

**STRATEGIC & SPECTRUM MISSIONS ADVANCED RESILIENT TRUSTED SYSTEMS
(S²MARTS)
REQUEST FOR SOLUTIONS (RFS)**

in support of the

**RADIO FREQUENCY SPECTRUM DOMINANCE (RFSD)
PROTOTYPE PROJECT**

Project No. 20-03

All respondents must be members of the NSTXL consortium.

- 1. Project Title:** Radio Frequency Spectrum Dominance (RFSD)
- 2. Prototype Project Sponsor/Requiring Activity:** Naval Surface Warfare Center (NSWC), Crane Division, Spectrum Department, and Joint Staff J-7, J-8, Assistant Secretary of Defense Research and Engineering, and the Office of the Secretary of Defense Cost Assessment and Program Evaluation
- 3. Contracting Activity:** NSWC Crane Division
- 4. Project Background & Current Capability:**

Military personnel supporting deployed missions have little to no control of the frequency spectrum. Due to the operational environment, there is a lack of awareness into the employment of radio, cellular, wireless, internet, 5G, and mesh communications. This shortcoming is amplified by emerging threats that utilize wireless devices, including Unmanned Aircraft Vehicles (UAV) or drones and IP-based communications within proximity (<5km) of fixed bases and underway maritime vessels.

In addition, the internet has presented new challenges for managing strategic interests and countering false narratives posed by both state and non-state propaganda channels. In addition, the U.S. Department of Defense supply chains are vulnerable to vendor compromise, adversary surveillance, exploitation, and attack. Hardware is particularly vulnerable to embedded malware sourced from non-reputable companies. There must be greater recognition of trusted devices and components and greater control of the acquisition supply chain.

Intercepting and interpreting RF signals is currently an underdeveloped capability. Improved RF spectrum analysis will allow warfighters greater ability to counter threats posed in the RF spectrum, namely enemy fighters' use of remote IEDs and UAVs. The RF spectrum includes all manner of radio and telecommunication frequencies, and it is difficult—if not impossible—for humans to discern dangerous from innocuous frequencies with standard tools. Technologies exist today that are capable of parsing through the EMS, however there is a need to advance these systems to provide robust and usable results for warfighters.

The RFSD project aims to collect RF signals between 40 MHz and 6GHz, analyze the signals, compare against a baseline environment, and automatically alert warfighters to anomalous signals.

5. Desired End-State Objective(s) & Success Criteria:

The Department of Defense seeks a capability to detect and counter emerging threats which utilize internet, telecommunications, and the electromagnetic spectrum (EMS). The intent of the RFSD project is to pursue the development and evaluation of a system of systems to mitigate this growing threat.

RFSD's objectives are to design an autonomous system of systems capable of collecting RF signals between 40 MHz and 6 GHz and analyze 4G/5G/Wi-Fi internet signals of interest. The system will analyze the signals it collects, compare them against a baseline, and automatically alert users to anomalous signals, limiting the need for technical competency of the warfighter and providing fast, accurate results.

Improving the capabilities to manage telecommunications in a strategic environment will provide the ability to deter adversaries and prevail in conflict. The RFSD prototype project is seeking innovative technological solutions to address current and future security threats in the EMS and online with trusted microelectronics, as well as strategic missions hardware and software.

For a prototype to be considered successful, the performer will conduct a Final Demonstration of the prototype on DoD range facilities, during which the prototype's capabilities must be successfully demonstrated. A partial solution may be determined to be successful if the user determined it to be effective in a limited role. A Final Technical Report of the prototype capabilities as demonstrated at the Final Demonstration will also be required. Extended user evaluations or additional prototypes may be pursued to determine military utility.

The project is expected to have a duration of 24 to 36 months and will culminate in an integrated demonstration and assessment of RFSD capabilities that determine the operational utility and feasibility of integrated prototype capabilities.

To evaluate these objectives, the Technology Experimentation Center (TEC) at Muscatatuck Urban Training Center (MUTC), Indiana, will provide operationally focused assessment and demonstration planning, coordination, execution, analysis, and report writing.

Phase 1 Technical Objectives:

The objectives of Phase 1 are to identify a candidate's or multiple candidate's solutions; development of a Technical Execution Plan, hardware prototype building, interim testing of hardware prototype(s) at contractor facility with Government personnel present or at DoD range facilities, culminating in a decision on whether or not to move into Phase 2.

Phase 2 Technical Objectives:

The objectives of Phase 2 are to perform test and assessment of prototype(s) at DoD range facilities, culminating in decisions as to whether or not to move into Phase 3.

- 1) During Phase 2, the RFSD project will include a technical demonstration, pilot test, and Government-led field assessment of the technology to evaluate military utility.
- 2) Assessment documentation will be necessary to allow the project sponsor to evaluate the ability of the solution to meet predefined metrics.
- 3) The selected performer(s) will need to produce a prototype in order to be evaluated in the operational environment.

Phase 3 Technical Objectives:

The objectives of Phase 3 are to support extended user evaluations with the US DoD in CONUS or OCONUS with Prototypes demonstrated during Phase 2.

- 1) Support extended user evaluations with the US DoD in CONUS or OCONUS with Prototypes demonstrated during Phase 2.
- 2) Provide prototype hardware, software, and documentation to support in theater training and Release for Use.
- 3) Provide technical reports regarding the performance and operational capabilities during the Extended User evaluations. Support the Assessment of Doctrine, Organization, Training, Materiel, Leadership and Education, Personnel (DOTMLPF) and Logistical (sustainment, spares) requirements for fielded prototypes.

6. Project Deliverables:

As this project requires the development of multiple systems—RF/anomalous signal analyzing, data scraping to include all signals of interest to including 4G/5G/Wi-Fi internet signals, database creation—there will be multiple sets of deliverables required. The final deliverable specifications for this project will be dependent on the selected solution, but at a minimum, will include:

- 1) An RF Spectrum analysis tool or system that is capable of collecting and analyzing radio frequency and other spectrum communications.
- 2) A software tool that is capable of scraping the internet to detect threats to DoD interests abroad.
- 3) A virtual database to store and organize information pertinent to DoD contractors, manufactures, and suppliers operating in complex geopolitical environments.

In addition, the selected performer(s) will need to include the following as technology and experimentation is carried out:

- 1) Technical reports regarding the experimental and prototype capabilities: A technical report will be published at the end of each agreement year, and discuss the current project status, advancements in prototype capabilities over the previous year, and the development plan for the following year.
- 2) Residual Hardware: Hardware created by the vendor during prototype development will be identified as a project deliverable and used to evaluate project status and provide experimental validity.
- 3) Military Utility Assessment: A formal assessment of the completed prototype system with regards to operational utility of the technology. The MUA will include in-theatre test and evaluation.

No.	Deliverable	Description	Frequency	Delivery Location
1	Monthly Status Report	Provide summary of events/actions completed during the previous month along with financial status and expenditures.	1/Month. Due the 15 th of the following month for each Phase	Electronic delivery
2	Technical Report	A technical report that discusses current project status, advancements in prototype capabilities over the previous year, and the development plan for the following year.	1/Year, Due 12 months from Award for each Phase	Electronic delivery
3	Residual Hardware	Includes hardware that has been developed for the prototype project. Hardware created by the vendor to advance prototype capabilities will be used as project deliverables to evaluate project status and provide experimental validity.	Due at the conclusion of each Phase	Muscatatuck Urban Training Center (MUTC), Indiana
4	Phase 3 Technical Report	A final technical report that discusses the final state of the prototype capabilities.	Once, Due at the conclusion of Phase 3	Electronic delivery
5	Military Utility Assessment	A formal assessment of the completed prototype system with regards to operational utility of the technology. The MUA will include in-theatre test and evaluation and extended user evaluations.	Once, Due after the completion of the final prototype	Electronic delivery
6	Extended Users Evaluation	Warfighter/User evaluations to help assess the utility and usability of the prototype system. User Evaluations should occur throughout appropriate phases of prototype development to guide future capabilities.	Once, Due at the conclusion of Phase 3	Electronic delivery
8	RF Spectrum Analysis Tool or System	A tool or system that is capable of collecting and analyzing radio frequency and other spectrum communications.	Once, Due at conclusion of Phase 2	MUTC, Indiana
9	Software Tool (Threat Detection)	A software tool capable of scraping the internet to detect threats to DoD interests abroad.	Once, Due at conclusion of Phase 2	MUTC, Indiana

10	Virtual Database	A virtual database to store and organize information pertinent to DoD contractors, manufactures, and suppliers operating in complex geopolitical environments.	Once, Due at conclusion of Phase 2	MUTC, Indiana
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7. Current Project Budget: \$30,000,000

This value represents what is currently available for the subject project at the time of the RFS release. This value is subject to change but is being provided for planning purposes. Respondents are encouraged to clearly explain how much of their solution can be developed for the advertised amount. Capabilities or project phases that will require additional funding beyond the project budget must be identified as such. The Government may enter into a single award or multiple awards. Respondents are encouraged to provide their most competitive total price as total price is considered as part of the evaluation and the budget estimate should not be used as the project value without sound basis to support the expense.

8. Security Classification, Respondent Restrictions, and other required compliances:

This project encompasses the following restrictions:

- a. Security Classification: Security classification requirements for Phase I will be Unclassified. Security classifications at the SECRET or TOP SECRET level may be required for future phases and will be addressed on an as needed basis. Each proposal should indicate that the respondent currently meets classifications at the SECRET or TOP SECRET level or provide its plan to obtain if needed for future phases.
- b. International Trades and Arms Regulations (ITAR): ITAR Compliance **is** required for any exports.
- c. Respondent Restrictions: Respondents are limited to companies based in the United States only; Subcontractors/teaming partners may include foreign entities and must be identified within the technical volume accordingly. (See RFS Section 10(b)(ii)(7)).
- d. Hazardous Materials: None
- e. Any additional restrictions/security requirements applicable to this project:
 - Respondents must implement the security requirements in NIST SP 800-171, “Protecting Controlled Unclassified Information in Non-Federal Information Systems and Organizations”
 - Respondents must be compliant with DoDI 8582.01, “Security of Unclassified DoD Information on Non-DoD Information Systems” and DoDM 5200.01

9. Level of Data Rights Requested by the Government:

Government Purpose Rights: the right to use, modify, reproduce, release or disclose the technical data or computer software within the Government without restriction and outside the Government for a Government purpose.

10. RFS and Response Process:

- a. The following is requested from all respondents:

Proposal Volumes	Page Limitation
Technical Response	20 pages (max)
Price Response	5 pages (max)

For written submissions, the following formatting guidelines shall be followed by respondents:

- 10-point font (or larger) for all response narratives; smaller type may be used in figures and tables but must be clearly legible.
- Single-spaced, single-sided (8.5 by 11 inches).
- Margins on all sides (top, bottom, left, and right) should be at least 1 inch.
- 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
- Files must be submitted in PDF and/or Microsoft Word formats only. Price volumes may be submitted in an editable, unlocked Excel file

- b. Each submittal **must include** (i) a Cover Page, (ii) a Technical Response, and (iii) a Price Response that each align to the instructions below:
- i. Cover Page: (Not included within page count) The cover page shall include the company's name, Commercial and Government Entity (CAGE) Code (if available), level of facility clearance (if available), address, primary point of contact, business size, and status of U.S. ownership.

Respondents shall also identify the applicable 10 U.S.C. § 2371b eligibility criteria related to the response (*please identify only one*):

- There is at least one nontraditional defense contractor (*defined below*) or nonprofit research institution participating to a significant extent in the project; **OR**
- All significant participants in the transaction other than the Federal Government are small businesses (including small businesses participating in a program described under section 9 of the Small Business Act (15 U.S.C. § 638)) or nontraditional defense contractors; **OR**
- At least one third of the total cost of the project is to be provided by sources other than the Federal Government.

Note: A *Nontraditional Defense Contractor* is defined as an entity that is not currently performing and has not performed, for at least the one-year period preceding the solicitation of sources by the Department of Defense (DOD) for the procurement of transaction, any contract or subcontract for the DOD that is subject to full coverage under the cost accounting standards prescribed pursuant to 41 U.S.Code § 1502 and the regulations implementing such section.

- ii. Technical Response:

Responses should be constructed to align with the order of the instructions below (1 - 8).

1. Solution Narrative: Respondents shall describe the approach used to design/deliver a unique prototype solution for the prototype technology objectives defined in RFS Section 5, Desired End-State Objective(s), to include any attachments. While these focus areas are of significant importance, responses will be considered as a whole. No pricing shall be included in the technical response.

The Solution Narrative must also include a discussion on schedule and the timing of all deliverable(s) to include those outlined within RFS Section 6, Project Deliverables.

2. Explanation Supporting Eligibility for Award of a Prototype OTA:

Respondents shall provide rationale to support the specific condition that permits award of an OTA to the proposed prime contractor/performer. The onus of proof to support *nontraditional participation to a significant extent; small business or nontraditional defense contractor status; or any cost sharing arrangement* lies with the respondent and has a direct correlation to award eligibility.

3. Foreign Owned, Controlled, or Influenced (FOCI) Documentation (if applicable): Documentation may include, but is not limited to: Standard Form 328 (Certificate Pertaining to Foreign Interest); Listing of Key Management Personnel; an Organizational Chart; Security Control Agreements: Special Security Agreements; and Proxy Agreements or Voting Trust Agreements. It is recommended companies who fall within the FOCI category visit <https://www.dss.mil> for additional guidance and instruction.
4. Government Furnished Property or Information: Respondents must clearly identify if its proposed solution depends on Government Furnished Information (GFI) / Government Furnished Property (GFP) or other forms of Government support (i.e. laboratory or facility access), etc.

If so, the response must specify the GFI/GFP required. Respondents must clearly identify if its proposed solution depends on GFI/GFP or other forms of Government support be provided, the impact to the solution if the requested information/property/asset is not available, and will confirm the details with the respondent prior to any proposal revisions or selection, if applicable.

5. Mandatory Compliance with Restrictions: Respondents must address the restrictions identified within RFS Section 8, Security Classification, Respondent Restrictions, and other Required Compliance, and explain how each regulation or standard is currently, or will be met.
6. Task Description Document (Not Included Within Page Count): Respondents must provide a Task Description Document (TDD) outlining the project tasks to be performed along with schedule milestones and delivery dates required for successful completion. It is anticipated that, if selected, the proposed TDD will be incorporated into the resultant award. Respondents are encouraged to be concise but thorough when outlining their work statements. The TDD may be submitted as an appendix or a separate file as part of the proposal.
7. Summary of Subcontractor Participation (if applicable): Respondents must identify all subcontractors involved and their role within the performance of the proposed concept. The information must include the following:
 - a. Subcontractor company name, Commercial and Government Entity (CAGE) Code (if available), level of facility clearance (if available), address, primary point of contact, business size, and status of U.S. ownership.

- b. If the subcontracted company's involvement is considered significant, rationale supporting the significance must be present within the narrative. The onus of proof to support participation to a significant extent or any cost sharing arrangement lies with the respondent and has a direct correlation to award eligibility.
- c. If applicable, Foreign Owned, Controlled, or Influenced (FOCI) Mitigation Documentation shall be provided for subcontractors and will not count towards the page count.

8. Data Rights Assertions and Level of Rights Proposed:

- a. The rights offered should be displayed in a manner that allows for ease of discussion in determining trade-offs and potential options for long-term sustainability of the deliverables of this effort.
- b. If rights are being asserted at a level less than the Government's desired level of allocation (see RFS Section 9, Level of Data Rights Requested by the Government), respondents must provide detail explaining the specific rationale for the assertion.
- c. Any items previously developed with federal funding (and used for the proposed solution) should clearly identify all individual components funded by the Government and the recipient of the deliverables.
- d. If commercial software is proposed as part of the prototype solution, all applicable software licenses must be identified and included with the response. Note that any software license term or condition inconsistent with federal law will be negotiated out of the license.

iii. Price Response:

The price response shall be submitted as a separate file from the technical response. No pricing details shall be included in the technical response. The pricing response should be the price for all phases of the project.

This project will be awarded as a **Fixed Price** agreement comprised of **Payable Milestones**. The Government reserves the right to award one or many solutions proposed.

- 1. The overall total price should be divided among severable increments that align to a proposed milestone payment schedule. Milestones are not required to match actual expenditures but should realistically align to the effort expended or products delivered.

2. In order to support the Government's evaluation of fair and reasonable pricing, the respondent shall delineate the key pricing components, and show clear traceability to the phases and/or milestones of the Technical Response. At a minimum, key pricing components include Labor Total(s), Other Direct Costs/Material Total(s), License prices and Subcontractor price(s). Data should be segregated by each key objective, milestone, and/or phase proposed.
3. Include a brief narrative that explains your pricing structure and maps the proposed prices to the solution's technical approach.
4. Including a Basis of Estimate to support your pricing may substantially expedite evaluation of your response.
5. Any additional features or capabilities that extend beyond the currently requested core technical objectives shall be separately priced for the Government's consideration. Pending funding availability and need, the Government may fund these advanced features at a later date.

11. Evaluation Process and Methodology:

- a. Individual responses will be evaluated with consideration given to:
 - i. Demonstrated expertise and overall technical merit of the response;
 - ii. Feasibility of implementation; and
 - iii. Total project risk as it relates to the technical focus areas, price and schedule
- b. The Government will evaluate the degree to which the proposed solution provides a thorough, flexible, and sound approach in response to the prototype technical objectives as stated in RFS Section 5, Desired End-State Objectives, as well as the ability to fulfill the objectives in this RFS.
- c. The Government will award this project, via S²MARTS (Agreement No. N00164-19-9-0001), to the respondent(s) whose solution is assessed to be the most advantageous to the Government, when price, schedule, technical risks, the level of data rights, and other factors are considered. The Government reserves the right to award to a respondent that does not meet all the requirements of the RFS.
- d. The proposed project price, schedule, and intellectual property/data rights assertions will be considered as aspects of the entire response when weighing risk and reward. The assessment of risks is subjective and will consider all aspects of the proposed solution. Respondents are responsible for identifying risks within their submissions, as well as providing specific mitigating solutions.

- e. The Government reserves the right to reject a submission and deem it ineligible for consideration if the response is incomplete and/or does not clearly provide the requested information. Debriefings will not be provided.

12. Follow-On Activity:

- a. Upon successful completion of this prototype effort, the Government anticipates that a follow-on production effort may be awarded via either contract or transaction, without the use of competitive procedures if the participants in this transaction successfully complete the prototype project as competitively awarded from this document. The prototype effort will be considered successfully complete upon demonstration of the aforementioned technology objectives.
- b. Specifically, if the prototype for the RFSD project shows utility during the demonstration phase, there will be an option for limited fielding capabilities by USCENTCOM. If this limited fielding proves successful, full scale production will likely be contracted by the DoD. Follow-on production may be awarded to this project recipient if the prototype product is deemed successful.
- c. Successful completion for a specific capability may occur prior to the conclusion of the project to allow the Government to transition that aspect of the prototype project into production while other aspects of the prototype project have yet to be completed.
- d. Requirements of other potential follow-on activities could involve, though not limited to, continued development and baseline management, fielding, sustainment, training, further scaling of the solution, integration of future capabilities, or integration of the solution with other capabilities.

13. Important Dates

- a. Questions related to this RFS shall be submitted via email to **S2MARTS@nstxl.org** no later than 2:00PM Eastern Time on Wednesday, May 20, 2020.
- b. Proposals submitted in response to this RFS are due no later than 2:00PM Eastern Time on Monday, June 15, 2020.
- c. To submit your proposal, visit the *Opportunities* page at www.nstxl.org/opportunities, select the *Current* tab, locate the respective project, and select the “Submit Proposal” link. You must have an active account and be logged-in to submit your response.
- d. RFS Respondents are responsible for ensuring a timely submission and must be active members of the consortium at the time of proposal submission.

14. Additional Project Information

- a. The Government intends to award one Other Transaction Agreement as a result of this RFS; however, more than one award may be made if determined to be in the

Government's best interest. The Government also reserves the right to not select any of the solutions proposed.

- b. Acceptable responses not selected for the immediate award will be retained by NSTXL & the Government for possible future execution and funding. The non-selected proposals will be considered as viable alternatives for up to 36 months. If a proposal (that was not previously selected) is determined to be a suitable alternative, the company will be contacted to discuss any proposal updates and details of a subsequent project award.

Respondents whose proposals are not selected for the initial award shall not contact the Government or NSTXL to inquire about the status of any ongoing effort as it relates to the likelihood of their company being selected as a future alternative.

- c. The United States Navy, specifically Naval Surface Warfare Center, Crane Division, has release authority on any publications related to this prototype project.
- d. Unsuccessful respondents will be notified, however, debriefings for this project are not required nor planned at this time.
- e. If resource-sharing is proposed in accordance with 10 U.S. Code § 2371b(d)(1)(C), then the non-Federal amounts counted as provided, or to be provided, by parties other than the Federal Government may not include costs that were incurred before the date on which the OT agreement becomes effective. Costs offered as a resource-share that were incurred for a project after the beginning of negotiations, but prior to the date the OT agreement becomes effective, may be counted as non-Federal amounts if and to the extent that the Agreements Officer determines in writing that: (1) the party other than the Federal Government incurred the costs in anticipation of the OT agreement; and (2) it was appropriate for the entity to incur the costs before the OT agreement became effective in order to ensure the successful implementation of the OT agreement.
- f. Certain types of information submitted to the Department during the RFS and award process of an OT are exempt from disclosure requirements of 5 U.S.C. §552 (the Freedom of Information Act or FOIA) for a period of five years from the date the Department receives the information. It is recommended that respondents mark business plans and technical information that are to be protected for five years from FOIA disclosure with a legend identifying the documents as being submitted on a business confidential basis.
- g. No classified data shall be submitted within the proposal. To the extent that the project involves DoD controlled unclassified information, respondents must comply with DoDI 8582.01 and DoDM 5200.01 Volume 4. Respondents must implement the security requirements in NIST SP 800-171 for safeguarding the unclassified internal information system; and must report any cyber incidents that affect the controlled unclassified information directly to DoD at <https://dibnet.dod.mil>.

- h. Export controls (if applicable): Research findings and technology developments arising from the resulting proposed solution 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 selected performer must comply strictly with the International Traffic in Arms Regulation (22 C.F.R. §§ 120-130), the National Industrial Security Program Operating Manual (DoD 5220.22-M) and the Department of Commerce Export Regulation (15 C.F.R. §§ 730-774).