

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

in support of the
FREQUENCY SELECTED LIMITERS MANUFACTURING DEVELOPMENT
PROTOTYPE PROJECT

Project No. 21-09

All prospective respondents must be members of the NSTXL consortium.

1. Project Title: Frequency Selected Limiters Manufacturing Development
2. Prototype Project Sponsor/Requiring Activity: Naval Surface Warfare Center, Crane Division
3. Contracting Activity: NSWC Crane
4. Project Background & Current Capability:

The Department of the Navy (DoN) uses Radio Frequency (RF) waveforms to execute the Warfighter's mission requirements. As threats and mission requirements continue to evolve, the Department of Defense (DoD) is constantly looking to improve and upgrade its radar and Electronic Warfare (EW) system's capabilities. An emerging capability the Warfighter is looking to include in its systems is tunable filter and tunable limiter technologies. These technologies leverage Yttrium Iron Garnet (YIG) substrate films to provide an excellent combination of high quality (high Q) and broadband tuning range that enable the manufacturing of high-quality broadband pre-selectors and EW receiver front end applications.

While YIG films can be applied to multiple substrate materials, Gadolinium gallium garnet (GGG) substrate has been shown to excel at supporting YIG films since their lattice structures are well aligned. Growing the GGG substrates is challenging and the processes for growing this material is not available domestically. The purpose of this project is to support establishing a domestic source for GGG substrates that align with the manufacturing of YIG Auto-tunable Filters (AtF) and Frequency Selected Limiters (FSLs) so the upgrade and deployment of higher power and wide bandwidth radar and EW systems can be expedited and built domestically.

The Industrial Base Analysis and Sustainment (IBAS) community has determined there is a need to manufacture affordable and higher volume FSL devices domestically for DoD applications, incorporating GGG substrate and YIG film growth into the devices.

The purpose of this effort is to advance the domestic manufacturing readiness of FSL using AtF technology with specific improvements to reduce wafer/substrate defects and variability, as well as increase yield and performance, while driving down the cost per device.

The planned goal of this effort is to enhance Electromagnetic Interference (EMI) protection of military equipment, including frequency filtering, power limiting, radiation pattern control, and digital signal processing techniques. EMI can occur as a result of adversary attack, such as jamming, but can also result from friendly emissions, such as co-site interference caused by radar or EW systems. FSL, using AtF technology, augments and strengthens existing EMI mitigation tools in already deployed systems through upgrades and retrofits. The improvements resulting from this effort can be designed into future systems, thus eliminating requirements for more complex and less capable approaches.

Domestic manufacturing processes are immature and they vary from supplier to supplier. This immaturity and variability results in low wafer yields caused by GGG and/or YIG substrate growth defects, substrate/wafer cracking, and a lack of uniformity related to Electromagnetic (EM) properties of the devices. These domestic process variances result in a dismal production yield of approximately 50 percent.

There is a specific concern with domestic GGG substrate growth manufacturing capability. To date, GGG domestic substrate growth efforts have not been of sufficient quality for broad use in DoD microwave systems. This results in a reliance on a foreign supplier for GGG wafers. The highest quality GGG wafers are manufactured in France. A goal of this effort is to establish a domestic supplier for GGG substrate growth processes of sufficient quality to meet the projected microwave needs of DoD for FSL/AtF applications.

The lack of reliable domestic manufacturing technology maturity creates challenges for technology adoption and transition to DoD programs. It also drives up production costs. Manufacturing affordable FSL/AtF devices for microwave DoD applications will require reliable domestic manufacturing capability and capacity. This will require greater uniformity and reproducibility to deliver cost-effective high yield GGG and YIG substrates for use in FSL/AtF devices. Through high yield GGG and YIG substrates growing processes, cost reductions for FSL/AtF end items will be realized. The establishment of domestic manufacturing capability of microwave FSL/AtF devices for a wide range of DoD microwave applications requires domestic manufacturing improvements to increase production throughput.

Technologies/processes of interest include:

- 1) YIG and GGG substrate film growth technology to reduce the density of defects and variation in material properties within individual films and from batch to batch; and
- 2) Domestic integration of epi-quality substrate processes/manufacturing into the YIG manufacturing operations.

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

The desired end state is a refined microwave device manufacturing process for GGG substrates and YIG film growth technology that reduces the density of defects and variation in material properties within individual films and from batch to batch.

The objective of this effort is for the performer to deliver prototype FSL AtF device(s) using new technical processes, demonstrating cost savings and yield increases. Specifically, the Objectives/Success Criteria are:

- a. Achieve a wafer yield of >80%
- b. Achieve a domestic capacity for wafer throughput of 2000 wafers per year
- c. Reduce wafer cycle time through vertical integration of YIG film and GGG growth (baseline is 4 months).
- d. Reduce material costs for end items by 35% (baseline is \$625 per 3" wafer supporting up to 18 GHz)

The technical objectives are to use a three phase approach. The three phases are:

- 1) Facilities and Manufacturing Equipment Planning and Execution
- 2) Growth and Manufacturing Process Refinement Phase; and
- 3) Prototype Acceptance Testing Phase.

The maximum duration of the effort is three years. Phases 1 and 2 can be executed concurrently provided the requirements for Phase 2 are well defined and are within the budget provided. Phase 3 (Acceptance Testing) may be executed concurrently with the final manufacturing iterations of phase 2. Phase 1 is anticipated to have a duration of approximately 8-14 months, Phase 2 is anticipated to have a duration of 6-10 months, and Phase 3 is anticipated to have a duration of 6 months.

Phase 1 Facilities and Manufacturing Equipment Planning & Execution

Description: Phase 1 objective is to update of the performer's facilities and equipment to accommodate manufacturing processes for GGG and/or YIG substrate growth in accordance with approved milestones and processes included in the response to the Request for Solutions (RFS). This may include modification of existing wafer manufacturing equipment; acquisition of new wafer manufacturing and testing equipment; identification and acquisition of long and short lead facilities and equipment upgrade materials; obtaining permits for and facilities modifications for electrical, plumbing, ventilation, clean room modifications; and physical labor to execute the updates.

Phase 1 Focus Areas & Deliverables:

The performer shall deliver a Facilities and Manufacturing Equipment Update Plan. The facilities and manufacturing equipment plan shall elaborate on the plan defined in the response to the request for solutions (RFS). The plan shall:

- Finalize, in detail, all facility enhancements and new equipment required for the effort.
- List all construction and/or facility re-arrangement plans to accommodate the effort.
- Identify any construction permits required, if applicable.
- Provide a sequential narrative of the tasks to be executed to update facilities and/or equipment for the effort. In addition to facilities and equipment, the plan shall also list all materials to be laid in for substrate growth processes. Identify any special licenses required and list any hazardous material and special handling requirements, if applicable.
- Provide a sequential narrative of the tasks to be executed for the acquisition and placement of wafer/substrate growth and/or manufacturing equipment and materials.
- A schedule for the facilities tasks/events and the manufacturing equipment tasks/events. The schedule portion of the plan (and all plans delivered for the project) shall be delivered in Microsoft Project format. Include milestones to be accomplished during the phase, the amount to be paid per milestone, and the planned completion date for each milestone. The plan shall define the success criteria for the completion of Phase 1.

Provide the plan within 45 days after agreement award. The Government will have 14 calendar days to provide comments. The performer shall implement Government comments within 14 calendar days after receipt and re-deliver to the Government. When the plan is approved, the performer shall begin execution.

The performer shall execute the processes defined in the plan. The performer shall show that success criteria has been met for Phase 1.

The performer shall submit the draft plan for the phase 2 Growth and Manufacturing Process Refinement Phase during phase 1 execution. However, the performer shall not start execution of phase 2 until authorized by the Agreements Officer.

Phase 2 Growth and Manufacturing Process Refinement Phase

Description: Phase 2 objective is to execute multiple iterations of substrate growth and testing processes, with reduction in defects in each iteration. Defect reduction may include analysis of issues found; documentation of process modifications; then execution of revised processes. These iteration steps will be executed several times until the desired yield rate is achieved. This phase will also include the development of a test plan that will be used to drive testing in Phase 3. As the performer nears the yield rate goals in Phase 2, the performer shall deliver the test plan. The test plan shall include an overview of the objectives of the test plan, including flow diagrams, milestones, personnel participation, locations, schedules, and security measures to be observed. The flow diagrams will reflect a functional description of the test program using a block diagram portrayal of the functions that must be met to satisfy the total test program. Functions shall be numbered 1.0, 2.0, 3.0, etc. The test plan shall

identify the start and expected completion dates of each test to be performed. The test plan shall list all tests to be accomplished in the order they are to be performed. For each test, the test plan shall identify the test to be performed, any applicable specifications, test parameters, test equipment required, and support equipment required.

Phase 2 Focus Areas & Deliverables:

The performer shall finalize the Substrate Growth and Manufacturing Process Refinement plan and execute the processes defined in the plan upon approval of the plan. The Substrate Growth and Manufacturing Process Refinement plan shall elaborate, in detail, on the plan defined in the response to the Phase 2 proposal. The substrate growth and manufacturing process refinement plan shall:

- Confirm that the physical manufacturing refinement processes will not begin until all facilities updates and equipment are complete and in place.
- Provide the status of all long lead time and short lead time material required for execution of the Growth and Manufacturing Process Phase.
- A sequential narrative of the tasks to be executed for Growth and Manufacturing Process Refinement Phase of the effort, including the development of the test plan to guide the testing to be performed in phase 3.
- A schedule for the substrate growth and manufacturing process tasks/events, and the prototype packaging design and development plans. The plan shall include milestones to be accomplished during the phase and the planned completion date for each milestone. The plan shall define the success criteria for the completion of Phase 2.

The performer shall finalize the Substrate Growth and Manufacturing Process Refinement plan within 30 days after the start of Phase 2. The Government will have 14 calendar days to provide comments. The performer shall implement Government comments within 14 calendar days after receipt and re-deliver to the Government. When the plan is approved, the performer shall begin execution when authorized by the Agreements Officer.

The performer shall execute the processes defined in the Phase 2 plan. The performer shall show that success criteria has been met for Phase 2.

The performer shall provide the test plan to be executed in phase 3 within 90 days prior to the completion of Phase 2. The Government will have 14 calendar days to provide comments. The performer shall implement Government comments within 14 calendar days after receipt and re-deliver to the Government.

Phase 3 Prototype Acceptance Testing Phase

Description: Phase 3 objective is for the performer to develop an FSL/AtF device suitable for testing. This phase will also include Government acceptance of any final test procedures. The test procedures are to be used to ensure the hardware prototype meets the established requirements per the previously delivered test plan. This phase will also result in the delivery

of the test reports associated with the approved test procedures. For any requirements to be validated by analysis (such as end item cost), the performer will include the results of that analysis in the test report. This phase shall include a project closeout brief as well.

The success criteria shall utilize and validate the vertical integration of microwave substrate manufacturing to the U.S. industrial base that successfully reduces cost, improves quality, and provide the domestic resources to tailor the substrates for use in FTL/AtF devices.

Phase 3 Focus Areas & Deliverables:

The performer shall deliver a Prototype Acceptance Testing Phase Plan. The Prototype Acceptance Testing Phase Plan shall elaborate, in detail, on the plan defined in the response to the Phase 3 proposal. The plan shall:

- Shall show the successes from Phase 2 including, substrate growth process improvement results, yield improvements, and projected cost per device improvements.
- Include a sequential narrative of the tasks to be executed during this phase of the effort, milestones to be accomplished during the phase, the amount to be paid per milestone, and the planned completion date for each milestone.
- The plan must align with and reiterate the success criteria for the completion of Phase 3 as defined in the test plan.

The performer shall provide the Prototype Acceptance Testing Phase Plan within 45 days prior to the start of any testing. Testing may be performed in Phases 2 and 3 if defined and approved in the test plan. The Government will have 14 calendar days to provide comments. The performer shall implement Government comments within 14 calendar days after receipt and re-deliver to the Government. When the plan is approved, the performer shall begin execution.

The performer shall execute the processes defined in the Phase 3 plan. The performer shall show that success criteria has been met for Phase 3.

Acceptance Testing Procedures

- The performer shall provide all test procedures to be executed during the Prototype Acceptance Testing Phase (Phase 3). Each test procedure shall include the step-by-step testing operations to be performed on items being tested. Test procedures shall include required tests, and parameters to be measured; performance requirements; environmental criteria; required test equipment; test set-up diagrams (including test equipment connections); and caution and safety warnings as appropriate. The test procedures shall include an example of the test data sheets for recording of test results.

- The test data sheet section of test procedures shall include identification of item to be tested; identification of required or objective performance values, (with the Tolerances); date of test; and the signature of individual performing the test.

The performer shall provide test procedures 60 days prior to the start of testing. The Government will have 14 calendar days to provide comments. The performer shall implement Government comments within 30 days after receipt. Testing may be executed concurrently with the final manufacturing iterations of Phase 2 if proposed and approved.

Acceptance Test Reports

- The test data sheet section of test procedures shall serve as the test reports. The test data sheets shall include identification of the item tested; identification of required or objective performance values, (with the Tolerances); recorded results of testing; date of test; and the signature of individual performing the test.

The performer shall provide test reports within 15 days after testing is completed. The Government will have 14 calendar days to provide comments. The performer shall implement Government comments within 30 days after receipt.

Prototype (Hardware) FSL device with AtF Technology - validating cost reduction and yield increase in addition:

- This hardware prototype demonstrates technical processes were successful in reducing cost and increasing yield related to domestic GGG/YIG substrate growth on wafers for FSL/AtF microwave device manufacturing. The prototype confirms the performers previously provided technical data, showing that variability from batch to batch has reduced and resulted in an increase in yield. The hardware prototype advances the manufacturing readiness of this technology with specific improvements to reduce defects and variability. Technical processes include validation that yield has increased above 80% and cost per device is 35% lower than the baseline cost. Delivery of the hardware prototype shall be accompanied by the test results (as defined in the *Acceptance Test Reports*).

Close Out Brief

- The performer shall host a closeout brief for the effort. The closeout brief material shall include the delivery of an agenda and presentation material. The closeout brief shall show all accomplishments; provide an overview of trade studies performed; provide lessons learned; identify failed technical prototype processes; outline recommendations for future advancements; and provide closeout summary of program successes.

In addition, the respective performer will provide the following:

- Initial Project Kick-Off Meeting the performer shall deliver a kickoff presentation and a kickoff agenda 7 calendar days prior to the kickoff meeting. Within 7 calendar days after the kickoff meeting, the performer shall deliver meeting minutes. The

meeting minutes shall include a list of action items with due dates as assigned at the kickoff meeting event.

- Quarterly Status Report -The performer shall deliver a status report quarterly to the Government. The report shall provide the progress of work and the status of the program and assigned task and inform management of existing or potential problem areas. The reports shall include results (positive or negative) obtained related to previously identified problem areas, with conclusions and recommendations for correction. The report shall identify any significant changes to the performer’s organization or method of operation, to the project management network, or to the milestones. Problem areas affecting technical or scheduling elements, with background and any recommendations for solutions beyond the scope of the contract shall also be included. The plan shall include the contract schedule status and plans for activities during the following reporting period. Appendixes for any necessary tables, references, photographs, illustrations, and charts shall be included as applicable.

6. Project Deliverables:

#	Deliverable(s)	Description	Frequency	Delivery Method
1	Prototype (Hardware), FSL device with AtF Technology, Validating Cost Reduction and Yield Increase	Demonstrate that hardware is successful at reducing cost and increasing yield related to domestic GGG/YIG substrate growth on wafers for FSL/AtF microwave device manufacturing.	Once, Phase 3	NSWC Crane, Building 3168, Attention Bryan Mitsdarffer
2	Kickoff Meeting Data	Provide presentation, agenda and post award minutes.	Once, Phase 1	Electronic
3	Facilities and Manufacturing Equipment (Phase 1) Plan	Shall finalize, in detail, all facility enhancements and new equipment required.	One Draft, One Final, Phase 1	Electronic
4	Substrate Growth and Manufacturing Process Refinement (Phase 2) Plan	Shall confirm the physical manufacturing refinement processes.	One Draft, One Final, Draft Phase 1, Final in Phase 2	Electronic
5	Test Plan	The test plan shall include the information specified in the Phase 2 Growth and Manufacturing Process Refinement Phase description.	One Draft, One Final, Phase 2	
6	Prototype Acceptance Testing Phase (Phase 3) Plan	Shall show the successes from Phase 2.	One Draft, One Final, Phase 3	Electronic
7	Acceptance Test Procedures	Shall provide all test procedures to be executed during the Prototype Acceptance Testing Phase.	One Draft, One Final (per test procedure), Phase 3	Electronic

#	Deliverable(s)	Description	Frequency	Delivery Method
8	Acceptance Test Reports	Shall show the actual test results/data resulting from testing performed per the acceptance test procedures develop in Deliverable 6.	Once, Phase 3	Electronic
9	Close Out Brief	Shall include the delivery of an agenda and presentation material	Once, Phase 3	Electronic
10	Status Report (Quarterly)	Shall provide progress of work and status of the program and assigned task and address all existing or potential problem areas.	Quarterly, all phases	Electronic

7. Current Project Budget: \$4 Million

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.

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

This RFS has been released under the following—

Distribution Statement A: Approved for public release

Distribution Statement B: Distribution authorized to U.S. Government agencies only (fill in reason) (date of determination). Other requests for this document shall be referred to (insert controlling DoD office).”

Distribution Statement C: Distribution authorized to U.S. Government agencies and their performers (fill in reason) (date of determination). Other requests for this document shall be referred to (insert controlling DoD office).”

Distribution Statement D: Distribution authorized to the Department of Defense and U.S. DoD performers only (fill in reason) (date of determination). Other requests shall be referred to (insert controlling DoD office).

Distribution Statement E: Distribution authorized to DoD Components only (fill in reason) (date of determination). Other requests shall be referred to (insert controlling DoD office).”

This project encompasses the following restrictions:

- a. Security Classification: This project is Unclassified.
- b. ITAR Compliance is not required.
- c. Respondent Restrictions: Are limited to Domestic United States Based Companies Only. Subperformer/teaming partners may not include foreign entities.
- d. Any additional restrictions applicable to this project: Respondents shall complete the Section 889(a)(1)(B) Prohibition on Contracting with Entities Using Certain Telecommunications and Video Surveillance Services or Equipment and return the signed representation with the submitted proposal.

9. Level of Data Rights Requested by the Government:

Unlimited rights: The right to use, modify, reproduce, perform, display, release, or disclose technical data in whole or in part, in any manner, and for any purpose whatsoever, and to have or authorize others to do so.

Government Purpose Rights: The right to use, modify, reproduce, release, perform, display, or disclose technical data within the Government without restriction. This also includes the rights to release or disclose technical data outside the Government and authorize persons to whom release or disclosure has been made to use, modify, reproduce, release, perform, display, or disclose technical data for United States government purposes. This level of restriction is set at five-years but may be negotiated & tailored to a specific project. The five-year period, or such other period that may be negotiated, would commence upon execution of the agreement that required development of the items, components, or processes or creation of the data. The performer will have the exclusive right, including the right to license others, to use technical data in which the Government has obtained government purpose rights under this agreement for any commercial purpose during the five-year period. Upon expiration of the five-year period (or other negotiated length of time), the Government will receive unlimited rights in the technical data and computer software.

Limited rights: The rights to use, modify, reproduce, release, perform, display, or disclose technical data, in whole or in part, within the Government. The Government may not, without the written permission of the party asserting limited rights, release or disclose the technical data outside the Government, use the technical data for manufacture, or authorize the technical data to be used by another party, except that the Government may reproduce, release, or disclose such data or authorize the use or reproduction of the data by persons outside the Government if—

- (i) The reproduction, release, disclosure, or use is—
 - (A) Necessary for emergency repair and overhaul; or
 - (B) A release or disclosure to—
 - (1) A covered Government support performer in performance of its covered Government support contract for use, modification, reproduction,

performance, display, or release or disclosure to a person authorized to receive limited rights technical data; or (2) A foreign government, of technical data other than detailed manufacturing or process data, when use of such data by the foreign government is in the interest of the Government and is required for evaluation or informational purposes;

- (ii) The recipient of the technical data is subject to a prohibition on the further reproduction, release, disclosure, or use of the technical data; and
- (iii) The performer or subperformer asserting the restriction is notified of such reproduction, release, disclosure, or use.

Other – Customized Level of Rights:

10. RFS and Response Process:

a. The following is requested from all respondents:

Technical Submission	Price Submission
20 Pages	5 Pages

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 performer (*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 performers; 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 Performer* 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 performer/performer. The onus of proof to support nontraditional participation to a significant extent; small business or nontraditional defense performer 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 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 Subperformer Participation (if applicable): Respondents must identify all subperformers involved and their role within the performance of the proposed concept. The information must include the following:
 - a. Subperformer 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 subperformers 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 9(b)(iii)(3) 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 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.** This project will employ Fixed Price with Payable Milestones.

- 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.
 - a. The proposed milestone payment schedule shall be provided in a columnar/table format with the following column headers: Task/Milestone; Timeline/date; and Payment Value. Milestones payments shall align with a meaningful project event.
- 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 component include Labor Total(s), Other Direct Costs/Material Total(s), License prices and Subperformer 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. 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.
6. 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.
- f. This is to advise that non-Government advisors will assist in the evaluation. The use of non-Government advisors will be strictly controlled. Non-Government advisors will be

required to sign a Non-Disclosure Agreement (NDA) prior to working on the effort. Agreements Officer will review NDAs for conflict prior to allowing access to source selection information. All non-Government advisors will only have access to the information corresponding to their area(s) of expertise. Advisors will not have access to the Price Volume of the response. The companies identified herein have agreed to not engage in the manufacture or production of hardware/services/research and development that is related to this effort, and to refrain from disclosing proprietary information to unauthorized personnel.

The following companies will have non-Government personnel advising:

- Milestone Support Services LLC, 100 Southgate Street, Loogootee, IN 47553, CAGE 6V7C9 (subcontractor to TRISTAR Engineering)

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.

13. Attachments

- a. Section 889 Clause & Representation

14. Important Dates

- a. Questions related to this RFS shall be submitted no later than Monday, April 19, 2021.

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 12PM EST Monday, May 10, 2021.
- 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 must be active members of the consortium at the time of proposal submission.

15. 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).