DEPARTMENT OF THE NAVY (DON)
Small Business Innovation Research (SBIR)
DOW 2026 SBIR BAA Release 1
Direct to Phase II (DP2) Proposal Submission Instructions

IMPORTANT

- **The following instructions apply to Direct to Phase II (DP2) SBIR topic only:**
  - **DON26BZ01-DV001 through DON26BZ01-DV005**
- Submitting small business concerns (SBCs) are encouraged to thoroughly review the DOW SBIR/STTR Program Broad Agency Announcement (BAA) and register for the DSIP Listserv to remain apprised of important programmatic changes.
  - The DOW Program BAA is located at: https://www.defensesbirsttr.mil/SBIR-STTR/Opportunities/#announcements. Select the tab for the appropriate BAA cycle.
  - Register for the DSIP Listserv at: https://www.dodsbirsttr.mil/submissions/login.
- The information provided in the DON Proposal Submission Instructions takes precedence over the DOW Instructions posted for this BAA.
- A submitting SBC **MUST** use the DP2 Phase I Feasibility proposal template for Volume 2. This template is specific to DON DP2 topics and meets DP2 submission requirements. The DP2 Phase I Feasibility proposal template can be found at https://navysbir.com/links_forms.htm.
- Proposing SBCs that are more than 50% owned by multiple venture capital operating companies (VCOC), hedge funds (HF), private equity firms (PEF) or any combination of these are eligible to submit proposals in response to DON topics advertised in this BAA. Information on Majority Ownership in Part and certification requirements at time of submission for these proposing SBCs are detailed in the section titled ADDITIONAL SUBMISSION CONSIDERATIONS.
- The DON may consider the following FAR and Non-FAR contracting strategies when issuing Phase II awards: Cost Plus Fixed Fee (CPFF), Firm Fixed Price (FFP), Basic Ordering Agreement (BOA), or Prototype Other Transaction (OT).
- This BAA is issued under regulations set forth in Federal Acquisition Regulation (FAR) 35.016 and awards will be made under "other competitive procedures". The policies and procedures of FAR Subpart 15.3 shall not apply to this BAA, except as specifically referenced in it. All procedures are at the sole discretion of the Government as set forth in this BAA. Submission of a proposal in response to this BAA constitutes the express acknowledgement to that effect by the proposing SBC.

INTRODUCTION

The DON SBIR/STTR Programs are mission-oriented programs that integrate the needs and requirements of the DON's Fleet through research and development (R&D) topics that have dual-use potential, but primarily address the needs of the DON. More information on the programs can be found on the DON

SBIR/STTR website at www.navysbir.com. Additional information on DON's mission can be found on the DON website at www.navy.mil.

The Department of War (DOW), including the Department of the Navy (DON), may issue an SBIR award to an SBC under Phase II , without regard to whether the SBC received a Phase I award for such project. Prior to such an award, the head of the agency, or their designee, must issue a written determination that the SBC has demonstrated the scientific and technical merit and feasibility of the technology solution that appears to have commercial potential (for use by the government or in the public sector). The determination must be submitted to the Small Business Administration (SBA) prior to issuing the Phase II award. As such, DON issues this portion of the BAA in accordance with the requirements of the Direct to Phase II (DP2) authority. Only those proposing SBCs that are capable of meeting the DP2 proposal requirements may participate in this DP2 BAA. No Phase I awards will be issued to the designated DP2 topic.

For questions regarding this BAA, use the information in Table 1 to determine who to contact for what types of questions.

TABLE 1: POINTS OF CONTACT FOR QUESTIONS REGARDING THIS BAA

Type of Question	**When**	**Contact Information**
Program and administrative	Always	DON SBIR/STTR Program Management Office usn.pentagon.cnr-arlington-va.mbx.navy-sbir-sttr@us.navy.mil or appropriate Program Manager listed in Table 2 (below)
Topic-specific technical questions	BAA Pre-release	Technical Point of Contact (TPOC) listed in each topic on the DOW SBIR/STTR Innovation Portal (DSIP). Refer to the Proposal Submission section of the DOW SBIR/STTR Program BAA for details.
	BAA Open	DOW SBIR/STTR Topic Q&A platform (https://www.dodsbirsttr.mil/submissions) Refer to the Proposal Submission section of the DOW SBIR/STTR Program BAA for details.
Electronic submission to the DOW SBIR/STTR Innovation Portal (DSIP)	Always	DSIP Support via email at dodsbirsupport@reisystems.com
Navy-specific BAA instructions and forms	Always	DON SBIR/STTR Program Management Office usn.pentagon.cnr-arlington-va.mbx.navy-sbir-sttr@us.navy.mil

TABLE 2: DON SYSTEMS COMMAND (SYSCOM) SBIR PROGRAM MANAGERS

Topic Numbers	Point of Contact	SYSCOM	Email
DON26BZ01-DV001 to DON26BZ01-DV004	Ms. Kristi DePriest	Naval Air Systems Command (NAVAIR)	navair-sbir@us.navy.mil

DON26BZ01-DV005	Mr. Jason Schroepfer	Naval Sea Systems Command (NAVSEA)	NSSC_SBIR.fct@navy.mil

Each DON SBIR DP2 topic requires documentation to determine that Phase I feasibility, described in the Phase I section of the topic, has been met.

The DON SBIR DP2 is a two-step process:

> STEP ONE: Prepare and Submit a Phase I Feasibility Proposal (instructions and link to template provided below). The purpose of the Phase I Feasibility Proposal is for the proposing SBC to provide documentation to substantiate that both Phase I feasibility and the scientific and technical merit described in the topic have been met. The Phase I Feasibility Proposal must: demonstrate that the proposing SBC performed Phase I-type research and development (R&D) and provide a concise summary of Phase II objectives, work plan, related research, key personnel, transition/commercialization plan, and estimated costs. Feasibility documentation MUST NOT be solely based on work performed under prior or ongoing federally funded SBIR/STTR work. The government will evaluate Phase I Feasibility Proposals and select SBCs to submit a Full DP2 Proposal. Demonstrating proof of feasibility is a requirement for a DP2 award. The SBC must submit a Phase I Feasibility Proposal to be considered for selection to submit a Full DP2 Proposal.
>
> STEP TWO: If selected, the cognizant SYSCOM Program Office will contact the SBC directly to provide instructions on how to submit a Full DP2 Proposal.

DON SBIR reserves the right to make no awards under this DP2 BAA. All awards are subject to availability of funds and successful negotiations. Proposing SBCs must read the topic requirements carefully. The Government is not responsible for expenditures by the proposing SBC prior to award of a contract. For 2026.BZ Release 1 topics designated as DP2, DON will accept only Phase I Feasibility Proposals (described below).

DP2 PROPOSAL SUBMISSION REQUIREMENTS

The following section details requirements for submitting a compliant DON SBIR DP2 Proposal to the DOW SBIR/STTR Programs.

(NOTE: Proposing SBCs are advised that support contract personnel will be used to carry out administrative functions and may have access to proposals, contract award documents, contract deliverables, and reports. All support contract personnel are bound by appropriate non-disclosure agreements.)

DOW SBIR/STTR Innovation Portal (DSIP). Proposing SBCs are required to submit proposals via the DOW SBIR/STTR Innovation Portal (DSIP); and follow proposal submission instructions in the DOW SBIR/STTR Program BAA on the DSIP at https://www.dodsbirsttr.mil/submissions. Proposals submitted by any other means will be disregarded. Proposing SBCs submitting through DSIP for the first time will be asked to register. It is recommended that proposing SBCs register as soon as possible upon identification of a proposal opportunity to avoid delays in the proposal submission process. Proposals that are not successfully certified electronically in DSIP by the Corporate Official prior to BAA Close will NOT be considered submitted and will not be evaluated by DON. Proposals that are encrypted, password protected, or otherwise locked in any portion of the submission will be REJECTED unless specifically directed within the text of the topic to which you are submitting. Please refer to the DOW SBIR/STTR Program BAA for further information.

Eligibility. Each proposing SBC must:

- Have demonstrated feasibility of Phase I-type R&D work
- Have submitted a Phase I Feasibility Proposal for evaluation
- Meet Offeror Eligibility and Performance Requirements as defined in the Proposal Fundamentals section of the DOW SBIR/STTR Program BAA
- Comply with primary employment requirements of the principal investigator (PI) during the Phase II award including, employment with the SBC at the time of award and during the conduct of the proposed project. Primary employment means that more than one-half of the PI's time is spent in the employ of the SBC
- Register in the System for Award Management (SAM) as defined in the Certifications and Registrations section of the DOW SBIR/STTR Program BAA. To register, visit https://sam.gov/

Proposal Volumes. The following seven volumes are required.

- **Proposal Cover Sheet (Volume 1).** As specified in DOW SBIR/STTR Program BAA.

- **Technical Volume (Volume 2).**
  - Technical Proposal (Volume 2) must meet the following requirements or the proposal will be REJECTED:
    - A submitting SBC MUST use the DP2 Phase I Feasibility proposal template for Volume 2. The DP2 Phase I Feasibility proposal template can be found at https://navysbir.com/links_forms.htm.

      This template is specific to DON DP2 topics and meets DP2 submission requirements:
      - Not to exceed 30 pages, regardless of page content; Phase I Proof of Feasibility portion not to exceed 20 pages, Snapshot of Proposed Phase II Effort portion not to exceed 10 pages
      - Single column format, single-spaced typed lines
      - Standard 8 ½" x 11" paper
      - Page margins one inch on all sides. A header and footer may be included in the one-inch margin.
      - No font size smaller than 10-point

  - Additional information:
    - A font size smaller than 10-point is allowable for headers, footers, imbedded tables, figures, images, or graphics that include text. However, proposing SBCs are cautioned that if the text is too small to be legible it will not be evaluated.

- **Cost Volume (Volume 3).** The text fields related to costs for the proposed effort must be answered in the Cost Volume of the DOW Submission system (at https://www.dodsbirsttr.mil/submissions/), however, proposing SBCs DO NOT need to download and complete the separate cost volume template when submitting the DON SBIR Phase I Feasibility Proposal. Proposing SBCs are to include a cost estimate in the Order of Magnitude Cost Estimate Table (example below) within the Snapshot of Proposed Phase II Effort portion of the Technical Volume (Volume 2). Please refer to Table 3 below for guidance on cost and period of performance. Costs for the Base and Option are to be separate and identified on the Proposal Cover Sheet and in the Order of Magnitude Cost Estimate Table in the Technical Volume (Volume 2).

Order of Magnitude Cost Estimate Table			
Line Item – Details	**Estimated Base Amount**	**Estimated Option Amount**	**Total Estimated Amount Base + Option**

Direct Labor (fully burdened) – Prime			
Subcontractors/Consultants			
Material			
Travel & ODC			
G&A			
FCCM			
Fee/Profit			
TABA (NTE $25K, included in total amount)			
Total Estimated Costs			

TABLE 3: COST & PERIOD OF PERFORMANCE

Topic Number	Base		Option		Total (NTE)
	Cost (NTE)	POP (NTE)	Cost (NTE)	POP (NTE)	
DON26BZ01-DV001 to DON26BZ01-DV004	$1,000,000	30 mos.	$400,000	12 mos.	$1,400,000
DON26BZ01-DV005	$700,000	12 mos.	$1,300,000*	24 mos.*	$2,000,000*

***** Step Two: for the Full Phase II submission, if selected, DON26BZ01-DV005 will require the Phase II Option 1 and Phase II Option 2 to be detailed separately:

- Phase II Option 1: Cost $700,000, Period of Performance 12 months
- Phase II Option 2: Cost $600,000, Period of Performance 12 months

- Additional information:
  - For Phase II a minimum of 50% of the work is performed by the proposing SBC. The percentage of work requirement must be met in the Base costs as well as in the Option costs. The percentage of work is measured by both direct and indirect costs. To calculate the minimum percentage of work for the proposing SBC the sum of all direct and indirect costs attributable to the proposing SBC represent the numerator and the total cost of the proposal (i.e., Total Cost before Profit Rate is applied) is the denominator. The subcontractor percentage is calculated by taking the sum of all costs attributable to the subcontractor as the numerator and the total cost of the proposal (i.e., Total Cost before Profit Rate is applied) as the denominator. **NOTE:** G&A, if proposed, will only be attributed to the proposing SBC.
  - Provide sufficient detail for subcontractor, material, and travel costs. Subcontractor costs must be detailed to the same level as the prime contractor. Material costs must include a listing of items and cost per item. Travel costs must include the purpose of the trip, number of trips, location, length of trip, and number of personnel.
  - Inclusion of cost estimates for travel to the sponsoring SYSCOM's facility for one day of meetings is recommended for all proposals.
  - The "Additional Cost Information" of Supporting Documents (Volume 5) may be used to provide supporting cost details for Volume 3.

- **Company Commercialization Report (Volume 4)**. DOW collects and uses Volume 4 and DSIP requires Volume 4 for proposal submission. Please refer to the Proposal Preparation Instructions and

Requirements section of the DOW SBIR/STTR Program BAA for details to ensure compliance with DSIP Volume 4 requirements.

- **Supporting Documents (Volume 5).** Volume 5 is for the submission of administrative material that DON may or will require to process a proposal, if selected, for contract award.

  All proposing SBCs must review and submit the following items, as applicable:
  - **Majority Ownership in Part.** Proposing SBCs which are more than 50% owned by multiple venture capital operating companies (VCOC), hedge funds (HF), private equity firms (PEF), or any combination of these as set forth in 13 C.F.R. § 121.702, are eligible to submit proposals in response to DON topics advertised within this BAA. Complete the certification as detailed under ADDITIONAL SUBMISSION CONSIDERATIONS.

  - Additional information:
    - Proposing SBCs may include the following administrative materials in Supporting Documents (Volume 5); a template is available at https://navysbir.com/links_forms.htm to provide guidance on optional material the proposing SBC may want to include in Volume 5:
      - Additional Cost Information to support the Cost Volume (Volume 3)
      - SBIR/STTR Funding Agreement Certification
      - Data Rights Assertion
      - Disclosure of Information (DFARS 252.204-7000)
      - Prior, Current, or Pending Support of Similar Proposals or Awards
      - Foreign Citizens
    - Details of Request for Discretionary Technical and Business Assistance (TABA), if proposed, is to be included under the Additional Cost Information section if using the DON Supporting Documents template.
    - Do not include documents or information to substantiate the Technical Volume (Volume 2) (e.g., resumes, test data, technical reports, or publications). Such documents or information will not be considered.
    - A font size smaller than 10-point is allowable for documents in Volume 5; however, proposing SBCs are cautioned that the text may be unreadable.

- **Fraud, Waste and Abuse Training Certification (Volume 6)**. DOW requires Volume 6 for submission. Please refer to the Proposal Preparation Instructions and Requirements section of the DOW SBIR/STTR Program BAA for details.

- **Disclosures of Foreign Affiliations or Relationships to Foreign Countries (Volume 7)**. In accordance with Section 4 of the SBIR and STTR Extension Act of 2022 and the SBA SBIR/STTR Policy Directive, the DOW will review all proposals submitted in response to this BAA to assess security risks presented by SBCs seeking a Federally funded award. SBCs must complete the Disclosures of Foreign Affiliations or Relationships to Foreign Countries webform in Volume 7 of the DSIP proposal submission. Please refer to the Proposal Preparation Instructions and Requirements section of the DOW SBIR/STTR Program BAA for details.

DP2 EVALUATION AND SELECTION

The following section details how the DON SBIR/STTR Programs will evaluate Phase I Feasibility proposals.

Proposals meeting DSIP submission requirements will be forwarded to the DON SBIR/STTR Programs. Prior to evaluation, all proposals will undergo a compliance review to verify compliance with DOW and DON SBIR/STTR proposal eligibility requirements. Proposals not meeting submission requirements will be REJECTED and not evaluated.

- **Proposal Cover Sheet (Volume 1).** The Proposal Cover Sheet (Volume 1) will undergo a compliance review to verify the proposing SBC has met eligibility requirements and followed the instructions for Proposal Cover Sheet as specified in the DOW SBIR/STTR Program BAA.

- **Technical Volume (Volume 2).** The DON will evaluate and select Phase I Feasibility proposals using the evaluation criteria specified in the Method of Selectin and Evaluation Criteria section of the DOW SBIR/STTR Program BAA, with technical merit being most important, followed by qualifications of key personnel and commercialization potential of equal importance. The information considered for this decision will come from Volume 2. This is not a FAR Part 15 evaluation and proposals will not be compared to one another. Cost is not an evaluation criterion and will not be considered during the evaluation process; the DON will only do a compliance review of Volume 3. Due to limited funding, the DON reserves the right to limit the number of awards under any topic.

  The Technical Volume (Volume 2) will undergo a compliance review (prior to evaluation) to verify the proposing SBC has met the following requirements or the proposal will be REJECTED:
  - A submitting SBC MUST use the DP2 Phase I Feasibility proposal template for Volume 2. The DP2 Phase I Feasibility proposal template can be found at https://navysbir.com/links_forms.htm.
    This template is specific to DON DP2 topics and meets DP2 submission requirements:
    - Not to exceed 30 pages, regardless of page content; Phase I Proof of Feasibility portion not to exceed 20 pages, Snapshot of Proposed Phase II Effort portion not to exceed 10 pages
    - Single column format, single-spaced typed lines
    - Standard 8 ½" x 11" paper
    - Page margins one inch on all sides. A header and footer may be included in the one-inch margin.
    - No font size smaller than 10-point, except as permitted in the instructions above.

- **Cost Volume (Volume 3).** The Cost Volume (Volume 3) will not be considered in the selection process and will undergo a compliance review to verify the proposing SBC has met the following requirements or the proposal will be REJECTED:
  - Must not exceed values for the Base and Option (refer to Table 3).
  - Must meet minimum percentage of work; a minimum of 50% of the work is performed by the proposing SBC. The percentage of work requirement must be met in the Base costs as well as in the Option costs.

- **Company Commercialization Report (Volume 4).** The CCR (Volume 4) will not be evaluated by the DON nor will it be considered in the award decision. However, all proposing SBCs must refer to the DOW SBIR/STTR Program BAA to ensure compliance with DSIP Volume 4 requirements.

- **Supporting Documents (Volume 5).** Supporting Documents (Volume 5) will not be considered in the selection process and will only undergo a compliance review to ensure the proposing SBC has included items in accordance with the DP2 SUBMISSION INSTRUCTIONS section above.

- **Fraud, Waste, and Abuse Training Certificate (Volume 6).** Not evaluated.

- **Disclosures of Foreign Affiliations or Relationships to Foreign Countries (Volume 7)**. Disclosures of Foreign Affiliations or Relationships to Foreign Countries (Volume 7) will be assessed as part of the Due Diligence Program to Assess Security Risks. Refer to the DOW SBIR/STTR Program BAA to ensure compliance with Volume 7 requirements.

ADDITIONAL SUBMISSION CONSIDERATIONS

This section details additional items for proposing SBCs to consider during proposal preparation and submission process.

Due Diligence Program to Assess Security Risks. The SBIR and STTR Extension Act of 2022 (Pub. L. 117-183) requires the Department of War, in coordination with the Small Business Administration, to establish and implement a due diligence program to assess security risks presented by SBCs seeking a Federally funded award. Please review the Certifications and Registrations section of the DOW SBIR/STTR Program BAA for details on how DOW will assess security risks presented by SBCs. The Due Diligence Program to Assess Security Risks will be implemented for all Phases.

Discretionary Technical and Business Assistance (TABA). The SBIR and STTR Policy Directive section 9(b) allows the DON to provide TABA (formerly referred to as DTA) to its awardees. The purpose of TABA is to assist awardees in making better technical decisions on SBIR/STTR projects; solving technical problems that arise during SBIR/STTR projects; minimizing technical risks associated with SBIR/STTR projects; and commercializing the SBIR/STTR product or process, including intellectual property protections. Proposing SBCs may request, in their Cost Volume (Volume 3), to contract these services themselves through one or more TABA providers in an amount not to exceed the values specified below. The Phase II TABA amount is up to $25,000 per award, is to be included as part of the award amount and is limited by the established award values for Phase II by the SYSCOM (i.e., within the $2,000,000 or lower limit specified by the SYSCOM). The amount proposed for TABA cannot include any profit/fee by the proposing SBC and must be inclusive of all applicable indirect costs. TABA cannot be used in the calculation of general and administrative expenses (G&A) for the SBIR proposing SBC. A Phase II project may receive up to an additional $25,000 for TABA as part of one additional (sequential) Phase II award under the project for a total TABA award of up to $50,000 per project. A TABA Report, detailing the results and benefits of the service received, will be required annually by October 30.

Request for TABA funding will be reviewed by the DON SBIR/STTR Program Management Office.

If the TABA request does not include the following items the TABA request will be denied.
- TABA provider(s) (firm name)
- TABA provider(s) point of contact, email address, and phone number
- An explanation of why the TABA provider(s) is uniquely qualified to provide the service
- Tasks the TABA provider(s) will perform (to include the purpose and objective of the assistance)
- Total TABA provider(s) cost, number of hours, and labor rates (average/blended rate is acceptable)

TABA must NOT:
- be subject to any indirect costs, profit, or fee by the SBIR proposing SBC
- propose a TABA provider that is the SBIR proposing SBC
- propose a TABA provider that is an affiliate of the SBIR proposing SBC
- propose a TABA provider that is an investor of the SBIR proposing SBC
- propose a TABA provider that is a subcontractor or consultant of the requesting SBC otherwise required as part of the paid portion of the research effort (e.g., research partner, consultant, tester, or administrative service provider)

TABA requests must be included in the proposal as follows:

- Phase II:
  - DON Phase II Cost Volume (provided by the DON SYSCOM) - the value of the TABA request.
  - Supporting Documents (Volume 5) – a detailed request for TABA (as specified above) specifically identified as "TABA" in the section titled Additional Cost Information when using the DON Supporting Documents template.

Proposed values for TABA must NOT exceed:

- Phase II: A total of $25,000 per award, not to exceed $50,000 per Phase II project

If a proposing SBC requests and is awarded TABA in a Phase II contract, the proposing SBC will be eliminated from participating in the Navy SBIR Transition Program (STP) and any other Phase II assistance the DON provides directly to awardees.

All Phase II awardees not receiving funds for TABA in their awards must participate in the virtual Navy STP Kickoff during the first or second year of the Phase II contract. While there are no travel costs associated with this virtual event, Phase II awardees should budget time of up to a full day to participate. Navy STP information can be obtained at: https://navystp.com. Phase II awardees will be contacted separately regarding this program.

Disclosure of Information (DFARS 252.204-7000). In order to eliminate the requirements for prior approval of public disclosure of information (in accordance with DFARS 252.204-7000) under this award, the proposing SBC shall identify and describe all fundamental research to be performed under its proposal, including subcontracted work, with sufficient specificity to demonstrate that the work qualifies as fundamental research. Fundamental research means basic and applied research in science and engineering, the results of which ordinarily are published and shared broadly within the scientific community, as distinguished from proprietary research and from industrial development, design, production, and product utilization, the results of which ordinarily are restricted for proprietary or national security reasons (defined by National Security Decision Directive 189). An SBC whose proposed work will include fundamental research and requests to eliminate the requirement for prior approval of public disclosure of information must complete the DON Fundamental Research Disclosure and upload as a separate PDF file to the Supporting Documents (Volume 5) in DSIP as part of their proposal submission. The DON Fundamental Research Disclosure is available on https://navysbir.com/links_forms.htm and includes instructions on how to complete and upload the completed Disclosure. Simply identifying fundamental research in the Disclosure does **NOT** constitute acceptance of the exclusion. All exclusions will be reviewed and, if approved by the Government Contracting Officer, noted in the contract.

Majority Ownership in Part. Proposing SBCs that are more than 50% owned by multiple venture capital operating companies (VCOC), hedge funds (HF), private equity firms (PEF), or any combination of these as set forth in 13 C.F.R. § 121.702, **are eligible** to submit proposals in response to DON topics advertised within this BAA.

For proposing SBCs that are a member of this ownership class the following must be satisfied for proposals to be accepted and evaluated:

a. Prior to submitting a proposal, proposing SBCs must register with the SBA Company Registry Database.
b. The proposing SBC within its submission must submit the Majority-Owned VCOC, HF, and PEF Certification. A copy of the SBIR VC Certification can be found on https://navysbir.com/links_forms.htm. Include the SBIR VC Certification in the Supporting Documents (Volume 5).

c. Should a proposing SBC become a member of this ownership class after submitting its proposal and prior to any receipt of a funding agreement, the proposing SBC must immediately notify the Contracting Officer, register in the appropriate SBA database, and submit the required certification, which can be found on https://navysbir.com/links_forms.htm.

System for Award Management (SAM). It is strongly encouraged that proposing SBCs register in SAM, https:// sam.gov, by the Close date of this BAA, or verify their registrations are still active and will not expire within 60 days of BAA Close. Additionally, proposing SBCs should confirm that they are registered to receive contracts (not just grants) and the address in SAM matches the address on the proposal. An SBC selected for an award MUST have an active SAM registration at the time of award or they will be considered ineligible.

Cybersecurity Maturity Model Certification (CMMC) Program. DOW has established the CMMC Program to verify that awardees have implemented required security measures necessary to safeguard Federal Contract Information (FCI) and Controlled Unclassified Information (CUI). CMMC Level requirements are identified within each topic. Proposing SBCs should carefully review and consider the CMMC requirements as compliance may impact proposed costs and technical approach. Please review the DOW SBIR/STTR Program BAA for additional information on the CMMC Program.

Notice of NIST SP 800-171 Assessment Database Requirement. The purpose of the National Institute of Standards and Technology (NIST) Special Publication (SP) 800-171 is to protect Controlled Unclassified Information (CUI) in Nonfederal Systems and Organizations. As prescribed by DFARS 252.240-7997, in order to be considered for award, an SBC is required to implement NIST SP 800-171 and shall have a current assessment uploaded to the Supplier Performance Risk System (SPRS) which provides storage and retrieval capabilities for this assessment. The platform Procurement Integrated Enterprise Environment (PIEE) will be used for secure login and verification to access SPRS. For brief instructions on NIST SP 800-171 assessment, SPRS, and PIEE, please visit https://www.sprs.csd.disa.mil/nistsp.htm. For in-depth tutorials on these items please visit https://www.sprs.csd.disa.mil/webtrain.htm.

Human Subjects, Animal Testing, and Recombinant DNA. If the use of human, animal, and recombinant DNA is included under a DP2 proposal, please carefully review the requirements at: https://www.nre.navy.mil/work-with-us/how-to-apply/compliance-and-protections/research-protections. This webpage provides guidance and lists approvals that may be required before contract/work can begin.

International Traffic in Arms Regulation (ITAR). For topics indicating ITAR restrictions or the potential for classified work, limitations are generally placed on disclosure of information involving topics of a classified nature or those involving export control restrictions, which may curtail or preclude the involvement of universities and certain non-profit institutions beyond the basic research level. Small businesses must structure their proposals to clearly identify the work that will be performed that is of a basic research nature and how it can be segregated from work that falls under the classification and export control restrictions. As a result, information must also be provided on how efforts can be performed in later phases if the university/research institution is the source of critical knowledge, effort, or infrastructure (facilities and equipment).

SELECTION, AWARD, AND POST-AWARD INFORMATION

Notifications. Email notifications for proposal receipt (approximately one week after the Phase I BAA Close) and selection are sent based on the information received on the proposal Cover Sheet (Volume 1). Consequently, the e-mail address on the proposal Cover Sheet must be correct.

Debriefs. Requests for a debrief must be made within 15 calendar days of select/non-select notification via email as specified in the select/non-select notification. Please note debriefs are typically provided in writing via email to the Corporate Official identified in the proposal of the proposing SBCs within 60 days of receipt of the request. Requests for oral debriefs may not be accommodated. If contact information for the Corporate Official has changed since proposal submission, a notice of the change on company letterhead signed by the Corporate Official must accompany the debrief request.

Protests. Interested parties have the right to protest in accordance with the procedures in FAR Subpart 33.1.

Pre-award agency protests related to the terms of the BAA must be served to: osd.ncr.ousd-r-e.mbx.SBIR-STTR-Protest@mail.mil. A copy of a pre-award Government Accountability Office (GAO) protest must also be filed with the aforementioned email address within one day of filing with the GAO.

Protests related to a selection or award decision should be filed with the appropriate Contracting Officer for an Agency Level Protest or with the GAO. Contracting Officer contact information for specific DON Topics may be obtained from the DON SYSCOM Program Managers listed in Table 2 above. For protests filed with the GAO, a copy of the protest must be submitted to the appropriate DON SYSCOM Program Manager and the appropriate Contracting Officer within one day of filing with the GAO.

Awards. Due to limited funding, the DON reserves the right to limit the number of awards under any topic. Any notification received from the DON that indicates the proposal has been selected does not ultimately guarantee an award will be made. This notification indicates that the proposal has been selected in accordance with the evaluation criteria and has been sent to the Contracting Officer to conduct cost analysis, confirm eligibility of the proposing SBC, and to take other relevant steps necessary prior to making an award.

Contract Types. The DON will consider the following for award: Cost Plus Fixed Fee (CPFF), Firm Fixed Price (FFP), Basic Ordering Agreement (BOA), or Prototype Other Transaction (OT).

Contract Deliverables. Contract deliverables are typically progress reports and final reports. Required contract deliverables must be uploaded to https://www.navysbirprogram.com/navydeliverables/.

Transfer Between SBIR and STTR Programs. Section 4(b)(1)(i) of the SBIR and STTR Policy Directive provides that, at the agency's discretion, projects awarded a Phase I under a BAA for SBIR may transition in Phase II to STTR and vice versa.

PHASE III GUIDELINES

A Phase III SBIR/STTR award is any work that derives from, extends, or completes effort(s) performed under prior SBIR/STTR funding agreements, but is funded by sources other than the SBIR/STTR programs. This covers any contract, grant, or agreement issued as a follow-on Phase III award or any contract, grant, or agreement award issued as a result of a competitive process where the awardee was an SBIR/STTR firm that developed the technology as a result of a Phase I or Phase II award. The DON will give Phase III status to any award that falls within the above-mentioned description. Consequently, DON will assign SBIR/STTR Data Rights to any noncommercial technical data and noncommercial computer software delivered in Phase III that were developed under SBIR/STTR Phase I/II effort(s). Government prime contractors and their subcontractors must follow the same guidelines as above and ensure that companies operating on behalf of the DON protect the rights of the SBIR/STTR firm.

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DON26BZ01-DV001 TITLE: DIRECT TO PHASE II: Extended Range 10-inch Air Launched Rocket

COMPONENT TECHNOLOGY PRIORITY AREA(S): Advanced Materials;Sustainment

PROJECTED CMMC LEVEL REQUIREMENT: Level 2 (Self)

The technology within this topic is restricted under the International Traffic in Arms Regulation (ITAR), 22 CFR Parts 120-130, which controls the export and import of defense-related material and services, including export of sensitive technical data, or the Export Administration Regulation (EAR), 15 CFR Parts 730-774, which controls dual use items. Offerors must disclose any proposed use of foreign nationals (FNs), their country(ies) of origin, the type of visa or work permit possessed, and the statement of work (SOW) tasks intended for accomplishment by the FN(s) in accordance with the Announcement. Offerors are advised foreign nationals proposed to perform on this topic may be restricted due to the technical data under US Export Control Laws.

OBJECTIVE: Implement Highly Loaded Grain (HLG) propulsion technology into an existing 10-inch diameter rocket motor to create a tactically relevant, extended range rocket motor.

DESCRIPTION: The U.S. Navy is pursuing enhancements to the performance, range, and tactical flexibility of existing 10-inch rocket motor systems. A key enabler of this objective is the maturation and application of HLG propulsion technology. HLG designs maximize total impulse within volume-constrained tactical solid propellant systems while enabling adaptable thrust-time profiles, including boost-sustain variants.
This Direct to Phase II SBIR topic seeks integration of HLG technology into an existing 10-inch diameter rocket motor, thereby increasing performance and advancing the Technology Readiness Level (TRL) and Manufacturing Readiness Level (MRL) of the HLG propulsion approach.
Key Technical Guidelines:

1. Rocket Motor Case: 10-inch diameter tactical casing with boat-tail geometry based on the High-speed Anti-Radiation Missile (HARM) aft-end structure
2. Grain Design: HLG-formulated geometry tailored for constrained volume and thrust shaping
3. Ballistics Software: CLWire ballistic simulation software provided by Naval Air Warfare Center Weapons Division (NAWCWD)
4. Risk Posture: Low to moderate for non-HLG-specific subsystems; medium risk for nozzle/igniter design
5. Performance Objective: Total impulse increase of approximately 30% over legacy baseline
6. Thrust Profile: Support both all-boost and boost/sustain regimes; comply with NAWCWD performance parameters including Maximum Expected Operating Pressure (MEOP) and thrust onset rates
7. Propellant Formulation: Aluminized solid propellant: Ammonium Perchlorate (AP) / Aluminum (Al) / Hydroxyl-Terminated Polybutadiene (HTPB) binder
8. Materials Compatibility: Maximize re-use of existing materials for insulation, liners, oxidizers, and binders
9. Environmental Qualification: Thermal: –65 °F to +160 °F (–53.9 °C to +71.1 °C); Structural: withstand shock and vibration in accordance with military deployment profiles
10. Nozzle & Igniter Development: Moderate risk with identified maturation path toward tactically viable configurations

Work produced in Phase II may become classified. Note: The prospective contractor(s) must be U.S. owned and operated with no foreign influence as defined by 32 U.S.C. § 2004.20 et seq., National Industrial Security Program Executive Agent and Operating Manual, unless acceptable mitigating procedures can and have been implemented and approved by the Defense Counterintelligence and Security Agency (DCSA) formerly Defense Security Service (DSS). The selected contractor must be able

to acquire and maintain a secret level facility and Personnel Security Clearances. This will allow contractor personnel to perform on advanced phases of this project as set forth by DCSA and NAVAIR in order to gain access to classified information pertaining to the national defense of the United States and its allies; this will be an inherent requirement. The selected company will be required to safeguard classified material during the advanced phases of this contract IAW the National Industrial Security Program Operating Manual (NISPOM), which can be found at Title 32, Part 2004.20 of the Code of Federal Regulations.

PHASE I: For a Direct to Phase II topic, the Government expects that the small business would have accomplished the following in a Phase I-type effort and developed a concept for a workable prototype or design to address, at a minimum, the basic requirements of the stated objective above. The below actions would be required to satisfy the requirements of Phase I:

1. Ballistic Design: Evidence of preliminary or detailed grain geometry development, performance modeling (e.g., with CLWire or similar), and total impulse optimization.
2. Motor Fabrication: Documentation of hardware build efforts, including grain casting, case integration, and materials characterization relevant to the HLG configuration.
3. Static Test Results: Data from one or more static firings that validate thrust-time profiles, ignition performance, MEOP survivability, and total impulse enhancement attributed to the HLG propulsion technology.
4. Importantly, feasibility documentation must not rely solely on work conducted under prior or ongoing federally funded SBIR/STTR awards. Applicants are required to demonstrate that the proposed concept has been advanced through non-SBIR/STTR-funded efforts, indicating technical maturity sufficient for immediate Phase II execution.

FEASIBILITY DOCUMENTATION: Offerors interested in participating in Direct to Phase II must include in their response to this topic Phase I feasibility documentation that substantiates the scientific and technical merit and Phase I feasibility described in Phase I above has been met (i.e., the small business must have performed Phase I-type research and development related to the topic NOT solely based on work performed under prior or ongoing federally funded SBIR/STTR work) and describe the potential commercialization applications. The documentation provided must validate that the proposer has completed development of technology as stated in Phase I above.

PHASE II: Focus on developing, documenting, fabricating, and validating a tactical solid rocket motor that integrates HLG propulsion technology, in accordance with Government technical guidelines and performance objectives.

1. Initial Concept Design and Detailed Design Review (DDR)
   - Develop an initial system design incorporating: (1) Ballistic modeling using CLWire (Government-furnished); (2) Thermal and structural insulation design; (3) Tactically relevant nozzle architecture; and (4) Igniter configuration suited for aluminized propellant initiation.
   - Document the full design concept for review in a DDR to be assessed against Government-agreed technical requirements and performance metrics.
   - Government acceptance of DDR exit criteria is required prior to initiating fabrication.
2. Fabrication and Assembly (following DDR approval)
   - Finalize design details, generate component drawings, and fabricate tooling for both component and propellant casting.
   - Perform propellant mixing and casting per specified aluminized solid formulation (AP/Al/HTPB), ensuring compatibility with insulation and liner materials.
   - Utilize a Government-supplied flight weight motor case and HLG-specific materials, as requested and made available by the program office.

3. As-Manufactured Validation and Testing

- Conduct an Item Under Test (IUT) review to compare the as-built motor configuration with the as-designed concept.
- Present findings to the Government for validation and alignment with performance expectations.
- Upon concurrence, proceed to static fire testing of the motor in a controlled test environment.

Work in Phase II may become classified. Please see note in the Description.

PHASE III DUAL USE APPLICATIONS: Mature the Phase II rocket motor concept for higher fidelity static fire demonstrations. The developed rocket motors will incorporate flight representative subcomponents (e.g., nozzle, insulation, ignition system, etc.) while still optimizing the propulsion design to maximize system range. Demonstrate multiple static firings to assess the environmental robustness of the rocket motors and performance relative to the technical guidelines provided by the Government. A final report will be provided that documents the design and testing results, provides a Technology Readiness Level (TRL) assessment, and outlines a path to further mature the technology.
The developed propulsion technology with have application to space launch and space-based systems.

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1. "Naval Air Systems Command/Naval Air Warfare Center Weapons Division (NAWCWD): 2023 Highlights." https://www.navair.navy.mil/nawcwd/sites/g/files/jejdrs601/files/document/%5Bfilename%5D/NAWCWD%20Fact%20Sheet%202023.pdf
2. PMA-242 Mission Statement and Description for AARGM. NAVAIR. https://www.navair.navy.mil/product/AARGM
3. "National Industrial Security Program Executive Agent and Operating Manual (NISP), 32 U.S.C. § 2004.20 et seq. 1993." https://www.ecfr.gov/current/title-32/subtitle-B/chapter-XX/part-2004

KEYWORDS: Solid Propulsion; Energy Management; Rocket Motor; Extended Range; Propellant; Hypersonics

DON26BZ01-DV002 TITLE: DIRECT TO PHASE II: Domestic Production of Zirconium and Hafnium Metal Organic Precursors

COMPONENT TECHNOLOGY PRIORITY AREA(S): Advanced Materials;Hypersonics

PROJECTED CMMC LEVEL REQUIREMENT: Level 2 (Self)

OBJECTIVE: Develop and demonstrate a pilot-scale manufacturing process for producing high purity tetrakis(dimethylamido)zirconium(IV) (TDMAZ), tetrakis(dimethylamido)hafnium(IV) (TDMAH) and related metal dimethylamide compounds, with a targeted annual production capacity exceeding 6,000 kg of TDMAZ.

DESCRIPTION: The Department of the Navy is seeking a domestic source of critical chemical feedstocks including TDMAZ, TDMAH, and other metal dimethylamide compounds. These chemical feedstocks can be used as metal organic precursors for atomic layer deposition (ALD), chemical vapor deposition (CVD), and chemical vapor infiltration (CVI) of metal oxides, nitrides, and carbonitrides used in microelectronics and ceramic manufacturing [Refs 1-3]. While TDMAZ is a vital ceramic precursor for the electronics and semiconducting industry, this effort will also support the use of TDMAZ for the preparation of metal nitrides and carbonitrides for ceramics and ceramic matrix composites.
This SBIR topic seeks to establish a domestic manufacturing capability for the production of > 6,000 kg/year of TDMAZ. Synthesis of TDMAZ and other metal dimethylamides often involves pyrophoric and air/water sensitive reagents, and the proper storage and handling of these reagents is crucial for the development of a cost-effective and large-scale manufacturing process. Along with the production volumes mentioned above, the metal precursors must have a purity > 99% and a target retail price of < $4,000/kg of TDMAZ, preferably < $2,500/kg. The proposed manufacturing facility must be located in the United States or US territories, and the company owning and operating this manufacturing facility must be wholly US owned and based.

PHASE I: For a Direct to Phase II topic, the Government expects that the small business would have accomplished the following in a Phase I-type effort and developed a concept for a workable prototype or design to address, at a minimum, the basic requirements of the stated objective above. The below actions would be required to satisfy the requirements of Phase I:
Proposing SBCs will have demonstrated expertise in the synthesis of air and water-sensitive compounds and access to facilities that will enable them to produce zirconium and hafnium organic precursors at the kilogram scale.

FEASIBILITY DOCUMENTATION: Offerors interested in participating in Direct to Phase II must include in their response to this topic Phase I feasibility documentation that substantiates the scientific and technical merit and Phase I feasibility described in Phase I above has been met (i.e., the small business must have performed Phase I-type research and development related to the topic NOT solely based on work performed under prior or ongoing federally funded SBIR/STTR work) and describe the potential commercialization applications. The documentation provided must validate that the proposer has completed development of technology as stated in Phase I above.

PHASE II: Identify a chemical process to manufacture TDMAZ and perform a safety analysis on the handling, storage, and waste management of air and water sensitive reagents and intermediates used in production scale synthesis. Facility upgrades to allow for safety compliance during manufacture of metal dimethylamides is allowed. The ability to expand and manufacture other metal dimethylamide compounds, such as TDMAH is encouraged.

Demonstrate a scalable approach for the synthesis of TDMAZ and provide 1 kg of material for analysis and internal verification by Navy researchers. Demonstrate pilot scale production of at least 50 kg TDMAZ/month. It is expected that the optimized approach will be consistent with a target production of > 6,000 kg TDMAZ/year. Conduct a technoeconomic analysis based on production at the > 6,000 kg/year scale. Identification of manufacturing or production issues and business model modifications required to further improve the process (e.g., reduced cost, increased availability, safety) will be documented. At the end of the Phase II Base period, 100 kg of TDMAZ produced using the new pilot scale manufacturing process will be delivered to the Government.

PHASE III DUAL USE APPLICATIONS: Establish a facility to produce > 6,000 kg of TDMAZ/year. Conduct several production runs to demonstrate the ability to supply zirconium and hafnium carbide precursors at < $2,500/kg to the DoW through the Defense Logistics Agency.
Zirconium and hafnium carbide are used in commercial aerospace structures, microelectronics, cutting tool bits, and coatings in nuclear reactors.

REFERENCES:

1. Hausmann, D.M. and Gordon, R.G. “Surface Morphology and Crystallinity Control in the Atomic Layer Deposition (ALD) of Hafnium and Zirconium Oxide Thin Films.” J. Cryst. Growth, 241, pp. 251-261, 2003. https://www.sciencedirect.com/science/article/abs/pii/S0022024802021334
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3. Lamm, B.W. and Mitchell, D.J. “Chemical Vapor Deposition of Zirconium Compounds: A Review.” Coatings, 13, pp. 266, 2023. https://www.mdpi.com/2079-6412/13/2/266

KEYWORDS: Zirconium Carbide; Hafnium Carbide; Ceramic Precursors; Pilot Manufacturing; Technoeconomic Analysis; High-Temperature Coatings

DON26BZ01-DV003 TITLE: DIRECT TO PHASE II: AI/ML Assisted Field Troubleshooting in Avionics Optical Network

COMPONENT TECHNOLOGY PRIORITY AREA(S): Integrated Network Systems-of-Systems;Sustainment;Trusted AI and Autonomy

PROJECTED CMMC LEVEL REQUIREMENT: Level 2 (Self)

The technology within this topic is restricted under the International Traffic in Arms Regulation (ITAR), 22 CFR Parts 120-130, which controls the export and import of defense-related material and services, including export of sensitive technical data, or the Export Administration Regulation (EAR), 15 CFR Parts 730-774, which controls dual use items. Offerors must disclose any proposed use of foreign nationals (FNs), their country(ies) of origin, the type of visa or work permit possessed, and the statement of work (SOW) tasks intended for accomplishment by the FN(s) in accordance with the Announcement. Offerors are advised foreign nationals proposed to perform on this topic may be restricted due to the technical data under US Export Control Laws.

OBJECTIVE: Design, develop, and integrate a portable artificial intelligence/ machine learning (AI/ML)-enabled diagnostic module compatible with existing Optical Backscattering Reflectometer (OBR) and Optical Time Domain Reflectometer (OTDR) mainframes. The module will be engineered to support in-field optical network troubleshooting and management for high-speed communication systems.

DESCRIPTION: Current airborne military (mil-aero) core avionics, electro-optical (EO), communications, and electronic warfare systems are experiencing continuous growth in bandwidth demand, coupled with stringent requirements to reduce Size, Weight, and Power (SWaP). Earlier-generation multimode optical fibers have replaced traditional shielded twisted-pair wire and coaxial cable, offering increased electromagnetic interference (EMI) immunity, higher bandwidth and throughput, and notable reductions in aircraft size and weight.
However, maintenance and troubleshooting of these advanced optical networks remain highly dependent on traditional telecommunication test equipment. Identifying and resolving faults—such as fiber breaks, fractures, and high-loss terminations—requires locating and distinguishing anomalies within meter-level precision, whereas modern avionic information-processing networks demand centimeter-level spatial resolution from source to detector.
Fault detection must extend beyond typical Weapons Replaceable Assembly (WRA) interfaces to identify:

- Backplane/module degradation
- Line replaceable module-to-optical transceiver faults
- Polymer waveguide failures
- Inline sensor (fiber grating) issues
- Optical link loss across concatenated waveguide segments

Frequent airframe panel removal during fault isolation disrupts aircraft availability and mission readiness—especially for stealth platforms—highlighting the need for faster, more accurate, and less intrusive diagnostics.
To overcome these limitations, a portable AI/ML-enabled troubleshooting device is proposed to support field diagnostics across military airborne fiber-optic systems. The device will leverage next-generation reflectometry technologies and machine intelligence to enhance fault resolution precision and technician efficiency.
Key Capabilities:

- AI-Augmented Fault Detection
    - o Real-time identification of defects (breaks, voids, misalignments, link degradation)
    - o Pattern recognition and anomaly classification using historical signature databases

• AI-Driven Virtual Assistants
    - o On-device or network-connected chatbots providing guided maintenance workflows
    - o Embedded AR interface for overlaying diagnostics on test hardware in real time
• Advanced Troubleshooting Metrics
    - o Spatial resolution to centimeter scale across multiple fiber types
    - o Predictive maintenance algorithms to reduce unplanned network downtime
• Plug-and-Play Integration
    - o Fully compatible with existing portable OTDR/OBR mainframes
    - o Support for both multimode (50/125, 62.5/125, 100/140 µm) and single mode (9/125 µm) fiber types
    - o GUI developed for intuitive field use across all operational conditions
• Wavelength and Environmental Resilience
    - o Operational wavelength support: SWDM and CWDM
    - o Designed for MIL-PRF-28800 Class 2 with select Class 1 enhancements
    - o Operational temperature range: –40°C to +95°C
    - o Resistant to mechanical shock, altitude variation, vibration, humidity, and thermal cycling

The device will build upon a fusion of legacy and emerging fiber-optic diagnostic technologies, including:

- Optical Time Domain Reflectometry (OTDR)
- Optical Backscatter Reflectometry (OBR)
- Photon-Counting OTDR (PC-OTDR)
- Low Correlation OTDR (LC-OTDR)
- Pseudo Random Sequence (PRS) Correlation OTDR (C-OTDR)
- Optical Frequency Domain Reflectometry (OFDR)

PHASE I: For a Direct to Phase II topic, the Government expects that the small business would have accomplished the following in a Phase I-type effort and developed a concept for a workable prototype or design to address, at a minimum, the basic requirements of the stated objective above. The below actions would be required to satisfy the requirements of Phase I:
Concept Development: Developed a concept for a viable prototype or design solution that addresses, at a minimum, the core technical and performance objectives outlined in the stated topic.
Feasibility Demonstration: Designed, developed, and demonstrated the technical feasibility of a low-cost, AI/ML-based plug-in module compatible with portable OBR and OTDR mainframes. The solution must meet applicable aviation support equipment requirements, including ruggedization, thermal compatibility, and interface standards.
Performance Modeling and Simulation: Modeled and simulated the plug-in module's performance under high-speed application conditions, validating its functionality across relevant operational scenarios and wavelengths.
Design Packaging: Delivered a conceptual packaged design of the plug-in module, incorporating mechanical footprint, connector interface, and Graphical User Interface (GUI) considerations to support seamless integration into current field-deployable test equipment.

FEASIBILITY DOCUMENTATION: Offerors interested in participating in Direct to Phase II must include in their response to this topic Phase I feasibility documentation that substantiates the scientific and technical merit and Phase I feasibility described in Phase I above has been met (i.e., the small business must have performed Phase I-type research and development related to the topic, but from non-SBIR funding sources) and describe the potential commercialization applications. The documentation provided must validate that the proposer has completed development of technology as stated in Phase I above. Documentation should include all relevant information including, but not limited to technical reports, test data, prototype designs/models, and performance goals/results. Work submitted within the feasibility documentation must have been substantially performed by the offeror and/or the principal

investigator (PI). Read and follow all of the DON SBIR FY26 Release 3 Direct to Phase II Broad Agency Announcement (BAA) Instructions. Phase I proposals will NOT be accepted for this topic.

PHASE II: Design, construct, and validate a functional AI/ML-enabled plug-in module prototype. Focus on transitioning the concept design into an operational system capable of meeting the rigorous demands of military optical diagnostics.
Include in the Prototype Design and Fabrication the following:
• Engineering of a robust plug-in module design based on Phase I feasibility studies and modeling outcomes.
• Integrating AI/ML processing hardware, signal acquisition architecture, and interfaces into a fully packaged prototype.
• Ensuring form-factor compliance with portable OTDR and OBR mainframes, including connector integrity, mechanical footprint, and GUI usability.
• Compiling system-level test data and validating against entry criteria for Technology Readiness Level (TRL) 6.

PHASE III DUAL USE APPLICATIONS: Collaborate with defense avionics industries as well as support equipment companies to accelerate transition to production.
Commercial telecommunication systems, fiber-optic networks, and data centers will benefit from the development of the AI/MIL based OBR and OTDR. These applications will be able to easily test/diagnose optical networks.

REFERENCES:

1. "MIL-PRF-28800F; Test Equipment for use with Electrical and Electronic Equipment , General Specification for." http://everyspec.com/MIL-PRF/MIL-PRF-010000-29999/MIL-PRF-28800F_18207/
2. Villalba, Sergi; Casas, Joan R. "Application of optical fiber distributed sensing to health monitoring of concrete structures." Mechanical Systems and Signal Processing, Volume 39, Issues 1-2, August-September 2013, pp. 441-451. https://www.sciencedirect.com/science/article/abs/pii/S0888327012000283
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KEYWORDS: Optical Backscattering Reflectometer; OBR; Optical Time Domain Reflectometer; OTDR; Augmented Reality; AR; Low correlation OTDR; LC-OTDR; Pseudo Random Signal; PRS; Correlation Optical Time Domain Reflectometer; C-OTDR

DON26BZ01-DV004 TITLE: DIRECT TO PHASE II: Highly Loaded Grain in 2.75" Form Factor

COMPONENT TECHNOLOGY PRIORITY AREA(S): Advanced Materials;Sustainment

PROJECTED CMMC LEVEL REQUIREMENT: Level 2 (Self)

The technology within this topic is restricted under the International Traffic in Arms Regulation (ITAR), 22 CFR Parts 120-130, which controls the export and import of defense-related material and services, including export of sensitive technical data, or the Export Administration Regulation (EAR), 15 CFR Parts 730-774, which controls dual use items. Offerors must disclose any proposed use of foreign nationals (FNs), their country(ies) of origin, the type of visa or work permit possessed, and the statement of work (SOW) tasks intended for accomplishment by the FN(s) in accordance with the Announcement. Offerors are advised foreign nationals proposed to perform on this topic may be restricted due to the technical data under US Export Control Laws.

OBJECTIVE: Design, develop, and demonstrate a Highly Loaded Grain (HLG) technology in a 2.75 inch rocket motor to extend range in a tactically relevant form factor.

DESCRIPTION: The objective of this SBIR Direct to Phase II topic is to utilize HLG to increase the range available in a 2.75” rocket motor and advance the Technology Readiness Level (TRL) and Manufacturing Readiness Level (MRL) of HLG technology. HLG is a propellant technology that improves total impulse in a given volume, as well as provides capability for mission flexibility. The Mk66 is a low cost 2.75” rocket motor utilizing minimum smoke propellent and is in use with unguided rockets and the Advanced Precision Kill Weapon System (APKWS II) All Up Round (AUR). Increasing the range available at an affordable cost in a Mk66 motor case is needed to pace emerging threats.
Key Technology Guidelines:

1. Rocket motor case: 2.75" Mk 66 case
2. Grain design: HLG propulsion technology
3. Ballistics software: CLWire provided by the Naval Air Warfare Center Weapons Division (NAWCWD)
4. Risk posture: Low/moderate risk for non-HLG specific components
5. Total Impulse: Increase by 30%
6. Thrust Profile: Implement all-boost and boost/sustain thrust profile with performance guidelines provided by NAWCWD (Maximum Expected Operating Pressure (MEOP) and initial thrust dictated by legacy Mk 66 system)
7. Propellant: Objective: Min-Smoke, Threshold: Reduced Smoke
8. Materials: Maximize compatibility/usage of existing rocket motor materials (propellant oxidizers and binders, insulation, liners, etc.)
9. Environments: thermal (-65 °F to 160 °F) (-53.9 °C to 71.1 °C) and mechanical environments (shock/vibe) required to enter military usage.
10. Nozzle and igniter: medium risk with path towards tactical design

PHASE I: For a Direct to Phase II SBIR topic, the Government expects that the small business has accomplished Phase I-type feasibility work and can document within the proposal submission to indicate previous research and development work has been conducted to design, implement, and test HLG propulsion technology in a "Phase I-type" effort. This work would include ballistic design, motor fabrication, and static test results. The feasibility documentation MUST NOT be solely based on work performed under prior or ongoing SBIR/STTR effort.

FEASIBILITY DOCUMENTATION: Offerors interested in participating in Direct to Phase II must include in their response to this topic Phase I feasibility documentation that substantiates the scientific

and technical merit and Phase I feasibility described in Phase I section above has been met (i.e., the small business must have performed Phase I-type research and development related to the topic NOT solely based on work performed under prior or ongoing federally funded SBIR/STTR work) and describe the potential commercialization applications. The documentation provided must validate that the proposer has completed development of technology as stated in Phase I above.

PHASE II: Develop an initial concept design incorporating the following elements: ballistics, insulation, nozzle, and igniter. This design will be formally documented and presented in a Detailed Design Review (DDR) to evaluate compliance with the technical requirements established in coordination with the Government. Approval of the DDR and its associated exit criteria is a prerequisite for advancing motor fabrication. Upon acceptance, the awardee will initiate fabrication activities, which include detailed design finalization, component and cast tooling production, and propellant mix and casting.
Following fabrication, the as-manufactured motor will undergo an Item Under Test (IUT) evaluation, during which its performance and specifications will be assessed relative to the original design concept. This review will be submitted to the Government for validation and approval. Subsequently, the motor will be static fired, contingent upon mutual agreement between the Government and the awardee.
Upon completion, the awardee will submit a final report to Naval Aviation Warfare Center Weapons Division (NAWCWD). This report will document the prototype's design, fabrication process, and test results. It will also identify any low-maturity technology areas and introduce a plan to further develop these technologies during Phase III.

The Government will furnish the motor case, HLG materials, and technical support as requested by the awardee throughout the award process.

PHASE III DUAL USE APPLICATIONS: Utilizing Phase II results, refine and execute risk reduction and technology maturation efforts to develop the design to an overall high TRL, and integrate into a full system, progressing towards potential integration into an existing program of record.
Dual uses include development of high-rate minimum-smoke propellant and HLG development toward rotary-wing applications.
Potential commercial industry utilization include pace-based applications, such as satellite thrusters/solid propulsion systems.

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2. Harper, Jon. "Ukraine to get more laser-guided munitions to kill drones." Defensescoop, November 3, 2023. https://defensescoop.com/2023/11/03/ukraine-to-get-more-laser-guided-munitions-to-kill-drones/
3. NAVAIR. "Advanced Precision Kill Weapon System (APKWS)." https://www.navair.navy.mil/product/APKWS
4. NAWCWD. "NAWCWD Fact Sheet 2023". https://www.navair.navy.mil/nawcwd/sites/g/files/jejdrs601/files/document/%5Bfilename%5D/NAWCWD%20Fact%20Sheet%202023.pdf

KEYWORDS: Highly Loaded Grain; Small Diameter System; Solid Rocket Motor; Affordable Mass; Range Increase; Propellant Development

DON26BZ01-DV005 TITLE: DIRECT TO PHASE II: Advanced Damage Criticality Analysis

OUSW (R&E) CRITICAL TECHNOLOGY AREA(S): Applied Artificial Intelligence (AAI)

COMPONENT TECHNOLOGY PRIORITY AREA(S): Advanced Computing and Software;Integrated Sensing and Cyber;Trusted AI and Autonomy

PROJECTED CMMC LEVEL REQUIREMENT: Level 2 (Self)

OBJECTIVE: Develop a passive Structural Health Monitoring (SHM) system to identify, locate, and characterize the severity of defects and cracks due to fatigue loading or impacts based on novel or advanced technologies with a basis in physics and avoiding qualitative assumptions.

DESCRIPTION: The Navy seeks an effective passive Structural Health Monitoring (SHM) system for Navy ship hulls and other structures that can monitor defects, such as crack growth from fatigue or impacts, and provide actionable information about the severity of the defect in an automated manner, i.e., in real time. Such fatigue cracks develop and grow in Navy ship hull welds and plating from cyclical life-cycle stresses and event-driven forces from severe sea states, collisions, and groundings.

The U.S. Navy and other navies around the world have installed SHM systems to monitor hull structural health but almost all are based on using strain gauges to monitor stresses on the hull and inferring crack growth based on fatigue life calculations. For example, the Military Sealift Command (MSC) has worked with the American Bureau of Shipping (ABS) and installed SHM systems consisting of strain gauges and accelerometers on several ships in the T-EPF class, which monitor hull deflection and dynamic movement due to the ship's loading and the sea states encountered. The data from these sensors is being fed into a digital twin model developed to calculate structural stresses for managing vessel survivability and to minimize operating risk.

There have been some attempts to develop fiber optics sensors to measure strain or Acoustic Emission (AE) sensors to monitor fatigue cracks directly. These approaches have seen varying levels of success, yet, better systems are needed. There may even be some applications for LiDAR use to improve success probability. The Navy is particularly interested in locating and characterizing the severity or criticality of a defect if one is detected. Currently there is not a system available on the commercial market.

The Navy's need for such hull monitoring capability has become more important with the introduction of high-speed and catamaran vessels, which are more prone to hull cracking due to the designs of the ships, materials of the hull, and stresses experienced in high seas. An ideal system would be capable of monitoring large areas of the ship's hull with sensing devices that provide cost effective coverage with the following capabilities:

- Detect and identify the location of crack growth signals in the hull if they exist in the presence of ship's background noise without producing false positives or negatives.
- Produce results in an automated manner, i.e., real time, so they are immediately available to the operating crew.
- Provide insight as to the severity of the crack growth considering the complex geometries found in hull structures with varying thicknesses and stiffeners.

The Navy would benefit from understanding structural risks in real time with the goal of minimizing the possibility of incurring structural damage at sea. The SHM system the Navy needs should provide meaningful information on ship structural health and reduce inspection and maintenance costs during repair availabilities by identifying areas of concern or damage in advance.

PHASE I: For a Direct to Phase II topic, the Government expects that the small business has accomplished the following in a Phase I-type feasibility effort and developed a concept for a workable prototype or design to address, at a minimum, the basic requirements for identifying, locating, and characterizing crack growth in ship hull structures in an automated, real-time manner.

FEASIBILITY DOCUMENTATION: Offerors interested in participating in Direct to Phase II must include in their response to this topic Phase I feasibility documentation that substantiates the scientific and technical merit and describes the potential commercialization applications. The documentation provided must validate that the proposer has completed development of technology as stated in Phase I above.

PHASE II: Develop and deliver a passive SHM prototype solution (hardware/software/firmware) using novel or advanced technologies for use by the Navy in demonstrating the ability to monitor large area hull structures and identify, locate, and characterize crack growth in ship hull structures in an automated, real-time manner.

PHASE III DUAL USE APPLICATIONS: Assist the Navy in transitioning the technology for Navy use. Provide and field a passive SHM capability based on advanced technologies that will be used for identifying, locating, and characterizing crack growth in ship hull structures in an automated, real-time manner. Provide Navy personnel with training on how to utilize the system for the collection of data. Work with Navy personnel on how to install and operate the system until such time as they intend to assume that role.
In a manner like shipboard hull structural monitoring, the advanced passive SHM system could be employed in other useful applications, such as the following:
• Monitor ship hulls covered with acoustic tiles or other coatings/coverings for loose or missing tiles due to failure of the tile adhesive or other material defects.
• Monitor ship hulls with known areas of cracking or corrosion to determine when repairs are dictated and when other maintenance should occur.
• Monitor large Aboveground Storage Tanks (AST), common to both military and civilian petrochemical storage, to identify and locate AST bottom plate leaks.
This technology would also apply to commercial ship hull monitoring and SHM of offshore platform structures, such as oil drilling and production rigs.

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KEYWORDS: Structural Health Monitoring (SHM); Guided Wave Analysis; Guided Wave Ultrasound; Ultrasonic Sensors Passive Monitoring; Acoustic Emission