition shall be construed to—

(i) Prohibit the head of an executive agency from procuring with an entity to provide a service that connects to the facilities of a third-party, such as backhaul, roaming, or interconnection arrangements; or

(ii) Cover telecommunications equipment that cannot route or redirect user data traffic or cannot permit visibility into any user data or packets that such equipment transmits or otherwise handles.

(c) Procedures. The offeror shall review the list of excluded parties in the System for Award Management (SAM) (<https://www.sam.gov>) for entities excluded from receiving federal awards for “covered telecommunications equipment or services”.

(d) Representation. The offeror represents that—

(1) It **will**, **will not** provide covered telecommunications equipment or services to the Government in the performance of any contract, subcontract or other contractual instrument resulting from this solicitation. The offeror shall provide the additional disclosure information required at paragraph (e)(1) of this section if the offeror responds “will” in paragraph (d)(1) of this section; and

(2) After conducting a reasonable inquiry, for purposes of this representation, the offeror represents that—

It **does**, **does not** use covered telecommunications equipment or services, or use any equipment, system, or service that uses covered telecommunications equipment or services. The offeror shall provide the additional disclosure information required at paragraph (e)(2) of this section if the offeror responds “does” in paragraph (d)(2) of this section.

(e) Disclosures.

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(1) Disclosure for the representation in paragraph (d)(1) of this provision. If the offeror has responded “will” in the representation in paragraph (d)(1) of this provision, the offeror shall provide the following information as part of the Offer:

(i) For covered equipment—

(A) The entity that produced the covered telecommunications equipment (include entity name, unique entity identifier, CAGE code, and whether the entity was the original equipment manufacturer (OEM) or a distributor, if known);

(B) A description of all covered telecommunications equipment offered (include brand; model number, such as OEM number, manufacturer part number, or wholesaler number; and item description, as applicable); and

(C) Explanation of the proposed use of covered telecommunications equipment and any factors relevant to determining if such use would be permissible under the prohibition in paragraph (b)(1) of this provision.

(ii) For covered services—

(A) If the service is related to item maintenance: A description of all covered telecommunications services offered (include on the item being maintained: Brand; model number, such as OEM number, manufacturer part number, or wholesaler number; and item description, as applicable); or

(B) If not associated with maintenance, the Product Service Code (PSC) of the service being provided; and explanation of the proposed use of covered telecommunications services and any factors relevant to determining if such use would be permissible under the prohibition in paragraph (b)(1) of this provision.

(2) Disclosure for the representation in paragraph (d)(2) of this provision. If the offeror has responded “does” in the representation in paragraph (d)(2) of this provision, the offeror shall provide the following information as part of the Offer:

(i) For covered equipment—

(A) The entity that produced the covered telecommunications equipment (include entity name, unique entity identifier, CAGE code, and whether the entity was the OEM or a distributor, if known);

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(B)A description of all covered telecommunications equipment offered (include brand; model number, such as OEM number, manufacturer part number, or wholesaler number; and item description, as applicable); and

(C)Explanation of the proposed use of covered telecommunications equipment and any factors relevant to determining if such use would be permissible under the prohibition in paragraph (b)(2) of this provision.

(ii)For covered services—

(A)If the service is related to item maintenance: A description of all covered telecommunications services offered (include on the item being maintained: Brand; model number, such as OEM number, manufacturer part number, or wholesaler number; and item description, as applicable); or

(B)If not associated with maintenance, the PSC of the service being provided; and explanation of the proposed use of covered telecommunications services and any factors relevant to determining if such use would be permissible under the prohibition in paragraph (b)(2) of this provision.

**PROHIBITION ON CONTRACTING FOR CERTAIN TELECOMMUNICATIONS AND
VIDEO SURVEILLANCE SERVICES OR EQUIPMENT (AUG 2020)**

(a) Definitions. As used in this clause—

Backhaul means intermediate links between the core network, or backbone network, and the small subnetworks at the edge of the network (e.g., connecting cell phones/towers to the core telephone network). Backhaul can be wireless (e.g., microwave) or wired (e.g., fiber optic, coaxial cable, Ethernet).

Covered foreign country means The People’s Republic of China.

covered telecommunications equipment or services means—

(1) Telecommunications equipment produced by Huawei Technologies company or ZTE Corporation (or any subsidiary or affiliate of such entities);

(2) For the purpose of public safety, security of Government facilities, physical security surveillance of critical infrastructure, and other national security purposes, video surveillance and telecommunications equipment produced by Hytera Communications Corporation, Hangzhou Hikvision Digital Technology company, or Dahua Technology company (or any subsidiary or affiliate of such entities);

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(3) Telecommunications or video surveillance services provided by such entities or using such equipment; or

(4) Telecommunications or video surveillance equipment or services produced or provided by an entity that the Secretary of Defense, in consultation with the Director of National Intelligence or the Director of the Federal Bureau of Investigation, reasonably believes to be an entity owned or controlled by, or otherwise connected to, the Government of a Covered foreign country.

critical technology means—

(1) Defense articles or defense services included on the United States Munitions List set forth in the International Traffic in Arms Regulations under subchapter M of chapter I of title 22, Code of Federal Regulations;

(2) Items included on the Commerce Control List set forth in Supplement No. 1 to part 774 of the Export Administration Regulations under subchapter C of chapter VII of title 15, Code of Federal Regulations, and controlled-

(i) Pursuant to multilateral regimes, including for reasons relating to national security, chemical and biological weapons proliferation, nuclear nonproliferation, or missile technology; or

(ii) For reasons relating to regional stability or surreptitious listening;

(3) Specially designed and prepared nuclear equipment, parts and components, materials, software, and technology covered by part 810 of title 10, Code of Federal Regulations (relating to assistance to foreign atomic energy activities);

(4) Nuclear facilities, equipment, and material covered by part 110 of title 10, Code of Federal Regulations (relating to export and import of nuclear equipment and material);

(5) Select agents and toxins covered by part 331 of title 7, Code of Federal Regulations, part 121 of title 9 of such Code, or part 73 of title 42 of such Code; or

(6) Emerging and foundational technologies controlled pursuant to section 1758 of the Export Control Reform Act of 2018 (50 U.S.C. 4817).

Interconnection arrangements means arrangements governing the physical connection of two or more networks to allow the use of another's network to hand off traffic where it is ultimately delivered (e.g., connection of a customer of telephone provider A to a customer of telephone company B) or sharing data and other information resources.

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Reasonable inquiry means an inquiry designed to uncover any information in the entity's possession about the identity of the producer or provider of covered telecommunications equipment or services used by the entity that excludes the need to include an internal or third-party audit.

Roaming means cellular communications services (e.g., voice, video, data) received from a visited network when unable to connect to the facilities of the home network either because signal coverage is too weak or because traffic is too high.

Substantial or essential component means any component necessary for the proper function or performance of a piece of equipment, system, or service.

(b) Prohibition.

- (1) Section 889(a)(1)(A) of the John S. McCain national defense authorization Act for fiscal year 2019 (Pub. L. 115-232) prohibits the head of an executive agency on or after August 13, 2019, from procuring or obtaining, or extending or renewing a contract to procure or obtain, any equipment, system, or service that uses covered telecommunications equipment or services as a substantial or essential component of any system, or as critical technology as part of any system. The vendor
- (2) is prohibited from providing to the Government any equipment, system, or service that uses covered telecommunications equipment or services as a substantial or essential component of any system, or as critical technology as part of any system, unless an exception at paragraph (c) of this clause applies or the covered telecommunication equipment or services are covered by a waiver described in FAR 4.2104.

(2) Section 889(a)(1)(B) of the John S. McCain national defense authorization Act for fiscal year 2019 (Pub. L. 115-232) prohibits the head of an executive agency on or after August 13, 2020, from entering into a contract, or extending or renewing a contract, with an entity that uses any equipment, system, or service that uses covered telecommunications equipment or services as a substantial or essential component of any system, or as critical technology as part of any system, unless an exception at paragraph (c) of this clause applies or the covered telecommunication equipment or services are covered by a waiver described in FAR 4.2104. This prohibition applies to the use of covered telecommunications equipment or services, regardless of whether that use is in performance of work under a Federal contract.

(c) Exceptions. This clause does not prohibit vendors from providing—

- (1) A service that connects to the facilities of a third-party, such as backhaul, roaming, or interconnection arrangements; or

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(2) Telecommunications equipment that cannot route or redirect user data traffic or permit visibility into any user data or packets that such equipment transmits or otherwise handles.

(d) Reporting requirement.

(1) In the event the vendor identifies covered telecommunications equipment or services used as a substantial or essential component of any system, or as critical technology as part of any system, during contract performance, or the vendor is notified of such by a Subvendor at any tier or by any other source, the vendor shall report the information in paragraph (d)(2) of this clause to the contracting officer, unless elsewhere in this contract are established procedures for reporting the information; in the case of the Department of Defense, the vendor shall report to the website at <https://dibnet.dod.mil>. For indefinite delivery contracts, the vendor shall report to the contracting officer for the indefinite delivery contract and the contracting officer(s) for any affected order or, in the case of the Department of Defense, identify both the indefinite delivery contract and any affected orders in the report provided at <https://dibnet.dod.mil>.

(2) The vendor shall report the following information pursuant to paragraph (d)(1) of this clause

(i) Within one business day from the date of such identification or notification: the contract number; the order number(s), if applicable; supplier name; supplier unique entity identifier (if known); supplier Commercial and Government Entity (CAGE) code (if known); brand; model number (original equipment manufacturer number, manufacturer part number, or wholesaler number); item description; and any readily available information about mitigation actions undertaken or recommended.

(ii) Within 10 business days of submitting the information in paragraph (d)(2)(i) of this clause: any further available information about mitigation actions undertaken or recommended. In addition, the vendor shall describe the efforts it undertook to prevent use or submission of covered telecommunications equipment or services, and any additional efforts that will be incorporated to prevent future use or submission of covered telecommunications equipment or services.

(e) Subcontracts. The vendor shall insert the substance of this clause, including this paragraph (e) and excluding paragraph (b)(2), in all subcontracts and other contractual instruments, including subcontracts for the acquisition of commercial items.

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Appendix A: Statement of Need

DSO requires a Spectrum Scheduling System (S3) and Interference Prevention, Detection, and Resolution (IPDR) capability which assist the Federal and non-Federal users in maintaining Part 96 regulatory rules <https://www.ecfr.gov/cgi-bin/text-idx?node=pt47.5.96&rgn=div5> and the associated Wireless Innovation Forum baseline requirements (Release 1) and enhancements (Release 2) <https://cbrs.wirelessinnovation.org/cbrs-baseline-specifications>.

The S3 capability 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 security limitations. The S3 capability prototyped 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 ESC. This capability will provide advanced notice of DoD operations to SASs within the specified band(s) to protect operations. The following capabilities are necessary to address this problem:

- **The prototype S3 and IPDR capabilities shall:**
 - Leverage Platform One
 - The TARDyS3 tool suite will be built using the Platform One Party Bus – Advanced Battle Management System (ABMS) All Domain Common Environment (ADCE). More information on the Party Bus ABMS ADCE can be found at: <https://p1.dsop.io/#/products/abms-adce>
 - Applications shall be built/deployed in accordance with Platform One guidance/requirements.
 - More information about Platform One can be found at: <https://p1.dsop.io/#/>
 - Be developed to maximize the utilization of Platform One Security and Accreditation support
 - Be built in accordance with the Platform One c-ATO
 - Be based upon a Zero Trust Architecture, as described in NIST SP 800-207. The system should be developed and operated using risk-based, cybersecurity-informed engineering and leverage widely adopted best practices
 - Be consistent with the following Security Guidance:
 - Platform One Survival Guide
 - Application Security and Development Security Technical Implementation Guide (STIG)
 - Maintain high quality software code that follows a consistent style, is easily understood, is well-documented, and can be tested
- **In addition to the requirements listed above, the S3 capability shall also meet the following requirements:**

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- Interface to both the DoD portal-DPA user community with a graphical user interface (GUI) and the SAS Administrators with an API for machine access
- Provide capability for the user community to schedule spectrum allocations for a specific site, on specific days, during specific times (start and stop), and on specific channels of the band (3550 – 3560 MHz).
 - Sites: P-DPA KML – as of 8/19/2020 <https://www.ntia.doc.gov/fcc-filing/2015/ntia-letter-fcc-commercial-operations-3550-3650-mhz-band> see: P-DPAS.kml
- Provide capability for users to review, edit, or delete previous reservations.
- Provide capability for the SAS Administrators to pull data from the application as often as necessary.
 - As additional SAS Administrators are certified the application should be able to interface to additional SAS Admins.
- Be an unclassified application that bridges between DoD networks (IL-4) and the Unclassified open internet (IL-2).
- **In addition to the requirements above, the IPDR capability shall also meet the following requirements:**
 - Accessible to the DoD 3550-3560 MHz spectrum user community through a web interface with a GUI capable of addressing interference prevention, detection, and reporting and support the following services:
 - Serve as a knowledge management service which collects DoD best practices for operational employment of DoD systems within the 3550-3650 MHz band.
 - Serve as a spectrum planning service which can be used to evaluate likelihood of interference
 - This service will use the same propagation model(s) as used in the WINNF Release 1 specification or any future propagation models which are added to later releases.
 - Bulletins shall be posted to the front page of the user-facing webpage to highlight potential sources of interference for planners to avoid.
 - Process interference detection reports that are submitted by DoD radar system users and DoD EMS Command and Control (C2) systems via a user GUI.
 - A sensor aggregation service is made available for netted environmental sensors to provide electromagnetic environmental data that feeds an interference identification service to identify potential sources of interference
 - Include an automated negotiation service that will exchange relevant data between Federal and non-Federal systems:
 - Provide an interface to the CBRS SAS administrators with a GUI that enables them to respond to reported interference.
 - Provide an interface to the DoD user community with a GUI that enables them to report interference. This interface may be impact level-5 (IL-5) or impact level-6 (IL-6).
 - Provide an interface to the regulatory community, FCC and NTIA, for regulatory oversight with a dashboard showing current interference reports.

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- 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
- Address Future CDS needs: At a minimum, deploy an IL-5 environment that simulates a potential IL-6 implementation. Data is appropriately tagged and securely managed in accordance with classification and infosec guidance to enable a future Cross Domain implementation. An API is provided to support a future Cross Domain implementation.
 - Commercial entities will access the system from a web portal at IL-2 (Government controlled, Internet accessible)
 - Government entities will access the prototype Unclassified system at IL-5 (Government controlled, Mission critical/National Security Systems)
 - The prototype Unclassified IL-5 system will be deployable within an IL-6 (Classified: Secret) environment
 - Data format:
 - Mission data is transmitted in a well formed, Extensible Markup language (XML) document. The XML schema should support portion marking to support automated classification decisions.
 - CI/CD artifact transfer aligns with Platform One CDS processes.
 - Identify a technically feasible plan to support cross-domain data flows between IL-2/5/6 environments. Enterprise CDS are preferred over single-use CDS. Potential Enterprise CDS include Amazon Web Services (AWS) Diode and DISA Cross Domain Enterprise Service.
 - Notional data flows include:
 - CI/CD Artifacts Low -> High
 - Mission data from Low -> High
 - Mission data from High -> Low
- **In developing the prototype S3 and IPDR capabilities, the vendor shall:**
 - Provide project management for the development activities
 - Provide business continuity throughout the Period of Performance (PoP)
 - Provide continuous engagement and continuity of services
 - Administer engineering team coordination (e.g., SAS administrators and DoD components)
 - Conduct effective stakeholder management, including communicating technical details to key stakeholders
 - Provide the Government with full access to the vendor's development workflow and environment
 - Provide technical and operational support (e.g., training and help desk support) to end-users
 - Provide Key Personnel, to include: Project Manager, Information System Security Officer, Spectrum Lead, and Software Lead. Key persons shall be substantive members of the TARDyS3 development team.

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- Provide the Government with full ownership of the source code for the TARDyS3 prototype, void of any proprietary dependencies

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Appendix B: Challenges



Defense Information Systems Agency (DISA)

Defense Spectrum Organization (DSO)



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System (TARDyS3) Program**

Challenge Based Acquisition

Draft Demonstration Scenarios

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NOTE: These draft Demonstration Scenarios are being released as part of the TARDyS3 Request for White Paper (RWP). They are provided to provide clarity into how the TARDyS3 program intends to conduct the demonstration scenarios. These demonstration scenarios are DRAFT, and they are subject to change after the release of the RWP. The Government reserves the right to update the demonstration cases, projected demonstration times, evaluation criteria, and other characteristics of the demonstration scenarios.

The finalized demonstration information (including demonstration scenarios and evaluation criteria) will be provided during a technical exchange after the White Paper phase of this acquisition. Scenarios and evaluation criteria will be finalized in the “INVITATION TO DEMONSTRATIONS” that will follow the White Paper phase of this acquisition.

Introduction

The following demonstration scenarios provide the basis of the vendor demonstration phase of the TARDyS3 effort. The scenarios are based on key capabilities of the TARDyS3 effort and are designed to support the Government’s award decision(s) and to mitigate the Government’s execution risk following the award of the TARDyS3 Other Transaction Agreement (OTA).

Vendors will have time limits, allocated by the table below, to deliver their responses to the demonstration scenarios and to articulate their ability to meet and/or exceed the Government’s requirements. Each demonstration scenario includes a scenario description, scenario evaluation criteria and the Government objectives for the scenario. Vendors are expected to provide the key personnel that they propose to lead their effort to support their responses to the demonstration scenarios.

Vendors must complete all scenarios in accordance with the demonstration schedule.

Allocated Time (mins)		Event
Event	Total	
30	30	Scenario 1: Vendor-led Presentation
5	35	Scenario 1: Government Q&A Planning
60	1:35	Scenario 1: Government-led Q&A
15	1:50	BREAK
60	2:50	Scenario 2: Vendor-led Tabletop
5	2:55	Scenario 2: Government Q&A Planning
30	3:25	Scenario 2: Government-led Q&A
10	3:35	BREAK
20	3:55	Scenario 3: Vendor-led Presentation
5	4:00	Scenario 3: Government Q&A Planning
20	4:20	Scenario 3: Government-led Q&A

Table 4: Demonstration Schedule

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DEMONSTRATION SCENARIOS:

Scenario 1: Agile Development Approach

Scenario 1 Description:

The vendor shall demonstrate their approach to the agile development process, including planning, execution, reviews, and retrospectives; and the vendor shall demonstrate their ability to use a DevSecOps Pipeline.

The demonstrated approach must include all key considerations, team approaches, and daily activities. It should describe the “real world” approach that details how the vendor conducts DevSecOps, utilizes a pipeline, and interacts with the product owner. Additionally, the vendor shall describe how their DevSecOps approach is consistent with developing in the Platform One Party Bus environment. Details, documents, background information, on the Platform One environment can be found at the following links: <https://software.af.mil/team/platformone/> and <https://p1.dsop.io/#/services>.

Vendors should convey the relevant certifications and experience of their proposed TARDyS3 team’s through whatever means they believe would be most effective. This should include their personnel with Certified Kubernetes Application Developer and Certified Kubernetes Security Specialist certifications. For any certifications that are already held by their personnel, vendors should include the date of certification. For any certifications that are planned to be completed or are in-process, vendors should include the anticipated date of completed certification.

The Government highly suggests that the vendor’s proposed team and technical experts lead the Scenario 1 demonstration discussion (not marketing, corporate, or business development professionals). The vendor should address key aspects of their proposed Agile and DevSecOps practices, consistent with the Platform One Party Bus environment. At a minimum, the vendor is expected to address:

- How the DevSecOps team implements the agile process and what innovations they have incorporated into their processes
- The specifics of the DevSecOps architecture to include tools, processes, expertise, standards, and metrics
- How development practices are applied in the Platform One environment (e.g., Kubernetes, Istio)
- How the DevSecOps pipeline and Agile Approach:
 - Supports Continuous Integration and Continuous Delivery (CI/CD)
 - Incorporates build, test, and deployment automation
 - Promotes product from development to production reliably and consistently
 - Performs code branching or code configuration management
 - Includes project metrics and measures of effectiveness (e.g., successfulness)
 - Decides what programming languages are used and how they are selected
 - Structures and incorporates retrospectives to improve future capability deliveries
- The vendors approach to security. How security is planned and accounted for at all stages of development; including how risks are assessed, mitigated, tested, and containerization is integrated in the approach
- How the vendor ensures the quality, security, and appropriate and valid test coverage:
 - Validating code coverage and code scans to ensure quality and security
 - Their upfront static analysis approach

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- Utilization of quality and security tools throughout the pipeline

Vendors are encouraged to demonstrate their project tracking tools. Vendors are also encouraged to provide real examples or demonstrations of a DevSecOps pipeline and/or the results and artifacts of that pipeline, to demonstrate their comprehensive understanding of DevSecOps.

Following the vendor-led presentation, the Government will host and lead a One (1) hour question and answer session where the Government team will ask the Vendor's product development team technical questions about their Agile development and DevSecOps practices. Due to the technical nature of these questions, the vendor is encouraged to have their proposed Agile and DevSecOps team (e.g., Scrum Master, Agile Coach, Information Systems Security Officer, etc.) lead the Scenario 1 demonstration. Questions will be tailored to each vendor, based on the specific solutions and ideas that are presented in the demonstration.

Scenario 1 Evaluation Criteria:

- DevSecOps and Agile: The degree to which the vendor plans to implement an effective DevSecOps and agile development process to produce a TARDyS3 prototype
- Innovation: The degree to which the vendor applies innovative and unique concepts, with acceptable risk, to:
 - Maximize CI/CD effectiveness through the DevSecOps pipeline
 - Operate within the Platform One environment
 - Maximize product effectiveness
 - Maximize the efficiency of the DevSecOps and Agile development processes
- Security and Quality: The vendor's pipeline and approach ensure robust security, containerization, code quality and test coverage

Scenario 1 Government Furnished Information (GFI) and Inputs:

- Fifteen to Twenty-Five follow-up technical questions

Scenario 2: Interference Resolution Tabletop

Scenario 2 Description: Scenario 2 demonstrates a tabletop exercise of an interference resolution workflow that describes stakeholder interactions, spectrum modeling approach, data classification management approach, and data conditioning approach. The vendor should prepare a workflow that outlines the end-to-end processes for resolving interference in the 3550-3650MHz band.

The vendor will be provided a condition where a DoD user is experiencing interference. This will model a Joint Spectrum Interference Resolution Online (JSIRO) type report in accordance with Chairman of the Joint Chiefs of Staff Manual (CJCSM) 3320.02D. The following will also be provided: A DD1494 for the DoD notional system, a location for the DoD notional system, and a notional deployment of the Citizens Broadband Radio Service Device CBSDs (including installation parameters).

The vendor shall tabletop how interference resolution will work in the given scenario, using the input parameters that are provided. Vendors should use the input parameters as constraints and appropriately

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parse the Full Activity Dump message (ref. WINNF-TS-0096 ‘Signaling Protocols and Procedures for Citizens Broadband Radio Service (CBRS): Spectrum Access System (SAS) – SAS Interface Technical Specification’ Version 1.3.1). Vendors should describe any limitations of the input data and any risks (including potential mitigations applied within the workflow) associated with human-entered data. The workflow tabletop should describe the end-state for the vendor’s prototype solution, consistent with the statement of need. The end-to-end process shall address the key interfaces and interactions between CBRS stakeholders, regulatory authorities, and the DoD, including how to transition the classified interference report across the domain boundaries from IL-5 or IL-6 to IL-2 and back again, when necessary. The vendor shall assume that the prototype will require that users manually transfer data to and from any classified system. During the demonstration, the vendor will be expected to walk through each step of the workflow. For each step, the vendor should identify at a minimum: data requirements/inputs, data controls, data outputs, data transformation/analysis, decision points, and dependencies. The workflow should also describe how actors (e.g., stakeholders or users) provide input, conduct actions, or receive outputs of the workflow. For any tools (either existing tools leveraged, existing tools modified, or new tools created), as part of the workflow, the vendor shall describe **how** those tools identify, assess and report interference.

The vendor will have up to sixty (60) minutes to demonstrate their workflow and describe the interactions between stakeholders, the data exchanges that are present within their proposed workflows, and the data formats that are used, including any cross-domain solutions. The vendor shall talk to the root cause analysis determinations of where interference is coming from, demonstrate knowledge of aggregate interference, identify the likely source of interference, and describe the communication channels that would resolve such interference.

Following the demonstration, the Government will host and lead a thirty (30) minute question and answer session where the Government team will ask the Vendor focused questions about their workflow demonstration, as it relates to the scenario evaluation criteria. Due to the technical nature of these questions, the vendor is encouraged to have their proposed spectrum experts lead the Scenario 2 demonstration. Questions will be tailored to each vendor, based on the specific solutions and ideas that are presented in the demonstration.

Scenario 2 Evaluation Criteria:

- The degree to which the vendor applies a working knowledge of data standards, data conditioning, and data classification
- The degree to which the vendor demonstrates a clear understanding of the CBRS Stakeholder Community and CBRS operating parameters as part of the workflow process.
- The degree to which the vendor applies an advanced working knowledge of spectrum management and interference resolution concepts as part of the workflow process.
- The degree to which the vendor applies innovative and unique concepts, with acceptable risk, to improve identification, assessment, and reporting of all potential sources of electromagnetic interference

Scenario 2 GFI and Inputs:

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- JSIRO Report describing interference
- A JF12 for the DoD System with appropriately tagged data elements
- Location information for the DoD System
- Full activity dump of CBSDs and the Electromagnetic Environment (EME) (including installation parameters)
- All relevant background information on CBRS (links)
- Five to Ten follow-up technical questions

Scenario 3: Prototype Product Roadmap

Scenario 3 Description: The vendor shall develop a draft product roadmap that can be used to guide the prototype effort for both the S3 and IPDR capabilities. The vendor shall describe each key feature of a successful S3 and IPDR. The vendor shall include additional details about features that exceed the minimum set of requirements in the statement of need. The vendor shall include their MVPs and/or MVCRs as part of the roadmap and include the definition and characteristics that lead to those MVPs and/or MVCRs. For any innovative or unique approaches/concepts, the vendor shall describe the risk and opportunity tradeoff process and decisions that contributed to including such approaches/concepts.

The vendor will rely on GFI and their own working knowledge of spectrum management concepts to create the product roadmap. At the Demonstration Event, the vendor will have twenty (20) minutes to present their MVCR product roadmap to the evaluation team. The vendor should integrate innovations and other unique concepts, as appropriate, to accelerate schedule, improve technical performance, and/or reduce resource consumption.

The presentation will be followed by a Question and Answer session. Due to the technical nature of these questions, the vendor is encouraged to have a mix of project and technical leadership lead the Scenario 3 demonstration. Questions will be tailored to each vendor, based on the specific solutions and ideas that are presented in the demonstration.

Scenario 3 Evaluation Criteria:

- The degree to which the vendor can deliver an effective S3 and IPDR
- The degree to which the vendor applies innovative and unique concepts, with acceptable risk, to:
 - Improve product capabilities, beyond the minimum set of prototype requirements
 - Compress schedule and deliver usable capability in a timely manner
 - Maximize opportunities for user and stakeholder engagement

Scenario 3 GFI and Inputs:

- Five to Ten follow-up technical questions that get to the heart of whether the vendor understands the S3 and IPDR requirements

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Appendix C: Industry Teaming

The DISA TARDyS3 program office has established this TARDyS3 Match Making tool to further enhance industry engagement and establish an outlet for interested vendors to highlight their capabilities, search for potential partners, and establish strong teaming relationships.

Partnerships are critical to the successful execution of this acquisition, and we are imploring industry to establish synergistic relationships for this acquisition. The Whitepaper evaluation includes an evaluation of partnerships and teaming arrangements and the communication approach therein. These arrangements are an important consideration for DISA. **The TARDyS3 Match Making Tool is not mandatory, and any submission or participation in the Match Making Tool will not be evaluated by the Government.** It is, however, meant to foster partnerships and teaming in preparation for responses to the Request for White Paper. If interested in sharing your capabilities and potentially partnering with other vendors for this acquisition, please go to the TARDyS3 Match Making Tool at: <http://tardys3.mitre.org/>

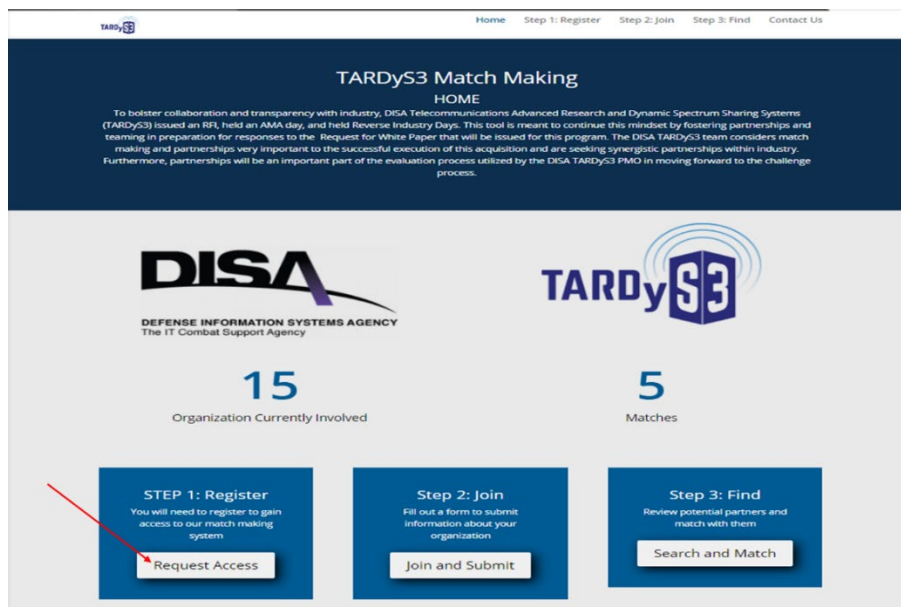
You can request access, submit your company information and capabilities, and search, match, and establish teaming arrangements and partnerships with others seeking to do so as well. Again, we view strong partnerships as the cornerstone to the success of this acquisition and hope you take advantage of this tool and outlet.

Step 1:

Please visit <http://tardys3.mitre.org/>

Step 2:

Click on “Request Access”



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Step 3:

Fill out registration information and then you will be contacted once an account has been created. This will allow the user to join, submit for match making, and search registered companies.



The screenshot shows the top navigation bar with the TARDyS3 logo and links for Home, Step 1: Register, Step 2: Join, Step 3: Find, and Contact Us. Below the navigation is a dark blue banner with the title "TARDyS3 Match Making" and the sub-header "STEP 1: REGISTER". The banner contains a paragraph of text explaining the program's purpose: "To bolster collaboration and transparency with industry, DISA Telecommunications Advanced Research and Dynamic Spectrum Sharing Systems (TARDyS3) issued an RFI, held an AMA day, and held Reverse Industry Days. This tool is meant to continue this mindset by fostering partnerships and teaming in preparation for responses to the Request for White Paper that will be issued for this program. The DISA TARDyS3 team considers match making and partnerships very important to the successful execution of this acquisition and are seeking synergistic partnerships within industry. Furthermore, partnerships will be an important part of the evaluation process utilized by the DISA TARDyS3 PMO in moving forward to the challenge process."

Register

Fields marked with an * are required

Name *

Email *

Organization *

Reason for Joining *

Submit

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Appendix D: Useful Links and Documents

Note: The following links do not constitute a DoD endorsement of CBRS standards or the Wireless Innovation Forum; however, DoD systems must effectively operate with CBRS.

1. <https://www.wirelessinnovation.org/>
2. <https://www.wirelessinnovation.org/webinars>
3. <https://winnf.memberclicks.net/assets/CBRS/WINNF-TS-0096.pdf>
4. <https://www.fcc.gov/auction/105>
5. <https://www.ecfr.gov/cgi-bin/text-idx?node=pt47.5.96&rgn=div5>
6. <https://cbrs.wirelessinnovation.org/cbrs-baseline-specifications>.
7. <https://p1.dsop.io/#/products/abms-adce>
8. <https://p1.dsop.io/#/>
9. <https://software.af.mil/team/platformone/>
10. <https://p1.dsop.io/#/services>.
11. <https://www.ntia.doc.gov/fcc-filing/2015/ntia-letter-fcc-commercial-operations-3550-3650-mhz-band>
12. <https://www.ntia.doc.gov/files/ntia/publications/p-dpas.kml>
13. <https://www.ntia.doc.gov/files/ntia/publications/e-dpas.kml>
14. <https://www.ntia.doc.gov/files/ntia/publications/gb-dpas.kml>
15. <https://www.ntia.doc.gov/files/ntia/publications/exz.kml>
16. <https://www.jcs.mil/Portals/36/Documents/Library/Manuals/m332002.pdf>



(U) Platform
One_Party Bus Surviva