STRATEGIC & SPECTRUM MISSIONS ADVANCED RESILIENT TRUSTED SYSTEMS
(S^2MARTS)
REQUEST FOR SOLUTIONS (RFS)

in support of the

ELECTROMAGNETIC SPECTRUM (EMS) PREDICTIVE MODELING PROTOTYPE PROJECT

Project No. 20-01

All prospective respondents must be members of the NSTXL consortium.

1. **Project Title:** Electromagnetic Spectrum (EMS) Predictive Modeling Prototype

2. **Prototype Project Sponsor/Requiring Activity:** Naval Surface Warfare Center, Crane Division

3. **Contracting Activity:** Naval Surface Warfare Center, Crane Division (NSWCC)

4. **Project Background & Current Capability:** The rapid growth of technologies and systems that operate within the Electromagnetic Spectrum domain is complicating the Department of Defense's ability to assess vulnerabilities and properly design long-term strategic plans.

   The objective of this new analytic process will increase current and future mission effectiveness by: measuring impact of the operational landscape and current capabilities, reporting future technological trends, identifying capability gaps, recommending standards, and generating visual management aids and need statements to drive DoD's strategic decisions.

   The Department of Defense requires the development of multiple prediction models that will utilize new approaches to discover and analyze multi-domain capability gaps related to Electronic Warfare, Information Warfare, Electromagnetic Spectrum Operations, Electromagnetic Warfare, and Cyber Warfare.

   This prototype will develop standards and practices to foster development of electromagnetic solutions and will document and promulgate best practices across government, industry and academia in area such as standard program outreach material; standard training; government and industry standards and best practices. Additionally, this prototype project will develop

and demonstrate virtual prototype models to support the component, system, engagement, and mission level, Applications may include defense weapon system supply chain risk management (SCRM), electronic warfare engagements, cyber vulnerability threat analysis, and innovative uses of technology to achieve military advantage.

Overall, this new analytic process will increase mission effectiveness by: measuring impact of the current technological landscape, discovering gaps, reporting trends, recommending standards, and generating need statements to drive DoD's strategic decisions.

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

The main objective is to prototype predictive models to analyze new electromagnetic technologies and operational concepts utilizing analytical techniques. The predictive models will recommend application, adoption and integration into warfighting concepts of operation, as well as utilize enhanced virtual and augmented visual management methodologies to communicate outcomes. The outputs will drive business standards and practices through uses of processes and technology to derive optimal electromagnetic solutions. An example of a solution might be a software application or algorithm that identifies technology trends for future EW capability, budget trends, and recommends strategies for DoD to achieve electromagnetic superiority in future conflicts.

At a minimum, the Electromagnetic Spectrum Predictive Modeling Prototype will fulfill the following objectives:

- Visualization and communication methodology of effectiveness of Doctrine of the US Department of Defense related to the electronic warfare mission area and electromagnetic spectrum operational gaps and needs

- Strategies, concepts, and doctrine that will enable the US to achieve electromagnetic superiority in future conflicts

- Statement of need(s) to support escalation control and the expansion of the strategic competition

- Prototype of Force planning and order of battle for great power competition and Force composability, networks, power projection through a precision strike advantage, electromagnetic spectrum operations & warfare to assist in the development of the technical presentation, facilitated discussions, and operational vignettes used to explore opportunities and challenges associated with the EW Strategy and EW Strategic Implementation Plan.

- Analytical model to produce Market Segment for EW and EMS related S&T across the Department of Defense, resulting in a visual representation of the EW/EMS S&T market, detailing budget trends and organizations in the market.

- Identification of adjacent markets/DoD programs comparing emergent terms used in conjunction with, or in lieu of, EW (i.e. Information Warfare, Electromagnetic Spectrum Operations, Directed Energy, Cyber, etc.), and shall use this research to collaborate with NSWC Crane subject matter experts on publications that will contribute to the existing dialogue on the future of EW based on model outputs.

- EW/EMS related technology trends, resulting in a Statement of Need that lays out the technology trends that impact current and future EW missions.

- Methodology for NSWC Crane to vet advanced concepts for market viability and acceptability.

Phased Approach: The project's award will reflect a phased approach as follows:

Phase 1: Focused on design of initial predictive prototypes, preliminary outputs of model and an implementation plan for phases 2 through 4. Phase I may include multiple performers, however, the Government reserves the right to down-select for Phase 2.

Phase 2: Will proceed with advanced prototype build.

Phase 3: Demonstration and Qualification of Processes

Phase 4: Final Report of EMS Predictive Model Outcomes and Delivery of Process/Algorithm for Government Maintenance/Utilization

6. Project Deliverables:

Phase 1 Deliverables

- Deliverable 1: Status Report
  Description: Report summarizing the project's process and events/actions completed during the previous month
  Frequency: Monthly
  Delivery Location/Method: Via Email (Points of contact to be provided at award)

- Deliverable 2: Phase I Draft Technical & Business Plan
  Description: Report documenting the Initial Predictive Model design activities and/or Process approach
  Frequency: One delivery, 3 months after project award
  Delivery Location/Method: Via email

- Deliverable 3: Phase 1 Final Technical and Business Plan
  Frequency: 1 / once; 6 months after project award
  Delivery Location/Method: Via Email (Points of contact to be provided at award)
  Description: Report demonstrating the Initial Model/Process Outcomes and Comprised of Technical & Business Plans detailing the approach to complete the phases below:

    - Phase 2: *Advanced Prototype Capability Development and Initial Design Activities*. This phase will add advanced capability to the predictive models and identify the additional design activities to create a more robust model/prototype.

    - Phase 3: *Demonstration and Qualification of Processes*; Final deliverable of this phase will be a report detailing the outcomes of the advanced prototype model and qualification and validation of the prototype process/model.

    - Phase 4: *Final Report of EMS Predictive Model Outcomes and Delivery of Process/Algorithm for Government Maintenance/Utilization*. This phase includes the delivery of the prediction model process methodology or algorithm(s) that produce the EMS predictive outcomes along with familiarization training and/or user manual documentation to accompany the prototype model for the government's utilization.

Any other deliverables identified by the Offeror must be identified within the proposed Task Description Document (see (10)(b)(ii)(6) and have clear traceability to the respective solution proposed.

7. Current Project Budget: $ 150,000

This value represents what is currently available for the subject project for Phase 1 at the time of the RFS release. Respondents are encouraged to clearly explain how much of their solution can be developed for the advertised amount for Phase 1. Respondents may propose additional benefits and capabilities above and beyond the stated objective for consideration and additional funding. Capabilities for Phase 1 that will require additional funding beyond the project budget must be identified as options. Respondents will propose deliverables for Phases 2, 3, and 4 along with funding estimates to execute the phases beyond phase 1. The value for Phases 2, 3, and 4 is planned at a cumulative value of $2M, but is subject to change and is being provided for planning purposes.

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

This RFS has been released under Distribution Statement A and is approved for public release.

This project encompasses the following restrictions:

a. Security Classification: Security classification requirements for Phase I will be Unclassified. Security classifications at the 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 level or provide its plan to obtain.

- Respondents must be compliant with DoDI 8582.01, "Security of Unclassified DoD Information on Non-DoD Information Systems" and DoDM 5200.01 Volume 4, "DoD Information Security Program: Controlled Unclassified Information".

- Respondents must implement the security requirements in NIST SP 800-171, "Protecting Controlled Unclassified Information in Non-Federal Information Systems and Organizations".

b. ITAR Compliance Required (Yes/No): YES

c. Respondent Restrictions (e.g., domestic companies only):
Respondents (i.e., the prime contractor) are limited to domestic 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 Material: None.

e. Any additional restrictions applicable to this project: None

9. Level of Data Rights Requested by the Government:

The Government seeks government purpose data rights to all development and deliverables of technical data funded under the project agreement.

Data Rights and other Intellectual Property may be negotiated based on the offeror's proposed solution.

10. RFS and Response Process:

a. The following is requested from all respondents:

- A Cover Page (*not included in page count*)
- A Technical Response (20-page limit)
- A Price Response (5-page limit)

Instructions identifying what must be included within the submitted files are outlined below in Section 10.b.

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 objectives identified in Section Vs 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, all deliverables, and delivery dates required for successful completion. It is anticipated that, if selected, the proposed

TDD will be incorporated into the resultant OTA. 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. Please also review 10(b)(iii)(6) below for additional requirements related to data rights pricing.

    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 an award will not be made to a responder with a software license term or condition inconsistent with federal law..

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.

1. This project will employ the following pricing structure: Fixed Price agreement with Payable Milestones.

2. 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.

3. 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.

4. Include a brief narrative that explains your pricing structure and maps the proposed prices to the solution's technical approach.

5. Including a Basis of Estimate to support your pricing may substantially expedite evaluation of your response.

6. If limited or restricted rights are being asserted within the response, a table that includes prices for both Government Purpose Rights and Unlimited Rights for any limited or restricted item must be included.

7. 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 S^2MARTS (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. 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.

c. Requirements of other potential follow-on activities could involve, though not limited to, continued development and baseline management, bug fixes, fielding, sustainment, training, further scaling of the solution, integration of future capabilities, or integration of the solution with other capabilities. There must be a plan for outreach support in the event of outages or other technical issues.

13. Important Dates

a. Questions related to this RFS shall be submitted no later than Friday, February 28, 2020 .

   To submit any questions, visit the opportunities page at www.nstxl.org/opportunities, select the "Current" tab, locate the respective project, and select "Submit a Question".

b. Proposals submitted in response to this RFS are due no later than Thursday, March 19, 2020.

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.

c. RFS Respondents 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).