

Version 2

**DEPARTMENT OF THE ARMY
DoD 25.4 Small Business Innovation Research (SBIR)
Annual Broad Agency Announcement (BAA)
Component-Specific Proposal Instructions
Release 5**

IMPORTANT

The following topic numbers in this release are part of a prize competition, xTechIgnite:

A254-016	A254-017	A254-018	A254-019
A254-020	A254-021	A254-022	A254-023

xTechIgnite will be used to identify small business concerns that meet the criteria for award. Winners selected from the xTechIgnite prize competition will be the only firms eligible to submit an SBIR proposal under any of the topics listed above. Proposals submitted to the topics listed above by non-winners of the xTechIgnite competition will not be evaluated. See the full xTechIgnite competition RFI here: <https://www.xtech.army.mil/competition/xttechignite/>.

The white paper submission deadline for xTechIgnite is March 12, 2025. White papers must be submitted by following instructions provided at the xTechIgnite link above. NOTE: white papers are NOT submitted to DSIP. Small business concerns that do not submit a concept white paper to the xTechIgnite competition before the March 12, 2025 deadline will be ineligible to compete or submit a full SBIR proposal to DSIP.

The following topic numbers are NOT part of the prize competition and are subject to submission deadlines as published in the DoD SBIR 25.4 Program BAA, Release 5.

A254-014 A254-015

To the extent possible, all Department of the Army component specific text follows the same numbering as the related sections in the DOD SBIR 25.4 Program BAA. Supplemental numbering is used only when the text cannot be integrated intelligibly with the DoD SBIR 25.4 Program BAA counterpart.

Each Small Business Concern (SBC) (also referred to herein as “proposer”, “offeror”, and/or “firm”) is encouraged to thoroughly review the DoD SBIR 25.4 Program BAA, to include any amendments/revisions, and the Army component-specific proposal instructions herein.

Please note that these instructions contain active hyperlinks. Offerors are encouraged to utilize these hyperlinks for additional information and resources. Ensure your browser or Portable Document Format viewer settings permit hyperlink access to take full advantage of these resources.

The following resources are provided to assist SBCs with SBIR Program Opportunities:

- The DoD SBIR 25.4 Program BAA is located at: <https://www.dodsbirsttr.mil/submissions/solicitation-documents/active-solicitations>.
- To remain apprised of important programmatic and solicitation changes, SBCs should register for the Defense SBIR / Small Business Technology Transfer (STTR) Innovation Portal (DSIP) Listserv at: <https://www.dodsbirsttr.mil/submissions/login>.
- Department of the Army’s [How to Submit a Compliant and Responsive Proposal Webinar](#)

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1.0 PROGRAM DESCRIPTION

1.1 Objectives and Context

The future Army must be capable of conducting Multi-Domain Operations (MDO) as part of an integrated Joint Force across an array of situations in multiple theaters by 2035. The MDO concept describes how the Army will support the Joint Force in the rapid and continuous integration of all domains of warfare – land, sea, air, and cyberspace – to deter and prevail as we compete short of conflict, and fight and win if deterrence fails. The Army must provide game-changing capabilities to our Soldiers. To capitalize on small business innovation and reduce the time from solicitation to award, the Army has implemented an approach to advertise SBIR funding opportunities through the Department of Defense (DoD) Annual BAA process, outside of the three pre-determined BAA cycles.

1.4 Eligibility and Performance Requirements

Proposing SBCs may refer the DoD SBIR 25.4 Program BAA, to include any amendments/revisions, for full eligibility requirements.

Furthermore, firms must not be debarred, suspended, proposed for debarment, or excluded from Government contracting within the System for Award Management (SAM) –

- Contractors debarred, suspended, or proposed for debarment are excluded from receiving an award. Contractors that are debarred, suspended, or proposed for debarment are also excluded from conducting business with the Government as agents or representatives of other contractors.
- Contractors and other entities that have an active exclusion record in SAM because they have been declared ineligible on the basis of statutory or other regulatory procedures are excluded from receiving an award under the conditions and for the period set forth in the statute or regulation.
- The Army SBIR Program will not consent to subcontracts with these contractors.

1.5 Majority Ownership in Part by Multiple Venture Capital, Hedge Fund, and Private Equity Firms

Under the Department of the Army's SBIR Program, proposing SBCs that are owned in majority part by multiple venture capital operating companies (VCOs), hedge funds (HF), or private equity funds (PEF) are eligible to submit applications or receive awards. Reference may be made to the DoD SBIR 25.4 Program BAA, including revisions/amendments, as well as 13 CFR 121.702, regarding eligibility standards, to include ownership and control requirements, applicable to the SBIR program.

All applicants that are majority-owned by multiple VCOC, HF or PEF, and are submitting a proposal to an Army Topic, shall complete the certification at [Verification of Eligibility of Small Business Joint Ventures](#), prior to submitting an application/proposal and must include the certification with their submission.

1.7 Direct to Phase II Program

Implementing the authority granted by 15 U.S.C. §638 (cc), as amended by the SBIR AND STTR EXTENSION ACT OF 2022, the U.S. Army will be conducting 'Direct to Phase II' contract awards for eligible SBIR topics. Each eligible topic requires documentation to determine whether the feasibility requirement described in the Phase I section of the topic has been met.

1.8 Program on Innovation Open Topics

This release contains an open topic. Proposing SBCs may refer the DoD SBIR 25.4 Program BAA, to include any amendments/revisions, for additional information regarding open topic submissions.

A small business concern may only submit one (1) proposal to each open topic. If more than one proposal from a small business concern is received for a single open topic, only the most recent proposal to be certified and submitted prior to the submission deadline will receive an evaluation. All prior proposals submitted by the small business concern for the same open topic will be marked as nonresponsive and will not receive an evaluation.

1.9 Discretionary Technical and Business Assistance (TABA)

The Army, at its discretion, may provide Technical and Business Assistance (TABA). The Army will select a preferred vendor(s) for the Army SBIR TABA program through a competitive process. Alternately, a SBC may, by subcontract or otherwise, select one or more vendors to assist the firm in meeting the TABA goals. The Applicant must request the authority to select its own TABA provider in its Army SBIR proposal and must demonstrate that the vendor is *uniquely* postured to provide the specific technical and business services required by providing documentation in Volume 5, Supporting Documentation. TABA funding will be denied if the offeror fails to include the cost and detailed explanation in its proposal. If you prefer to use the Army preferred vendor, you may opt for that support after selection if chosen to receive a contract award.

Participation in the Army SBIR TABA program is voluntary for each Army SBIR awardee. Services provided to Army SBIR firms under the auspices of the TABA program may include, but are not limited to:

1. Access to a network of scientists, engineers, and technologists focused on commercialization and transition considerations such as protected supply chain management, advanced manufacturing, process/product/production scaling, etc.;
2. Assistance with intellectual property protections, such as legal considerations, intellectual property rights, patent filing, patent fees, licensing considerations, etc.;
3. Commercialization and technology transition support such as market research, market validation, development of regulatory or manufacturing plans, brand development; and
4. Regulatory support such as product domain regulatory considerations, regulatory planning, and regulatory strategy development.

The Army SBIR program sponsors participation in the TABA program. The resource limitation for each firm is as follows:

- Phase I Firms:
 - Army-Preferred Vendor: If approved, the contractor may receive up to \$6,500 worth of assistance services per project (in addition to the maximum value identified in the ‘Anticipated Funding Agreement Structure’ section herein).
 - Firm-Selected Vendor: If approved, the contractor may receive up to \$6,500 in contract obligation (in addition to the maximum value identified in the ‘Anticipated Funding Agreement Structure’ section herein) per project.
- Phase II Firms:
 - Army-Preferred Vendor: If approved, the contractor may receive up to \$50,000 worth of assistance services per project (in addition to the maximum value identified in the ‘Anticipated Funding Agreement Structure’ section herein).
 - Firm-Selected Vendor: If approved, the contractor may receive up to \$50,000 in contract obligation (must be included as part of the maximum value identified in the ‘Anticipated Funding Agreement Structure’ section herein) per project.

1.10.1 Department of the Army Phase II Enhancement Policy

1.10.1 Overview

To further encourage the transition of SBIR research into DoD acquisition programs as well as the private sector, the Department of the Army may offer a Phase II Enhancement that supplements and extends a Phase II SBIR/STTR contract (the initial Phase II, or the second Phase II award) for an additional period of performance of approximately 6 to 18 months. The enhancement must be matched 1:1 with non- SBIR|STTR funding. Army RDT&E funding is preferred for the matching funds, however other forms of remuneration may be considered on a case-by-case basis and must be approved by the Army SBIR Program Director and the Contracting Officer.

Enhancement funding is typically applied to an active Phase II award via a contract modification and will result in an additional period of performance that is commensurate with the total funding received, typically 6 to 18 months (18 months being the maximum). On a case-by-case basis, however, a new Phase II contract may be awarded if appropriate. The proposed Enhancement effort must develop, deliver, and integrate a technology or product into a program within a DoD component(s), Federal Agency(ies), and/or the commercial sector.

1.10.2 Application Process

Enhancement requests should be submitted at least 6 months prior to the end of the Phase II period of performance to allow adequate time to complete the contracting process. Applications to the Enhancement Program will be reviewed for overall merit, transition potential, commercialization strategy, and value to the Army mission and are typically initiated through the Contracting Officer Representative (COR), Technical Point(s) of Contact (TPOC), SBIR Coordinator, and/or the Army SBIR Program Transition Broker Team lead, with oversight and input from the Contracting Officer.

Upon Army SBIR/STTR Program's Source Selection Authority (SSA) approval to proceed, assigned contracting personnel will prepare and issue a letter request for proposal (RFP), soliciting the firm's Enhancement proposal.

1.10.3 Limitations

All Enhancement requests are subject to the approval of the Army SBIR/STTR Program's SSA, successful completion of negotiations, and the availability of funding.

"Outside investment" must meet DoD Guidelines to qualify for Phase II Enhancement matching funds.

Eligible third-party investors include:

- Non-SBIR Department of Defense funds
- Any other non-SBIR federal agency funds
- A SBC other than the eligible/performing SBC
- Venture capital firms
- Individual investors
- A non-SBIR federal, state, or local government; or
- Any combination thereof

Ineligible sources include:

- The eligible SBC's internal research and development funds
- Funding in forms other than cash (such as in-kind or other tangible assets)
- Funding from the owners of the eligible SBC, or the family members or affiliates of such owners; or

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- Funding attained through loans or other forms of debt obligations

2.0 CERTIFICATIONS AND REGISTRATIONS

2.1 System for Award Management (SAM) Registration

Interested SBCs are required to be registered and active in [SAM](#) in accordance with [FAR Provision 52.204-7](#) before submitting a proposal and shall continue to be registered until time of award, during performance, and through final payment of any contract. Refer to the Eligibility section above, for information regarding firms (proposing SBC and its subcontractor(s)) who are listed as debarred, suspended, proposed for debarment, or possessing an active exclusion within the SAM.

SBCs may only submit offers using their legal business name or ‘Doing Business As’ (DBA) name, as indicated in the SAM registration for the provided Unique Entity Identifier (UEI). A firm submitting an offer using a DBA name shall have the DBA registered and linked to their current, active, SAM registration. Further, a firm may NOT submit an offer on behalf of another entity.

Proposing firms with no SAM registration, inactive SAM registration(s), or SAM registration(s) with improper Reps/Certs will be deemed ineligible. Additionally, an offer submitted using a DBA that is different from the firm’s legal, registered name, or no longer registered and linked to SAM shall be deemed unresponsive.

2.3 Defense SBIR/STTR Innovation Portal (DSIP) Registration

It is the SBCs responsibility to ensure that the firm’s DSIP account profile information correlates to the data found within the firm’s SAM registration. This includes, but is not limited to the following:

- 5-Digit Commercial and Government Entity Code
- 12-Digit UEI
- Legal Business Name
- “Doing Business As” Name
- Physical Address

Failure to correlate the SBCs entity information between the DSIP application and SAM and/or submit required certifications may significantly delay funding agreement award, become grounds for cancellation of the funding agreement, or become grounds for termination of an existing funding agreement.

2.4 Required Certifications

- Under a SBIR Phase I contract, the contractor shall submit a [SBIR Funding Agreement Certification – Life Cycle Certification](#), certifying as to whether it is in compliance with specific SBIR program requirements at the time of final payment or disbursement. This form shall be submitted as an attachment in Wide Area Workflow (WAWF), when submitting an invoice for final payment or disbursement on the Phase I contract.
- Under a SBIR Phase II contract, the contractor shall submit a [SBIR Funding Agreement Certification – Life Cycle Certification](#), certifying as to whether it is in compliance with specific SBIR program requirements prior to receiving more than 50% of the total award amount and prior to final payment or disbursement. This form shall be submitted as an attachment in WAWF when submitting invoices for each of the aforementioned milestones.

3.0 PROPOSAL PREPARATION INSTRUCTIONS AND REQUIREMENTS

3.2 Export-Controlled Topic Requirements

Export of all unclassified technical data with military or space application in the possession of, or under the control of, a DoD Component information, which includes, in some circumstances, release to foreign nationals within the United States, without first obtaining approval, authorization, or license from the Department of State for items controlled by the International Traffic in Arms Regulations (ITAR), or the Department of Commerce for items controlled by the Export Administration Regulations (EAR), may constitute a violation of law.

Pursuant to DFARS Procedures Guidance and Information 225.7901-2, your firm should direct its attention to the clause at DFARS 252.225-7048, Export-Controlled Items for questions concerning compliance with ITAR/EAR.

Further, in accordance with Department of Defense Directive 5230.25, Withholding of Unclassified Technical Data from Public Disclosure, contractors or subcontractors that will handle technical data that might have military or space applications, must certify that they will comply with all applicable U.S. laws that control the export of sensitive data, as follows:

If any portion of the proposed SBIR effort is subject to ITAR your firm must complete a fully certified DD Form 2345, Military Critical Technical Data Agreement. The DD Form 2345, Military Critical Technical Data Agreement, instructions, and Frequently Asked Questions (FAQs) may be found at the United States/Canada Joint Certification Program (JCP) website, [JCP Portal](#). Failure to complete the DD Form 2345 in a timely manner will significantly delay contract award, become grounds for cancellation of the contract action, or become grounds for termination of an existing contract.

If any portion of the proposed SBIR effort is subject to EAR, your firm must submit for and obtain the proper export licenses through the Department of Commerce's Bureau of Industry and Security on-line system, [SNAP-R](#). Failure to obtain the proper export licenses in a timely manner will significantly delay contract award, become grounds for cancellation of the contract action, or become grounds for termination of an existing contract.

Topics under this announcement may be subject to ITAR/EAR and may be identified as such. However, export control compliance statements found in this document are not meant to be all inclusive. They do not remove any liability from the applicant to comply with applicable ITAR or EAR export control restrictions.

3.7 Phase I Proposal Instructions

The following instructions supplement, and in some cases, supersede, those found within the DoD SBIR 25.4 Program BAA, including any amendments/revisions/appendices.

a. Proposal Cover Sheet (Volume 1)

The proposal cover sheet shall follow the instructions and requirements provided in the DoD SBIR 25.4 Program BAA. The offeror shall certify that to the best of its knowledge and belief, its eligibility information under the SBIR Program is accurate, complete, and current as of the date of the offer.

b. Technical Volume Format (Volume 2)

The following technical volume formatting requirements supplement those found in the DoD SBIR 25.4 Program BAA, including any revisions/amendments.

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1. **File Type:** The Technical Volume shall be a single Adobe Acrobat (supporting Windows 10-11) Portable Document Format (.pdf) searchable text format file, including graphics. PDF files that cannot be opened using Adobe Acrobat products will not be considered by the Government.
2. **Length:** The Technical Volume shall not exceed five (5) pages and shall follow the formatting requirements provided in the DoD SBIR 25.4 Program BAA. It is the proposing SBC's responsibility to verify that the Technical Volume does not exceed the page limit after upload to DSIP. **Any proposals exceeding the page count limit will be deemed unresponsive.**

c. Technical Volume Content (Volume 2)

The following technical volume content instructions supersede those stated in the DoD SBIR 25.4 Program BAA, including any amendments/revisions/appendices.

The technical volume shall contain two (2) key parts: technical approach and team qualifications, described in further detail below.

Volume 2, Part 1. The technical approach section should be a substantial portion of the Technical Volume detailing how the offeror will address the specific technical problem or opportunity outlined in the topic, and its significance. The offeror shall include a statement of work or work-plan that describes the technical approach, including subcontractor efforts. The statement of work shall indicate what tasks are planned, how and where the work will be performed, a schedule of major events and meetings, and the final deliverables. The Phase I effort should determine the technical feasibility of the proposed concept. Methods for achieving each objective or task must be clearly explained, avoiding unnecessary technical jargon.

Additionally, the technical approach should address any inherent risks, and describe mitigation strategies. Offerors should describe any activities directly related to the proposed effort, as well as prior work that, while not directly related, is similar to the proposed effort. This includes activities and prior work conducted by the principal investigator, the proposing SBC, consultants, or others. Offerors should also describe the expected outcomes if the project is successful and explain the relevance of the Phase I effort in supporting Phase II research and development efforts.

Volume 2, Part 2. The team qualifications section shall identify the key personnel working on the project (including information on directly related education and experience) and the resources that will be brought to bear on solving the problem.

Identify any foreign citizens or individuals holding dual citizenship expected to be involved on this project as a direct employee, subcontractor, or consultant. For these individuals, please specify their country of origin, the type of visa or work permit under which they are performing and an explanation of their anticipated level of involvement on this project. Note: You may be asked to provide additional information during proposal evaluation and/or negotiations in order to verify the foreign citizen's eligibility to participate on a SBIR contract. Supplemental information provided in response to this paragraph will be protected in accordance with the Privacy Act (5 U.S.C. 552a), if applicable, and the Freedom of Information Act (5 U.S.C. 552(b)(6)). The Government may withdraw from negotiations at any time for any reason to include matters of national security (foreign persons, foreign influence or ownership, inability to clear the firm or personnel for security clearances, or other related issues).

d. Cost Volume Content (Volume 3)

With the exception of the instructions provided below, Offerors must comply with all Cost Volume (Volume 3) requirements outlined in the DoD SBIR 25.4 Program BAA. **Note:** Options are not anticipated at this time. If an option is identified in the topic posting, costs for the Base and Option shall be separated and clearly identified.

In anticipation of a possible contract award, all proposed costs shall be accompanied by documentation to substantiate how the cost was derived. Failure to include supporting documentation with the proposal may delay any potential contract award, as the proposer will be asked to submit the necessary documentation to the Contracting Officer to substantiate costs. It is important to respond as quickly as possible to the Contracting Officer's request for documentation. Failure or refusal to provide documentation may result in dissolution of the contract action.

- **DIRECT LABOR:**
 - List all key personnel by name as well as by number of hours dedicated to the project as direct labor.
 - Provide a task-level, time-phased (e.g., annual) breakdown of labor hours, rates, and cost by appropriate Direct Labor category, and explain the basis of estimates. Include substantiating documentation to support the costs (e.g., payroll reports)
- **MATERIAL/TOOLING/EQUIPMENT:**
 - Provide a consolidated priced summary of individual raw materials, parts, components, assemblies, and services to be produced or performed by others. For all items proposed, include the item nomenclature, description, part number, quantity, unit price, extended amount, vendor name, basis of estimate, and whether the item is commercial in accordance with the definition in FAR 2.101, based on adequate price competition or non-competitive.
 - Proposing firms shall provide substantiating documentation for the cost of all material, tooling and equipment (e.g. vendor quotes, invoice prices, competitive bids, etc.). If your choice isn't the lowest cost available, explain the decision to choose one item or supplier over another.
 - Ensure all materials are American made to the maximum extent practicable. Offerors who propose to use a foreign-made product in its technology may be required to find an American-made equivalent.
 - While special tooling and test equipment and material cost may be included, it will be carefully reviewed relative to need and appropriateness for the work proposed. The purchase of special tooling and test equipment shall, in the opinion of the Procurement/Government Component Contracting Officer, be advantageous to the Government and should be related directly to the specific topic. These may include such items as innovative instrumentation or automatic test equipment. Title to property furnished by the Government or acquired with Government funds will be vested with the DoD Component, unless it is determined that transfer of title to the contractor would be more cost effective than recovery of the equipment by the DoD Component.

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- SUBCONTRACTS:
 - Provide data showing the degree of Subcontractor competition and the basis for establishing the source and reasonableness of price through price analysis.
 - Provide detailed substantiation of subcontractor costs in your cost proposal. This should include a breakdown of subcontractor labor, travel, equipment, materials, etc.
 - Subcontracts with Federal Laboratories - As defined in 15 United States Code (U.S.C.) 3703, Federal Laboratory means any laboratory, any federally funded research and development center, or any center established under 15 U.S.C. 3705 and 3707 that is owned, leased, or otherwise used by a Federal Agency and funded by the Federal Government, whether operated by the Government or by a contractor. A waiver is no longer required for the use of federal laboratories and FFRDCs; however, Offerors must certify their use of such facilities on the Cover Sheet of the proposal. A list of eligible FFRDCs is available at:
<https://www.nsf.gov/statistics/ffrdclist/>
 - Offerors shall not propose to subcontract to any prohibited sources, as prescribed at FAR 25.7 – Prohibited Sources, and its supplements. Proposals identifying a subcontractor/vendor arrangement with a prohibited source will be deemed unresponsive.
 - Considering the goals of the SBIR Program, Offerors shall ensure subcontracts (as defined in Appendix B of the overarching DoD SBIR 25.4 Program BAA) are with United States SBCs to the maximum extent practicable. Offerors proposing a subcontractor arrangement with other than a United States SBC (such as, a large business, foreign firm, foreign government, educational institution, FFRDC, unit of Federal Government, etc.) may be required to submit further explanation.
- TRAVEL:
 - **Virtual meetings shall be utilized to the maximum extent practicable.**
 - Explain the basis of proposed travel, including to/from locations, number of trips, number of travelers per trip, and number of days/nights per trip. Include substantiating documentation for the costs (e.g. screenshots of flight cost comparison, rental car quotes, etc.).
 - In accordance with FAR 31.205-46 Travel costs incurred shall not exceed the maximum per diem rates set forth in Federal Travel Regulation, Joint Travel Regulation, or standard regulations, unless the travel is special or considered unusual. Any special or unusual travel costs shall be supported with substantiating documentation for review and consideration. Per diem rate lookup can be located at <https://www.gsa.gov/travel/plan-book/per-diem-rates?gsaredirect=perdiem>.
- INDIRECT COSTS:
 - Indicate how you have computed and applied your indirect costs (e.g., overhead,

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general & administrative, material handling, fringe, etc.), including cost breakdowns. Indicate the rates used and provide an appropriate explanation.

- If a Defense Contract Audit Agency (DCAA) Audit has been conducted within the last five (5) years, include the audit compliance documentation in the cost proposal documents. The documentation should also include the offeror's DCAA Point of Contact (if applicable). Further, if applicable Offerors shall provide any current Forward Pricing Rate Agreements (FPRA) in effect at time of proposal submission.

e. Company Commercialization Report (Volume 4)

Completion of the Company Commercialization Report (CCR) as Volume 4 of the proposal submission in DSIP is required for prior SBIR/STTR awardees. Please refer to the DoD SBIR 25.4 Program BAA for full details on this requirement.

f. Supporting Documents (Volume 5)

Volume 5 is provided for proposers to submit additional documentation to support the Cover Sheet (Volume 1) and the Technical Volume (Volume 2), and the Cost Volume (Volume 3). **A completed proposal submission in DSIP does NOT indicate that the mandatory supporting documents have been uploaded. It is the responsibility of the proposing small business concern to ensure that the mandatory documents listed above have been uploaded and included with the proposal submission.**

All proposing SBCs are REQUIRED to submit the following documents to Volume 5:

1. Army Commercialization Plan: Proposing SBCs shall submit their Commercialization Plan, utilizing the template found at Appendix 0001 – Commercialization Plan Template attached hereto. The offeror shall convert the Commercialization Plan to a PDF prior to submitting as an attachment to Volume 5 – Supporting Documents. **Any proposals submitted without a Commercialization Plan, or in a format other than the template provided at Attachment 0001 – Commercialization Plan Template, shall be deemed unresponsive.** Commercialization Plan Template can also be found here: [Army SBIR Forms and Templates](#)

All proposing SBCs are required to submit the following documents to Volume 5, *if applicable*:

2. [Verification of Eligibility of Small Business Joint Ventures](#)
3. Assertion of use, release, or disclosure restriction (in accordance with DFARS 252.227- 7017)
4. DD Form 2345, Military Critical Technical Data Agreement
5. Justification for SBC-selected TABA vendor
6. Place of Performance - Ammunition and Explosives (refer to section 3.11 – Arms, Ammunitions and Explosives, Paragraph (f) below)

In addition to the Volume 5 requirements, the Department of the Army may accept the following documents in Volume 5:

7. Cost/Pricing Information
8. [SBIR Funding Agreement Certification](#)
9. Other (only as specified in the topic)

Please only submit documents that are identified immediately above, and as required by the DoD SBIR 25.4 Program BAA. All other documents submitted will be disregarded, including but not limited to

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promotional and non-project related information.

g. Fraud, Waste and Abuse Training (Volume 6)

Follow instructions provided in the DoD SBIR 25.4 Program BAA for completion of the Fraud, Waste and Abuse training in DSIP.

h. Disclosures of Foreign Affiliations or Relationships to Foreign Countries (Volume 7)

SBCs must complete the Disclosures of Foreign Affiliations or Relationships to Foreign Countries webform in Volume 7 of the DSIP proposal submission.

Please be aware that the Disclosures of Foreign Affiliations or Relationships to Foreign Countries WILL NOT be accepted as a PDF Supporting Document in Volume 5 of the DSIP proposal submission. Do not upload any previous versions of this form to Volume 5. For additional details, please refer to the DoD SBIR 25.4 Program BAA.

3.8 Phase II Proposal Information

Unless a Topic posting specifies that the DA will be accepting Direct to Phase II proposal submissions, Phase II proposals may only be submitted by Phase I awardees. Submission of Phase II proposals is not permitted at this time, and if submitted, may be rejected without evaluation. Phase II proposal preparation and submission instructions will be provided via subsequent notification.

3.9 Direct to Phase II Proposal Instructions

Offerors may submit DP2 proposals only if allowed pursuant to the topic posting. With the exception of the DP2 component specific proposal instructions for the Technical Volume (Volume 2) identified below, DP2 Proposals shall follow the Phase I Proposal Instructions described above and within in the DoD SBIR 25.4 Program BAA.

b. Technical Volume Format (Volume 2)

The following technical volume formatting requirements supplement those found within in the DoD SBIR 25.4 Program BAA, including any revisions/amendments.

1. **File Type:** The Technical Volume shall be a single Adobe Acrobat (supporting Windows 10-11) Portable Document Format (.pdf) searchable text format file, including graphics. PDF files that cannot be opened using Adobe Acrobat products will not be considered by the Government.
2. **Length:** For DP2 proposals, the Technical Volume is broken into two (2) sections: Feasibility Documentation, which is subject to a page limitation of five (5) pages; and a Technical Proposal, which is subject to a page limitation of ten (10) pages. The Technical Volume, therefore, shall not exceed fifteen (15) pages and shall follow the formatting requirements provided in the DoD SBIR 25.4 Program BAA. It is the proposing SBC's responsibility to verify that the Technical Volume does not exceed the page limit after upload to DSIP. **Any proposals exceeding the page count limit will be deemed unresponsive.**

c. Technical Volume Content (Volume 2)

The following technical volume content instructions supersede those stated in the Phase I Proposal Instruction section above, and corresponding the DoD SBIR 25.4 Program BAA, including any amendments/revisions/appendices. For DP2 proposals, the technical volume shall include two (2) sections, Feasibility Documentation and a Technical Proposal, which are further defined below.

Volume 2A, Feasibility Documentation

Feasibility documentation shall not exceed five (5) pages in length.

Proposers interested in submitting a DP2 proposal in response to these topics shall provide documentation to substantiate that the scientific and technical merit and feasibility described in the Phase I section of the topic has been met and describes the potential commercial applications. Documentation shall include all relevant information including, but not limited to: technical reports (summary and citation), test data, prototype designs/models, and performance goals/results. If references exist, the offeror shall include a reference list or works cited list as the last page of the feasibility documentation. This will count towards the total page limit.

Work submitted within the feasibility documentation must have been substantially performed by the proposer and/or the Principal Investigator. Feasibility documentation cannot be based upon any prior or ongoing federally funded SBIR or STTR work and MUST NOT logically extend from any prior or ongoing federally funded SBIR or STTR work. It is the offeror's responsibility to ensure compliance. Should the Government find a violation before contract award, the proposal will be rejected. Should the Government find a violation after contract award, the Government has the right to terminate the contract.

If technology in the feasibility documentation is subject to Intellectual Property (IP), the proposing small business concern must either own the IP or must have obtained license rights to such technology prior to proposal submission, to enable it and its subcontractors to legally carry out the proposed work.

If the proposing SBC fails to demonstrate technical merit and feasibility equivalent to the Phase I level as described in the associated topic has been established, or the proposer has failed to demonstrate that work submitted in the feasibility documentation was substantially performed by the proposer and/or the PI the related Phase II proposal will be deemed unresponsive.

Volume 2B, Technical Proposal

The technical proposal shall contain two key parts: (1) technical approach and (2) team qualifications.

Volume 2B, Part 1 – Technical Approach. The technical approach section shall explain, in detail, how the offeror is going to solve the specific technical problem or opportunity addressed in the topic. The offeror shall include a statement of work with explicit, detailed descriptions and key elements of the technical approach (including subcontractors' efforts), any risks, relevant past work and how success was measured along with how success will be measured for this effort. Explain objectives while avoiding technical jargon. The statement of work shall indicate what tasks are planned, how and where the work will be conducted, a schedule of major events and meetings, and the final product(s) to be delivered (reference the 'Contractual Requirements' section above). The Phase II effort should attempt to provide proof of concept and prototype development. The methods planned to achieve each objective or task should be discussed explicitly and in detail. This section should be a substantial portion of the Technical Volume section. **Note:** If the topic allows research or activities involving Human/Animal Subjects and/or Recombinant DNA, offerors shall identify the applicable protocols and how those protocols will be followed.

Volume 2B, Part 2 – Team Qualifications. The team qualifications section shall highlight identify the key personnel working on the project (including information on directly related education and

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experience), and the resources that will be brought to bear on solving the problem.

Identify any foreign citizens or individuals holding dual citizenship expected to be involved on this project as a direct employee, subcontractor, or consultant. For these individuals, please specify their country of origin, the type of visa or work permit under which they are performing and an explanation of their anticipated level of involvement on this project. Note: You may be asked to provide additional information during proposal evaluation and/or negotiations in order to verify the foreign citizen's eligibility to participate on a SBIR contract. Supplemental information provided in response to this paragraph will be protected in accordance with the Privacy Act (5 U.S.C. 552a), if applicable, and the Freedom of Information Act (5 U.S.C. 552(b)(6)). The Government may withdraw from negotiations at any time for any reason to include matters of national security (foreign persons, foreign influence or ownership, inability to clear the firm or personnel for security clearances, or other related issues).

3.10 Expeditionary Technologies (xTech) Prize Competition Selectees

This section applies exclusively to companies selected as winners in Part 2 of the respective Expeditionary Technologies (xTech) Prize Competition. These companies, having successfully pitched their solutions to Army and DoD experts, are the only SBCs eligible to submit Army SBIR proposals under the corresponding topic area.

xTech Prize Competition selectees must follow the Army Phase I Proposal Submission Instructions, with one important exception regarding the Technical Volume (Volume 2). In lieu of submitting a full Technical Volume (Volume 2), xTech selectees shall submit the Non-Proprietary Work Plan, outlined in Section f. Supporting Documents (Volume 5) of the Army Phase I Proposal Submission Instructions, in place of a Technical Volume. This waives the requirement to include the Non-Proprietary Work Plan in Volume 5 – Supporting Documents. Ensure your Non-Proprietary Work Plan adheres to the guidelines outlined in Section f. Supporting Documents (Volume 5), including the two (2) page limitation.

All remaining proposal volumes, including any applicable and/or optional documents discussed in Section f. Supporting Documentation (Volume 5) must be completed according to the standard Army Phase I Proposal Submission Instructions.

NOTE: The Technical Evaluation (Section 4.1.2) and Selection (Section 4.1.3) guidance defined below do not apply to xTech Prize Competition selectees. Your proposals have already undergone a comprehensive evaluation as part of the xTech competition.

3.11 Controlled Unclassified Information (CUI)

Successful firms will be required to comply with CUI DoDI 5200.48. Firms must monitor CUI for aggregation and compilation based on the potential to generate classified information pursuant to security classification guidance addressing the accumulation of unclassified data or information. Firms shall report the potential of classification of aggregated or compiled CUI to ASA(ALT) Security Manager. Firms, pursuant to mandatory DoD contract provisions, will submit unclassified DoD information for review and approval for release and approval for release in accordance with the standard DoDI 5230.09. All CUI records must follow the approved mandatory disposition authorities whenever the DoD provides CUI to, or CUI is generated by, non-DoD entities in accordance with Section 1220-1236 of Title 36, CFR, Section 3301a of Title 44, U.S.C., DoDI 5200.48.

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3.12 Arms, Ammunition, and Explosives (AA&E)

If the proposed statement of work requires the use, development, production, manufacture, purchase, or delivery of Arms, Ammunition and Explosives (AA&E) data and/or hardware, the offeror shall follow the following instructions:

- a. References:
 1. MIL-STD-1168 - Ammunition Lot Numbering and Ammunition Data Cards
 2. DODM 5100.76 - Physical Security of Sensitive Conventional Arms, Ammunition, and Explosives (AA&E)
 3. AR 190-11 - Physical Security of Arms, Ammunition, and Explosives
 4. Defense Transportation Regulation 4500.9-R
 5. Technical Bulletin (TB) 700-2
- b. The offeror, in its proposal, and resulting contractor, in performance of the work, shall comply with the requirements of the following DFARS provisions/clauses:
 1. 252.223-7002, Safety Precautions for Ammunition and Explosives (NOV 2023);
 2. 252.223-7003, Change in Place of Performance-Ammunition and Explosives (DEC 1991);
and
 3. 252.223-7007, Safeguarding Sensitive Conventional Arms, Ammunition, and Explosives (NOV 2023).
- c. The offeror, in its proposal, and resulting contractor, in performance of the work, shall provide proper storage and accountability. These standards are set forth in Department of Defense (DOD) 5100.76-M, entitled "Physical Security of Sensitive Conventional Arms, Ammunition and Explosives".
- d. Prior to any contract award, the offeror must first pass a pre-award physical security inspection of its and its subcontractor's facilities, conducted by Defense Security Service (DSS). See DOD 5100.76-M, Appendix 2, Attachment 1, for a listing of DSS regions. Facilities, including any subcontractor facilities, that do not meet all of the security requirements of DOD 5100.76-M will not be awarded a contract.
- e. If the proposed statement of work requires transportation of Sensitive Conventional AA&E, the standards set forth in Defense Transportation Regulation 4500.9-R., Defense Traffic Management, shall be followed.
- f. Place of Performance: In accordance with Federal Acquisition Regulation (FAR) provision/clause 52.215-6, Place of Performance (OCT 1997), and DFARS provision/clause 252.223-7003, Change in Place of Performance—Ammunition and Explosives (DEC 1991), the offeror shall include the following information in Volume 5 of its proposal. Failure to include this information in proposals involving AA&E may result in the proposal being deemed unresponsive.
 1. The offeror, in the performance of any contract resulting from this solicitation, intends, does not intend [check applicable block] to use one or more plants or facilities located at a different address from the address of the offeror as indicated in its proposal.
 2. If the offeror or respondent checks "intends" in paragraph (a), it shall include the following required information for each and every plant or facility (including subcontractor plants or facilities) located at a different address from the address of the offeror as indicated in its proposal.
 - i. Firm Name

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- ii. Place of Performance (Street Address, City, State, County, ZIP Code)
 - iii. Name and Address of Owner and Operator of the Plant or Facility
- g. In accordance with local procedures and DFARS provision/clause 252.223-7007, Safeguarding Sensitive Conventional Arms, Ammunition, and Explosives (NOV 2023), the offeror shall include the following information in Volume 5 of its proposal for itself and for each plant or facility (including subcontractor plants or facilities) that the offeror listed as a “Place of Performance”. The offeror shall include the information to the best of its ability in order to avoid delay in contract award. Do not include locations that will not use, develop, produce, manufacture, purchase, or deliver AA&E in performance of the work.
1. Firm Name
 2. Identify if the firm is the prime-contractor or sub-contractor
 3. Place of Performance (Street Address, City, State, County, ZIP Code)
 4. Unique Entity Identification (UEI) and Cage Code
 5. Confirm that address and cage code match the information in SAM.gov (“unknown” is an acceptable response if unable to look up sub-contractors)
 6. Full name, phone number, and email address for a point of contact at this location
 7. Description of the AA&E and/or work involving AA&E
 8. National Stock Number (NSN) of the AA&E (if none exist, indicate “N/A”)
 9. Identify the Security Risk Classification (SRC) of the AA&E (Instructions for determining the SRC are found in Enclosure 7 (p. 40 - p.46) of DODM 5100.76) (The SRC can be either I, II, III, IV or U) (“unknown” is an acceptable response if Government input is required to make this determination)
 10. Identify the hazard classification (HC) of the AA&E (Instructions for determining the HC are found in Chapter 2 (p.2) of TB 700-2) (“unknown” is an acceptable answer if Government input is required to make this determination)
 11. Identify whether the AA&E will be furnished by the Government as Government Furnished Property (GFP) or if it will be developed, produced, manufactured, or purchased by the prime or sub-contractor

4.0 METHOD OF SELECTION AND EVALUATION CRITERIA

4.1 Evaluation Process

4.1.1 Initial Screening

Proposals will only be evaluated in response to an active, corresponding Army topic. Proposals will be initially screened to determine responsiveness, timeliness, and SBC eligibility. Assessment of responsiveness and eligibility may continue during technical evaluation, and after selection. For purposes of this solicitation, these terms are defined as:

Responsiveness: When a proposal fails to meet a material requirement of the solicitation, to include compulsory terms and conditions, the proposal shall be deemed unresponsive.

Timeliness: A Timely Proposal is one that is received by the Government on or before the due date and prior to the established set time.

SBC Eligibility: An eligible SBC is a firm that meets all requirements identified in the “Eligibility” section herein.

4.1.2 Technical Evaluation (Not Applicable to xTech Prize Competition Selectees)

Proposals passing the initial screening will receive a technical evaluation using ‘Valid Evaluation,’ a software as a service analytics tool. Each proposal is assigned a cadre of evaluators (typically engineers or scientists) who perform a review based on the evaluation criteria defined in the DoD SBIR 25.4 Program BAA, as supplemented by the following Valid Evaluation criteria:

Phase I Evaluation Criteria

Direct to Phase II Evaluation Criteria

These supplemental Army Component criteria further define the overall DoD SBIR 25.4 Program BAA evaluation criteria by breaking it down into sub-dimensions, or elements. Proposals are not evaluated against each other during the evaluation process. Proposals will not be evaluated against each other during the evaluation process. As a common statement of work does not exist, each proposal is assessed on its own individual merit to determine how well the proposal meets the criteria stated in this solicitation and the corresponding opportunity.

It is the policy of the Army to ensure equitable and comprehensive proposal evaluations based on the evaluation criteria and to select the source (or sources) whose offer meets the Government's technical, policy, and programmatic goals. Selections for further consideration of possible contract award will be based on a determination of the overall technical value of each proposal.

Note: Designated support contractors may review submissions for the purposes of technical evaluation. All support contractors are bound by appropriate non-disclosure agreements.

4.1.3 Selection (Not Applicable to xTech Prize Competition Selectees)

Proposing firms will be notified via email of selection or non-selection status of its Phase I or DP2 proposal within 90 days of the closing date of the Topic. The notification will be sent to the Corporate Official listed on the proposal cover sheet, from the Army SBIR Program Office mailbox.

Selected proposals are not guaranteed a contract award. Proposers shall not regard the notification email (selection decision notice) as an authorization to commit or expend funds. Upon selection, proposals are forwarded to a Government Contracting Officer for further evaluation and contract negotiation. A Government Contracting Officer may contact the proposer in order to discuss and request additional information required for award. This may include representations and certifications, certified or other than certified cost data, subcontracting plan for small businesses, and/or other information as applicable to the proposed award. Proposers shall not regard these communications as an authorization to commence work or commit or expend funds.

4.1.4 Other Assessment Considerations

SBCs will be evaluated for responsibility, meaning the prospective SBC meets the standards set forth in [FAR 9.104](#). A prospective contractor must affirmatively demonstrate its responsibility, including, when necessary, the responsibility of its proposed subcontractors.

Further, in accordance with FAR 15.402(a), Contracting officers shall purchase supplies and services from responsible sources at fair and reasonable prices. As a result, Contracting Officials will conduct proposal analysis in accordance with the techniques identified at FAR 15.404-1. Proposals lacking a fair and reasonable price will be deemed unsuccessful.

4.1.5 Potential Contract Award

If at any point the proposal is deemed untimely, unresponsive, or the SBC (or its subcontractors) is deemed

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ineligible or non-responsible, the proposal will be unsuccessful, meaning the proposal is not one that will result in an award (it is un-awardable). Successful proposals, therefore, are those that have met all stated requirements and qualifications and will receive an award.

Upon an affirmative determination of proposal timeliness, responsiveness, compliance, and price reasonableness, as well as prospective contractor eligibility and responsibility, the Contracting Officer may proceed with an award, subject to the availability of funds. Unless a Government Contracting Officer signs an award document (e.g., contract), no obligations to provide funding are made. The Government may cancel award of the contract action at any time.

If signed by the Government Contracting Officer, the award document is the official and authorizing instrument, thereafter, referred to as the “contract”. The period of performance will begin upon award of the contract. The Contracting Officer will email the signed contract to the principal investigator (PI) and/or an authorized organization representative.

4.3 Proposal Status and Feedback

The Army promotes transparency regarding the technical evaluation for all Army SBIR proposals. The Army will provide feedback to offerors in accordance with the DoD SBIR 25.4 Program BAA. The selection decision notice contains instructions for obtaining feedback in the form of a ValidEval Report. The Army shall not provide any additional feedback beyond the ValidEval report. Offerors are entitled to no more than one feedback per proposal.

NOTE: Feedback is not the same as a FAR Part 15 debriefing. The competitive procedures for this solicitation are governed by the SBA SBIR/STTR Policy Directive. Therefore, offerors are neither entitled to, nor will they be provided FAR Part 15 debriefs.

4.5 Pre-Award and Post Award BAA Protests

Pre-award agency protests related to the terms of the BAA must be served to the point of contact listed in the DoD SBIR 25.4 Program BAA.

Post award agency protests related to a selection or award decision must be served to the following address:

Email: usarmy.SBIRSTTR@army.mil

Mailing Address:

Army SBIR Office
2530 Crystal Drive; Suite 11192
Arlington, Virginia 22202

Firms shall follow the DoD SBIR 25.4 Program BAA for protests filed with the Government Accountability Office (GAO) and size protests regarding the small business status of a selected proposing small business concern.

5.0 ADDITIONAL CONSIDERATIONS

5.1 Award Information

- a. Number of Awards. The number of awards will depend upon funds availability. The Army reserves the right to award none, one, or more than one contract under any topic. No awards will be made

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until evaluation of all qualified proposals for a specific topic have been made. The Army is not responsible for costs incurred before award receipt.

- b. **Type of Funding Agreement.** The Army plans to execute funding agreements as FAR-based, firm-fixed-price contracts. Fixed price payments shall be tied to measurable milestones or deliverables, as agreed to by the Government. Milestone schedules are used as a means to monitor technical progress, to mitigate technical and cost risk, and to address the cashflow needs of awardees. The Government Contracting Officer retains the right to negotiate a contract type and price (or estimated cost and fee) that will promote the Government's interest, result in reasonable contractor risk, and provide the contractor with the greatest incentive for efficient and economical performance (FAR Subpart 16.1 – Selecting Contract Types).
- c. **Dollar Value and Period of Performance.** Award guideline and associative period of performance limitations have been established for each SBIR Topic. Proposals exceeding these limitations will be deemed unresponsive

5.2 Contract Requirements

In addition to the contractual requirements specified in the DoD 25.4 SBIR Program BAA, awards under the Army SBIR Program are also subject to the following:

5.2.1 Deliverable Requirements

- a. Hardware (Prototype) Deliverables (if applicable): See topic for information to determine if development and delivery of prototypes is required. If your proposal identifies hardware that will be delivered to the government, be aware of the possible requirement for unique item identification in accordance with [DFARS Clause 252.211- 7003, Item Unique Identification and Valuation](#). More information regarding item identification and valuation requirements may be found at [DFARS Section 211.274](#).
- b. Data Deliverables (Contract Data Requirements Lists – CDRLS): Data is ordered using single or multiple DD Form 1423, Contract Data Requirements Lists (CDRLS), which will be located in the contract at Section J, Exhibits. A CDRL is the “data delivery” vehicle providing the what, when, who, and how of the delivery. CDRLS require the contractor to formally deliver the data (contractual obligation) to the Government. Each CDRLS will reference a Data Item Description (DID) that describes data content, format, media, and intended use of a single data product. DIDs may be viewed using the [Acquisition Streamlining and Standardization Information System \(ASSIST\)](#).

All funding agreements executed under the Army SBIR Program shall include the following CDRL requirements:

1. **Status Reports:** Under the authority of DID number DI-MGMT-80368A, status reports are due at a specified time after contract award and periodically (e.g., Monthly, Bi-monthly, Quarterly) thereafter in accordance with the prepared DD Form 1423 that will be incorporated via Section J, Exhibits of any resultant contracts.
2. **Scientific and Technical Report:** Under the authority of DID number DI-MISC-80711A, a final report shall be delivered in accordance with the prepared DD Form 1423 that will be

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incorporated via Section J, Exhibits of any resultant contract (see section 12.9 below for additional information regarding the Final Technical Report).

3. Scientific and Technical Reports Summary: Under the authority of DID number DI-MISC-80048, a final, non-proprietary summary report shall be delivered in accordance with the prepared DD Form 1423 that will be incorporated via Section J, Exhibits, or any resultant contract.

The Army end-user or customer may require additional deliverables or documentation including Software documentation and user manuals; Engineering drawings; Operation and Maintenance documentation; Safety hazard analysis when the project will result in partial or total development/delivery of hardware; and/or updated commercialization results.

5.2.2 Meeting Requirements:

- a. Start of Work Meeting: The contractor shall hold a start of work meeting at its facility, unless some other location is designated in the contract, within 30 calendar days after contract award. The Start of Work Meeting is to assure a clear and mutual understanding of the contract terms, conditions, line items, technical requirements and sequence of events needed for successful execution of the contracted effort. The contractor shall coordinate with the Government to arrange a schedule and agenda for the meeting.
- b. Periodic (e.g., Monthly, Bi-Monthly, Quarterly) Review Meetings: Periodic review meetings shall be conducted to monitor and report on status of contractor effort towards achieving contract objectives, identify accomplishments to date and difficulties encountered, and compare the status achieved to planned goals and the resources expended.

5.6 Invention Reporting

In accordance with FAR clause 52.227-11, "Patent Rights-Ownership by the Contractor", and DFARS clause 252.227-7039, "Patents – Reporting of Subject Inventions", the contractor shall execute the following:

- a. Interim Report of Inventions and Subcontracts: Under all Phase II SBIR contracts, the contractor shall deliver an Interim Report of Inventions and Subcontracts, DD Form 882, 12-months from the date of initial contract award, listing subject inventions during that period and stating that all subject inventions have been disclosed or that there are no such inventions.
- b. Final Report of Inventions and Subcontracts: Under all Phase I and Phase II SBIR contracts, the contractor shall deliver a Final Report of Inventions and Subcontracts, DD Form 882, within three (3) months after completion of the contracted work, listing all subject inventions or stating that there were no such inventions.
- c. SBIR awardees must report inventions within two months of the inventor's report to the awardee. The reporting of inventions may be accomplished by submitting paper documentation, including fax, or through the Edison Invention Reporting System at www.iedison.gov.

6.0 PROPOSAL SUBMISSION

6.3 Contact Information

SBC's may direct questions to the following Points of Contact, as described below:

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- a. Army Component Specific Proposal Instructions: General questions regarding the administration of the Army SBIR Program, and the Army Component-Specific Proposal Instructions should be submitted as soon as possible, and can be directed to the following:

Email: usarmy.SBIRSTTR@army.mil

Website: <https://www.armysbir.army.mil/>

Mailing Address: Army SBIR Office
2530 Crystal Drive, Suite 11192
Arlington, Virginia 22202

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Appendix A Army Phase I Evaluation Criteria

Army SBIR STTR Phase I Evaluation Criteria v4-0



		DEFINITION
INTRODUCTION	<i>weight 3%</i>	Write a clear, concise description of what your innovation does or will do, and where you are in your evolution. Make clear its intended impact on the Army. Evaluators should "get it" after reading this.
ARMY BENEFITS	ALIGNMENT	Argue your technology innovation is aligned with this Army topic's priorities as defined in the solicitation.
	SOLUTION'S ADVANTAGES	Prove your prospective customers will choose you given limited resources and myriad choices. Have you accounted for indirect substitute products as well as direct competitors?
	SOLUTION'S IMPACT	The Army seeks higher-risk, high-impact solutions through SBIR/STTR not engineering changes or incremental improvements. Use this section to describe your technology's impact and improvement upon the state of the art.
<i>weight 15%</i>		
TECHNICAL APPROACH	SCIENTIFIC FEASIBILITY	Convince readers that your innovation is built atop sound scientific and/or engineering principles. Ensure that your feasibility argument adequately responds to the requirements this Army topic.
	ENABLING TECHNOLOGIES	Do the required enabling technologies introduce added risk?
	TECHNICAL TEAM	Briefly list and describe your core scientific and technical team with an emphasis on their past accomplishments and experiences that would relate to this Army SBIR/STTR topic.
	TECHNICAL RISKS AND MITIGATION PLANS	Describe any technical risks that still exist between you and a fully mature solution. What are your plans to mitigate those risks?
	DATA QUALITY, TECHNICAL	Use data to substantiate your claims that your Technical Approach (this section of your proposal) is credible. Provide quality data attributed to reliable, credible sources.
<i>weight 35%</i>		
PROGRAMMATIC POTENTIAL	PROJECT MILESTONE SCHEDULE	Outline your execution plan. What milestones do you hope to accomplish, and what deliverables (if any) do you hope to produce during this phase and subsequent phases of the effort?
	ARMY CUSTOMER DISCOVERY & VALIDATION	Argue you are "getting out of the building" to engage in productive customer-discovery with Army stakeholders. Describe any customer validation you may have received formally or informally to date on this proposed technology.
	ARMY TRANSITION PATHWAY	Describe the next type of deal you aim to make with the Army following this award. Briefly outline your current plan to unlock that next opportunity and/or share the biggest risks you see post this SBIR/STTR award to transition this technology to the Army.
<i>weight 20%</i>		
COMMERCIAL POTENTIAL	R&D TO PRODUCT REVENUE	Argue that your team members have transitioned research and development efforts into products successfully, as evidenced by product revenue. (Product revenue is realized by directly selling a solution to solve a problem vs. selling consulting, services or research activities.)
	COMPETITIVE EDGE	Why will you win? A small company needs to have a competitive edge in the marketplace: Something your team does very well that's difficult to match. Some examples include: well protected intellectual property, unmatched relevant expertise, a novel business model, or network effects.
	OTHER PEOPLE'S MONEY	Make the case for the commercial market (non-DOD) potential of your technology from which the Army will benefit.
<i>weight 25%</i>		
PROPOSAL QUALITY	QUALITY OF PROSE	Provide a clear, well written, and convincing proposal. Avoid jargon and define technical terms.
	IMAGES, CHARTS, GRAPHICS	Graphics are encouraged throughout. Ensure they are logical and easy to read. Supporting images should be thoughtful and visually attractive. For plots and charts include: title, axis labels and captions. For technical images include appropriate scales or legends.
<i>weight 2%</i>		

Army SBIR STTR Phase I Evaluation Criteria v4-0



		UNSATISFACTORY	MARGINAL	SATISFACTORY	SUPERIOR
INTRODUCTION	weight 3%	Ineffective introduction. Failed to provide concise innovation proposition.	Adequate introduction. Gradually conveyed innovation's purpose and value. Should be more crisp.	Effective introduction. Systematically conveys innovation's purpose and value.	Exceptional introduction. Immediately conveys innovation's purpose and value.
	ARMY BENEFITS	ALIGNMENT	Not aligned with this Army topic's priorities.	Somewhat aligned with this Army topic's priorities.	Aligned with this Army topic's priorities.
weight 15%	SOLUTION'S ADVANTAGES	No evidence of competitive analysis. Undifferentiated product.	Incomplete or too narrow competitive analysis. Weak product differentiation.	Thorough competitive analysis. Strongly differentiated product. Accounted for most substitutes.	Persuasive competitive analysis. Highly differentiated, accounted for all substitutes, provides novel solution.
	SOLUTION'S IMPACT	If successful, no improvement vs. the state of the art.	If successful, incremental improvement vs. the state of the art.	If successful, significant improvement vs. the state of the art.	If successful, radical improvement vs. the state of the art.
TECHNICAL APPROACH	SCIENTIFIC FEASIBILITY	No scientific basis for presented approach.	Incomplete scientific basis for presented approach.	Credible scientific basis for presented approach.	Convincing scientific basis for presented approach.
	ENABLING TECHNOLOGIES	Requires nonexistent or unavailable technology.	Requires emerging, cutting edge technology.	Requires proven technologies.	Requires Army-fielded technologies.
	TECHNICAL TEAM	Technical people lack qualifications OR have no experience.	Technical people are somewhat qualified and have some experience.	Technical people are highly qualified OR have significant experience.	Technical people are highly qualified AND have significant experience.
	TECHNICAL RISKS AND MITIGATION PLANS	Failed to present challenges and risks.	Inadequate risk analysis. Mitigation marginally addressed.	Credible risk analysis. Mitigation effectively addressed.	Highly credible risk analysis. Mitigation convincingly addressed.
	weight 35%	DATA QUALITY, TECHNICAL	Poorly supported by data. Little to no data attribution.	Partially supported by data. Some data attribution.	Credibly supported by data. Adequate data attribution.
PROGRAMMATIC POTENTIAL	PROJECT MILESTONE SCHEDULE	Unclear or non-credible project milestones, or timing.	Mostly clear, credible project milestones and timing. Mostly appropriate level of detail.	Mostly clear, credible project milestones and timing. Appropriate level of detail.	Completely clear, credible project milestones and timing. Appropriate level of detail.
	ARMY CUSTOMER DISCOVERY & VALIDATION	No customer interviews completed. No validation.	A handful customer interviews completed. No validation.	Extensive interviews completed. Early validation beginning to inform transition strategy.	Exhaustive interviews completed. Validation informs credible transition strategy.
	weight 20%	ARMY TRANSITION PATHWAY	Fails to identify next contract goal and/or fails to present a plan for near-term execution.	Identifies next contract goal. Has a plan for near-term execution.	Identifies stage-appropriate next contract goal. Credible plan for near-term execution.
COMMERCIAL POTENTIAL	R&D TO PRODUCT REVENUE	No evidence of creating product revenue from R&D efforts.	Evidence of R&D yielding product revenue at previous company(ies).	Evidence of R&D yielding product revenue at this company.	Evidence of R&D yielding product revenue sufficient to fuel this company's growth.
	COMPETITIVE EDGE	Undifferentiated firm. Fails to argue it has an advantage.	Weakly differentiated firm. Some evidence of an advantage.	Strongly differentiated firm. Credibly argues it has durable advantage.	Highly differentiated firm. Convincingly argues it has durable advantage.
	weight 25%	OTHER PEOPLE'S MONEY	Fails to present non-DoD sources for future R&D funding.	Evolving non-DoD sources of future R&D funding.	Secure non-DoD source(s) of future R&D funding.
PROPOSAL QUALITY	QUALITY OF PROSE	Poorly written. Very difficult to impossible to follow argument. Several spelling or grammar errors.	Moderately written. Sometimes difficult to follow argument. A few spelling / grammar errors.	Effectively written. Convincing, easy to follow argument. No spelling or grammar errors.	Clearly and persuasively written. Compelling arguments. No spelling or grammar errors.
	weight 2%	IMAGES, CHARTS, GRAPHICS	Poor visual aids. Often difficult to understand, distracting, or irrelevant.	Inadequate visual aids. Sometimes difficult to understand, distracting, or irrelevant.	Effective visual aids. Support argument in relevant ways, aiding comprehension.

Appendix B

Army Direct to Phase II Evaluation Criteria

Army SBIR DP2 Evaluation Criteria



		DEFINITION
INTRODUCTION	weight 2%	Write a clear, concise description of what your innovation does or will do, and where you are in your evolution. Make clear its intended impact on the Army. Evaluators should "get it" after reading this.
ARMY BENEFITS	ALIGNMENT	Argue your technology innovation is aligned with this Army topic's priorities as defined in the solicitation.
	SOLUTION'S ADVANTAGES	Prove your prospective customers will choose you given limited resources and myriad choices. Have you accounted for indirect substitute products as well as direct competitors?
	SOLUTION'S IMPACT	The Army seeks higher-risk, high-impact solutions through SBIR/STTR not engineering changes or incremental improvements. Use this section to describe your technology's impact and improvement upon the state of the art.
weight 15%		
FEASIBILITY FOR DP2	PROOF OF FEASIBILITY	Provide documentation to substantiate the scientific and technical merit and feasibility has been met.
	WORK OWNERSHIP	Document the people and organizations and any intellectual property (IP) ownership responsible for the work products in this section. The work must have been at least "substantially" performed by your organization and/or the proposed principle investigator for this research, and your firm must either own any IP discussed outright, or has appropriate and sufficient licenses thereto.
	NEW RESEARCH	Prove that the proposed DP2 research is a not in any way a logical extension of previous or ongoing federally funded SBIR or STTR research.
	PROTOTYPE DELIVERY	Demonstrate that the research will result in appropriately mature Prototype at the conclusion of the DP2 SBIR contract.
weight 15%		
TECHNICAL APPROACH	SCIENTIFIC FEASIBILITY	Convince readers that your innovation is built atop sound scientific and/or engineering principles. Ensure that your feasibility argument adequately responds to the requirements this Army topic.
	ENABLING TECHNOLOGIES	Do the required enabling technologies introduce added risk?
	TECHNICAL TEAM	Briefly list and describe your core scientific and technical team with an emphasis on their past accomplishments and experiences that would relate to this Army SBIR/STTR topic.
	TECHNICAL RISKS AND MITIGATION PLANS	Describe any technical risks that still exist between you and a fully mature solution. What are your plans to mitigate those risks?
	DATA QUALITY, TECHNICAL	Use data to substantiate your claims that your Technical Approach (this section of your proposal) is credible. Provide quality data attributed to reliable, credible sources.
	weight 25%	
PROGRAMMATIC POTENTIAL	PROJECT MILESTONE SCHEDULE	Outline your execution plan. What milestones do you hope to accomplish, and what deliverables (if any) do you hope to produce during this phase and subsequent phases of the effort?
	ARMY CUSTOMER DISCOVERY & VALIDATION	Argue you are "getting out of the building" to engage in productive customer-discovery with Army stakeholders. Describe any customer validation you may have received formally or informally to date on this proposed technology.
	ARMY TRANSITION PATHWAY	Describe the next type of deal you aim to make with the Army following this award. Briefly outline your current plan to unlock that next opportunity and/or share the biggest risks you see post this SBIR/STTR award to transition this technology to the Army.
weight 20%		
COMMERCIAL POTENTIAL	R&D TO PRODUCT REVENUE	Argue that your team members have transitioned research and development efforts into products successfully, as evidenced by product revenue. (Product revenue is realized by directly selling a solution to solve a problem vs. selling consulting, services or research activities.)
	COMPETITIVE EDGE	Why will you win? A small company needs to have a competitive edge in the marketplace: Something your team does very well that's difficult to match. Some examples include: well protected intellectual property, unmatched relevant expertise, a novel business model, or network effects.
	OTHER PEOPLE'S MONEY	Make the case for the commercial market (non-DOD) potential of your technology from which the Army will benefit.
weight 20%		
PROPOSAL QUALITY	QUALITY OF PROSE	Provide a clear, well written, and convincing proposal. Avoid jargon and define technical terms.
	IMAGES, CHARTS, GRAPHICS	Graphics are encouraged throughout. Ensure they are logical and easy to read. Supporting images should be thoughtful and visually attractive. For plots and charts include: title, axis labels and captions. For technical images include appropriate scales or legends.
	weight 3%	

Army SBIR DP2 Evaluation Criteria



		UNSATISFACTORY	MARGINAL	SATISFACTORY	SUPERIOR
INTRODUCTION	weight 2%	Ineffective introduction. Failed to provide concise innovation proposition.	Adequate introduction. Gradually conveyed innovation's purpose and value. Should be more crisp.	Effective introduction. Systematically conveys innovation's purpose and value.	Exceptional introduction. Immediately conveys innovation's purpose and value.
ARMY BENEFITS	ALIGNMENT	Not aligned with this Army topic's priorities.	Somewhat aligned with this Army topic's priorities.	Aligned with this Army topic's priorities.	Perfectly aligned with this Army topic's priorities.
	SOLUTION'S ADVANTAGES	No evidence of competitive analysis. Undifferentiated product.	Incomplete or too narrow competitive analysis. Weak product differentiation.	Thorough competitive analysis. Strongly differentiated product. Accounted for most substitutes.	Persuasive competitive analysis. Highly differentiated, accounted for all substitutes, provides novel solution.
	SOLUTION'S IMPACT	If successful, no improvement vs. the state of the art.	If successful, incremental improvement vs. the state of the art.	If successful, significant improvement vs. the state of the art.	If successful, radical improvement vs. the state of the art.
FEASIBILITY FOR DP2	PROOF OF FEASIBILITY	Fails to demonstrate Feasibility of solution.	Partially demonstrates Feasibility of solution.	Successfully demonstrates Feasibility of solution.	Unquestionably demonstrates Feasibility of solution.
	WORK OWNERSHIP	Fails to document prior Feasibility work was substantially completed by the offeror and/or the PI, AND offer's IP rights are unclear.	Partially documents prior Feasibility work was substantially completed by the offeror and/or the PI, AND offeror's rights to any necessary IP.	Sufficiently documents prior Feasibility work was substantially completed by the offeror and/or the PI, AND offeror's rights to any necessary IP.	Persuasively documents prior Feasibility work was substantially completed by the offeror and/or the PI, AND offeror's rights to any necessary IP.
	NEW RESEARCH	This research is likely a logical extension of offeror's prior SBIR / STTR work.	This research might be a logical extension of offeror's prior SBIR / STTR work.	Evidence this research is not a logical extension of offeror's prior SBIR / STTR work.	Compelling evidence this research is not a logical extension of offeror's prior SBIR / STTR work, OR offeror has no prior SBIR / STTR contracts.
	PROTOTYPE DELIVERY	Unlikely that an appropriately mature prototype can be delivered.	Flawed argument that an appropriately mature prototype can be delivered.	Credible argument that an appropriately mature prototype can be delivered.	Convincing argument that an appropriately mature prototype can be delivered.
TECHNICAL APPROACH	SCIENTIFIC FEASIBILITY	No scientific basis for presented approach.	Incomplete scientific basis for presented approach.	Credible scientific basis for presented approach.	Convincing scientific basis for presented approach.
	ENABLING TECHNOLOGIES	Requires nonexistent or unavailable technology.	Requires emerging, cutting edge technology.	Requires proven technologies.	Requires Army-fielded technologies.
	TECHNICAL TEAM	Technical people lack qualifications OR have no experience.	Technical people are somewhat qualified and have some experience.	Technical people are highly qualified OR have significant experience.	Technical people are highly qualified AND have significant experience.
	TECHNICAL RISKS AND MITIGATION PLANS	Failed to present challenges and risks.	Inadequate risk analysis. Mitigation marginally addressed.	Credible risk analysis. Mitigation effectively addressed.	Highly credible risk analysis. Mitigation convincingly addressed.
	DATA QUALITY, TECHNICAL	Poorly supported by data. Little to no data attribution.	Partially supported by data. Some data attribution.	Credibly supported by data. Adequate data attribution.	Persuasively supported by meaningful data. Comprehensive data attribution.
	PROGRAMMATIC POTENTIAL	PROJECT MILESTONE SCHEDULE	Unclear or non-credible project milestones, or timing.	Mostly clear, credible project milestones and timing. Mostly appropriate level of detail.	Mostly clear, credible project milestones and timing. Appropriate level of detail.
weight 20%	ARMY CUSTOMER DISCOVERY & VALIDATION	No customer interviews completed. No validation.	A handful customer interviews completed. No validation.	Extensive interviews completed. Early validation beginning to inform transition strategy.	Exhaustive interviews completed. Validation informs credible transition strategy.
	ARMY TRANSITION PATHWAY	Fails to identify next contract goal and/or fails to present a plan for near-term execution.	Identifies next contract goal. Has a plan for near-term execution.	Identifies stage-appropriate next contract goal. Credible plan for near-term execution.	Identifies ideal next contract goal. Convincing plan for near-term execution.
COMMERCIAL POTENTIAL	R&D TO PRODUCT REVENUE	No evidence of creating product revenue from R&D efforts.	Evidence of R&D yielding product revenue at previous company(ies).	Evidence of R&D yielding product revenue at this company.	Evidence of R&D yielding product revenue sufficient to fuel this company's growth.
	COMPETITIVE EDGE	Undifferentiated firm. Fails to argue it has an advantage.	Weakly differentiated firm. Some evidence of an advantage.	Strongly differentiated firm. Credibly argues it has durable advantage.	Highly differentiated firm. Convincingly argues it has durable advantage.
	OTHER PEOPLE'S MONEY	Fails to present non-DoD sources for future R&D funding.	Evolving non-DoD sources of future R&D funding.	Secure non-DoD source(s) of future R&D funding.	Diverse and robust non-DoD sources of future R&D funding.
PROPOSAL QUALITY	QUALITY OF PROSE	Poorly written. Very difficult to impossible to follow argument. Several spelling or grammar errors.	Moderately written. Sometimes difficult to follow argument. A few spelling / grammar errors.	Effectively written. Convincing, easy to follow argument. No spelling or grammar errors.	Clearly and persuasively written. Compelling arguments. No spelling or grammar errors.
	IMAGES, CHARTS, GRAPHICS	Poor visual aids. Often difficult to understand, distracting, or irrelevant.	Inadequate visual aids. Sometimes difficult to understand, distracting, or irrelevant.	Effective visual aids. Support argument in relevant ways, aiding comprehension.	Exceptional visual aids. Greatly enhance delivery and understanding.
weight 3%					

Version 2

Appendix 0001 Commercialization Plan Template

General Instructions/Guidance:

1. As stated above, proposing SBCs shall prepare an eight (8) slide commercialization plan, utilizing the template and format below. The commercialization plan shall be converted to a PDF and included with Volume 5 – Supporting Documentation.
2. Font size shall be no smaller than 10-point font.
3. Slides should display the slide number in bottom right corner.
4. All text (including tables, charts, plots, axis labels, legends, captions) shall be readable without zooming and understandable without voice-over.
5. For plots and charts:
 - a. Include title/bullet describing importance of plot/chart, and/or data (be specific).
 - b. Axis shall be meaningfully labeled (to be understandable by non-experts) and include scale.
6. Avoid jargon; define technical terms.
7. To insert images, capture a screenshot of the image and paste it into the slide. Please do not drag-drop a file into the presentation or use the Insert Pictures menu function.
8. Use PowerPoint's "Compress Pictures" feature to reduce file size.
 - a. Select 96ppi resolution
 - b. Uncheck "For this picture only"
9. Replace the boilerplate footer below with distribution markings as appropriate, i.e. sensitive, proprietary, intellectual property.

Commercialization Plan Template can also be found here: [Army SBIR Forms and Templates](#)

To be considered valid proposals, Commercialization Plan submissions shall follow the number and content of each slide as contained in the attached template.

Firm Name

SBIR Project Title

Principal Investigator Name / Title
Key (or other relevant) Personnel, and
Subcontractors

BLUF: Bottom Line Up Front

- **BLUF:**
 - 1. Company information and background:** Core competencies, significant sales, previous funding, commercialization successes.
 - 2. Customer and Competition:** Clear description of key technology objectives, current competition, and advantages.
 - 3. Market:** Plan to obtain market share.
 - 4. Intellectual Property:** Patent status, technology lead, trade secrets or other demonstration of a plan to protect the company's technical advantage.
 - 5. Financing/Revenue:** Plans for securing necessary non -SBIR funding.
 - 6. Assistance and mentoring:** Plans for securing needed technical or business assistance.

Company Information and Background

- Core competencies and areas of specialization.
- Products with significant sales.
- Concise history of previous Federal and non -Federal funding/investments.
- Regulatory experience (if applicable).
- Past commercialization successes.
- Past failure and how you overcame.

Distribution markings as appropriate for your organization

4

Customer & Competition

- Description of key technology objectives.
- Current competition and/or alternative solutions.
- Advantages of company's offer compared to competing products or services.
- Hurdles to acceptance of the proposed innovation.
- Description of possible areas where your technology may be utilized or is under utilized.

Distribution markings as appropriate for your organization

5

Market

- Analysis of market size and 1 and 5 year forecasted market share.
- Explanation of milestones and target dates of plan to obtain that market share.
- What experience do you have with marketing to this target market?
- What commercialization strategy appears to be the best for bringing this product to the target market?
- What experience do you have with bringing products to market – either through this company or through other companies with which you have worked.
- Does the company currently market, manufacture, or license technology? Describe what you do.

Distribution markings as appropriate for your organization

6

Intellectual Property

- Patent status, technology lead, trade secrets or other demonstration of a plan to achieve sufficient protection to realize the commercialization stage and attain at least a temporary competitive advantage.
- Describe how you will protect the intellectual property that enables commercialization of its products while keeping competitors at bay. Note any actions you may consider to attain at least a temporary competitive advantage. Also consider your company's prior record in this area. Comment on your company's strategy to build a sustainable business through protection of intellectual property.

Distribution markings as appropriate for your organization

7

Financing

- Plan for securing non -SBIR, private or government funding necessary to enter low rate of production of anticipated technical solution.
- Describe your revenue stream generation to include but not limited to:
 - Manufacture and direct sales
 - Sales through value added resellers or other distributors
 - Joint venture

Distribution markings as appropriate for your organization

8

Assistance & Mentoring

- Plans for securing needed technical or business assistance through mentoring, partnering, or arrangements with government sponsored (e.g., SBIR funded Discretionary Technical and Business Assistance (TABAs), State assistance programs, Federally-funded research laboratories, Manufacturing Extension Partnership centers), not-for-profits (e.g., Small Business Development Center (SBDC) or Small Business Technical Development Center (SBTDC)), commercial accelerators, DOD Prime Contractors, SBA Mentor - Protégé program, Procurement Technical Assistance Center (PTAC) or other assistance provider.

Distribution markings as appropriate for your organization

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**Army SBIR 25.4 Topic Index
Release 5**

The following dates are only applicable to topics A254-014 and A254-015:

February 5, 2025: Topics Pre-release

February 26, 2025: Topics Open; DoD begins accepting proposals in DSIP

March 12, 2025: DSIP Topic Q&A closes to new questions at 12:00 p.m. ET

March 26, 2025: Topics Close; Deadline for receipt of proposals is 12:00 p.m. ET

A254-014 Cognitive Terrain Flight Assistance

A254-015 Adaptive Filtering Techniques for Low-Cost RF Emitters

Version 2

A254-014 TITLE: Cognitive Terrain Flight Assistance

OUSD (R&E) CRITICAL TECHNOLOGY AREA(S): Trusted AI and Autonomy; Advanced Computing and Software

OBJECTIVE: Development of cognitive decision aiding logic, utilizing machine learning and artificial intelligence constructs, to assist aviators in safely performing tactical flight very close to terrain.

DESCRIPTION: Flying close to terrain and obstacles (i.e. hills, trees, wires, and buildings) is essential for Army Aviation's survivability against modern anti-aircraft threat systems. Best available aircraft piloting sensors and pilot training can only help to a limited extent because aircrews cannot react to terrain and obstacles they cannot yet perceive. Today, this capability is limited to what the aviators can see ahead of them (including with sensor assistance) or perceive from a map and hazards overlay. It takes significant resources to train Army Aviators to maneuver helicopters low and fast, but even with the best training they cannot replicate the performance achievable in their local well-understood training area when flying in unfamiliar locations. In a high threat environment, with improvements to traditional threat systems and the advent of emerging threat systems, tens of feet make a significant survivability difference in threat exposure. Without solving the problem of flying fast and low over unfamiliar terrain, Army combat aircraft may not be able to accomplish their required missions. This challenge extends to the Army's Uncrewed Aircraft Systems (UAS) which will similarly need to avoid exposures to reduce attritions.

PHASE I: This topic is only accepting Phase I proposals for a cost up to \$250,000 for a 6-month period of performance.

Phase I will demonstrate the feasibility to capture the required digital twin terrain at the fidelity required for accurate manned helicopter flight near terrain and obstacles, to integrate the digital terrain into a simulation flight model and be prepared to begin terrain flight cognitive machine learning to be accomplished in Phase II.

PHASE II: Phase II will develop a prototype Cognitive Terrain Flight Assistance capability, most likely through machine reinforcement learning, that will reduce risk of terrain and obstacle impacts through cognitive understanding of its terrain flight environment and aircraft performance. This terrain flight assistance model must show promise for continued maturation into the MAS 6.3 program. To accomplish this, the SBIR will demonstrate the improvement of the model first in a simulation environment with pilots flying without and then with the cognitive machine assistance of displaying safe flight paths. If proven in simulation, the terrain flight assistance model will then prove its ability in flight demonstration tests on the actual same terrain in real world conditions. This will most likely be accomplished with uncrewed aircraft controlled by pilots.

PHASE III DUAL USE APPLICATIONS:

- **Air Travel:** Pilots/airlines, helicopters, and air traffic control are likely adopters of said technology for various use cases
- **Drone Economy:** From delivery to eVTOL taxis, drones need to navigate difficult terrain in diverse environments (e.g., urban versus rural) that will require said co-pilot technology.
- **Agriculture, Forestry, and Energy/Critical Minerals:** AI/ML systems can help navigate complex landscapes, avoiding obstacles while performing tasks like crop monitoring or forest fire detection. Moreover, this offering can aid mapping key areas rich in natural resources.

Version 2

REFERENCES:

1. <https://arxiv.org/pdf/2402.03947>
2. https://armypubs.army.mil/epubs/DR_pubs/DR_a/ARN35749-TC_3-04.4-000-WEB-1.pdf
3. <https://wingtra.com>
4. <https://ageagle.com>

KEYWORDS: Cognitive terrain flight model; machine reinforcement learning; terrain and obstacle avoidance; army helicopter; low and fast; Nap-of-the-earth (NOE); multi-aircraft coordinated flight; digital twin terrain

Version 2

A254-015 TITLE: Adaptive Filtering Techniques for Low-Cost RF Emitters

OUSD (R&E) CRITICAL TECHNOLOGY AREA(S): Future Generation Wireless Technology (FutureG); Integrated Network Systems-of-Systems

OBJECTIVE: Develop an emitter system-agnostic solution for threat representative waveform generation and validation.

DESCRIPTION: Deployed T&E threat representative systems are currently not capable of validating that the emitted signal is representative of the source threat waveform. Low-cost open-air RF emitters using commercially available components creates perturbations as the signal moves through the various RF components causing a delta between the theoretical and the open-air signal. Adaptive filtering will demonstrate that any low-cost RF system (RF band agnostic) can be trained through an iterative process to produce the theoretical or known waveform.

PHASE I: This topic is only accepting Phase I proposals for a cost up to \$250,000 for a 6-month period of performance.

Government and Industry will work collaboratively to refine topic objectives to reach a feasible commercial product. The work will entail detailed studies on M&S simulation environment integration, adaptive filtering, AI/ML signal conditioning, and system integration requirements. By the end of Phase I, the deliverable will be a well-documented research report that outlines the steps needed to move forward with prototype development, including risk assessments, technical challenges, and a proposed plan for Phase II.

PHASE II: A prototype design will be completed for production. A prototype will be delivered for demonstration. The prototype will be tested to validate the design against the thresholds identified.

PHASE III DUAL USE APPLICATIONS: In the private sector, companies are increasingly applying artificial intelligence (AI) and machine learning (ML) to solve complex signal processing challenges, particularly in telecommunications [e.g., cognitive 5G/6G networks, distributed microcell technology, swarm drone cognitive communications systems, etc.]. AI/ML is used to optimize signal integrity, detect anomalies, and adapt in real-time to fluctuating environments. These approaches could be applied to the problem of validating RF emissions by using AI/ML algorithms to dynamically filter and correct waveform distortions, ensuring that live signals accurately reflect digital models.

REFERENCES:

1. Phartiyal, Deepmala, and Meenakshi Rawat. "LSTM-deep neural networks based predistortion linearizer for high power amplifiers." 2019 National Conference on Communications (NCC). IEEE, 2019. [LSTM-Deep Neural Networks based Predistortion Linearizer for High Power Amplifiers | IEEE Conference Publication | IEEE Xplore](#)
2. López Bueno, David. "Machine learning techniques for adaptive polynomial and neural network digital predistorters." (2023). [Machine learning techniques for adaptive polynomial and neural network digital predistorters \(upc.edu\)](#)

KEYWORDS: Machine learning; adaptive filtering; Artificial Intelligence; RF emitters; signal conditioning

Version 2

xTechIgnite Prize Competition Topics

Note: Topics listed below are part of the xTechIgnite Prize Competition. See the full xTechIgnite competition RFI here: <https://www.xtech.army.mil/competition/xttechignite/>.

March 12, 2025: White paper submission deadline via link above

A254-016	Innovative Operations for Treatment and Processing of Wastewater
A254-017	Bridge Health Monitoring System
A254-018	Novel AI Techniques for Insights in Various Environments (NATIVE)
A254-019	Generative AI Enabled Tactical Network
A254-020	Artificial Intelligence for Aided Driving of Ground Combat Vehicles
A254-021	Ruggedized Sensors to Increase Driving Visibility and Vehicle Safety
A254-022	AI Enabled Source Selection for Contract Proposal Evaluation
A254-023	AI Enabled Portfolio Management

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A254-016 TITLE: Innovative Operations for Treatment and Processing of Wastewater

OUSD (R&E) CRITICAL TECHNOLOGY AREA(S): Biotechnology; Advanced Materials

OBJECTIVE: The Ammonium Perchlorate Rocket Motor Destruction (ARMD) is designed for the closed disposal thermal treatment of Ammonium Perchlorate (AP) based rocket motors. Innovative approaches are required to reduce process time and volumes associated with wastewater/ effluents generated from the ARMD operations. The main objectives of the industrial wastewater treatment is to boost their operational throughput, reduce costs, and improve their overall environmental posture which will increase process efficiency in solid and liquid waste processing.

DESCRIPTION: Through the support of the Product Director for Demilitarization (PD Demil), the US Army Aviation and Missile Command (AMCOM) Missile Demil Office and the Combat Capabilities Development Command (DEVCOM) Aviation and Missile Research Center (AvMC) have been implementing the Ammonium Perchlorate Rocket Motor Destruction (ARMD) capability at the Letterkenny Munitions Center (LEMC). The ARMD is designed for the closed disposal of Ammonium Perchlorate (AP) based rocket motors. The destruction of rocket motors consists of enclosed firing of the rocket into a chamber, processing of the combustion gasses through a pollution abatement system (PAS), and disposal of the combustion solids and PAS brine materials. The confined burn of rocket motors allows for the combustion exhaust products to be captured and treated rather than being released directly into the environment. The ARMD is designed to process a wide range of rocket motors of various sizes. The PAS is designed to remove greater than 98% of the acid gasses and greater than 99% of the solid particulates from the exhaust stream.

The ARMD transitioned to Full Rate Production (FRP) operations in 2022. However, one of the limiting factors in production throughput is the processing and handling of the combustion effluents/brine water. The ARMD system requires large amounts of water to neutralize the combustion gasses and to wash out the solid particulates for each motor burn cycle. The solid particulates are removed through a series of settling tanks and filter presses. The ARMD recycles the water in the system, but the filter press system is slow, cumbersome and requires considerable maintenance. The solids are removed from the filter presses through manual operations. The ARMD system is paused numerous times throughout the operational day waiting on the system to “catch up” and process enough water to use on the subsequent cycles. It is also paused to remove the solids from the filter presses and the catch bins.

Additionally, large amounts of neutralized brine water (magnesium salt water) are generated from the combustion process. This salt water is reutilized in the system up to ~20% salt content. Once the water reaches the salt limit it is transferred to holding tanks. Trucks are required to pump the wastewater out of the holding tanks for eventual disposal at a commercial water treatment facility as non- hazardous waste. The ARMD operations must be halted when the trucks arrive to transfer the water. Additionally, costs for disposal of this water continue to increase due to pressures from inflation.

The DEVCOM AvMC seeks innovative approaches related to operational processing and chemical treatment of the wastewater. Operational improvements of interest include overall processing efficiency optimization and methods to remove manual processes related to filter press clean up. Chemical treatment areas of interest include novel Brine Concentration Technologies (BCT) to improve filtering of solid particulates and novel treatment methods that can reduce the amount of wastewater that is sent for offsite disposal.

Version 2

IMPORTANT: A prize competition, xTechIgnite, will be used to identify small business concerns that meet the criteria for award for this topic. Winners selected from the xTechIgnite prize competition will be the only firms eligible to submit a SBIR proposal under this topic. All other proposals will not be evaluated. See the full xTechIgnite competition details here:

<https://www.xtech.army.mil/competition/xtechignite/>.

PHASE I: This topic is only accepting Phase I proposals for a cost up to \$250,000 for a 6-month period of performance.

During the Phase 1 SBIR project, a feasibility study will be conducted on options for upgrading the ARMD wastewater processing system. The Phase 1 study should include a review of available equipment/capability to address the wastewater processing inefficiencies at the ARMD and a recommended down select of the proposed equipment. The study should also include costs and timelines for implementation of a prototype/production system.

PHASE II: The Phase 2 SBIR project is expected to result in a prototype capability for the upgraded wastewater processing at the ARMD. The upgraded system will be based on the results of the Phase 1 study. The prototype capability is expected to be procured and installed at the LEMC ARMD. (Note: Equipment potentially could be installed at AvMC for testing. However, final decision would depend on results of Phase 1 study/analysis.

PHASE III DUAL USE APPLICATIONS:

- Municipal Services: Municipalities, especially densely populated ones, need improved and more efficient water management/treatment and waste disposal systems
- Industrial Sectors: Industries like mining, oil & gas, manufacturing, etc., produce water runoff that requires efficient BCT.
- Soft Beverage Industry: The demand for fresh water and desalination can provide benefits to water bottling companies via improved BCT.

REFERENCES:

1. <https://www.jmc.army.mil/Installations.aspx?id=LetterkennyOverview>
2. https://www.army.mil/article/249078/ribbon_cutting_ceremony_at_the_letterkenny_munitions_center_highlights_armys_environmentally_sustainable_demilitarization_efforts
3. <https://sciforschenonline.org/journals/water-and-waste/index.php>
4. <https://www.epa.gov/sites/default/files/2016-03/documents/industrial-waste-guide.pdf>
5. https://files.dep.state.pa.us/water/bsdw/operatorcertification/TrainingModules/ww08_advanced_wastewater_wb.pdf
6. https://books.google.com/books?hl=en&lr=&id=Ww_2DwAAQBAJ&oi=fnd&pg=PA1&dq=related:1O7JeNaxycAJ:scholar.google.com/&ots=UKKoojSarAp&sig=ACIQDgJAadHgSPS7ZEn8NXtkLKs#v=onepage&q&f=false

KEYWORDS: Closed disposal; Wastewater; water treatment; salt neutralization; solids filtration; wastewater reduction; salinity reduction; water recycling

Version 2

A254-017 TITLE: Bridge Health Monitoring System

OUSD (R&E) CRITICAL TECHNOLOGY AREA(S): Sustainment & Logistic; Human-Machine Interfaces

OBJECTIVE: The current methods for assessing military bridges rely on Preventative Maintenance Check and Services (PMCS) combined with fatigue monitoring crack gauges, which have proven insufficient for accurately determining a bridge's remaining service life. This inaccuracy forces the Army to maintain a surplus of bridges to mitigate the risk of unexpected failures. Research highlights that vehicle crossings, rather than environmental factors, are the primary determinants of bridge health, with the impact varying significantly by vehicle type.

To address this, the Bridge Health Monitoring (BHM) system seeks to revolutionize bridge assessment and management through an integrated approach combining advanced sensor technology, onboard data storage, and adaptable communication capabilities. By continuously monitoring and recording vehicle traffic, structural stress, and environmental conditions, the BHM system will enable precise predictions of a bridge's remaining service life. This innovation promises to reduce reliance on manual inspections, enhance situational awareness for battlefield commanders, and optimize bridge asset utilization, ensuring military readiness and operational efficiency.

DESCRIPTION: The Bridge Health Monitoring (BHM) project will develop a robust, modular, and scalable technology suite for real-time monitoring and assessment of military and commercial bridge health. This integrated system will empower battlefield commanders and sustainers by providing actionable insights into bridge readiness and lifespan. The proposed solution should address a combination of advanced sensors, onboard storage systems, and secure communication technologies to achieve the following objectives:

1. Types of Bridges

The BHM system must prioritize adaptability to a variety of bridge types. These include:

- **Portable All-Metal Bridges:** Commonly used in military operations, these structures require rapid deployment capabilities and sensors that can withstand frequent assembly, disassembly, and storage.
- **Composite Bridges:** Combining concrete and metal, these structures are often used for their durability and lightweight properties.
- **Reinforced Concrete Bridges:** Found in both military and civilian applications, these bridges are vulnerable to environmental factors such as corrosion and require monitoring for cracks and stress.
- **Suspension and Cable-Stayed Bridges:** Complex commercial structures where cable tension and tower integrity are critical monitoring points.
- **Precast Modular Bridges:** Often used for temporary or emergency infrastructure, these bridges benefit from scalable monitoring solutions for varying sizes and configurations.

2. Real-time and Periodic Monitoring

The BHM system will monitor key indicators of structural integrity, including stress, fatigue, and damage, through a modular sensor suite. While real-time communication may be beneficial for specific use cases (e.g., commercial highway bridges), the primary focus is on:

- **Onboard Storage:** Capturing and securely storing critical data directly on the bridge.

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- Periodic Data Retrieval: Allowing personnel, vehicles, or UAVs to retrieve stored data as needed, minimizing security risks and operational costs associated with trackable continuous transmissions.
- Future Adaptability: Ensuring the system design allows for the potential of wireless communication integration in future phases if operational needs evolve.

3. Predictive Analytics and Storage Monitoring

In addition to operational bridges, the BHM system must maintain information on the health of portable bridges during storage. This capability ensures readiness for deployment. Predictive analytics should incorporate:

- Usage data, including crossings and load impacts, are recorded before storage.
- Modular components enable cost-effective monitoring and allow reusable components to be deployed elsewhere once the portable bridge is stored.

4. Indefinite Data Storage and Management

The system must include a robust mechanism for the indefinite storage of bridge health data. This includes maintaining detailed historical records of usage, environmental exposure, and maintenance activities. The solution should employ secure, scalable storage systems, ensuring data integrity and accessibility for lifecycle management and continuous improvement.

5. Sensor Suite Requirements

The sensor package must be:

- Modular: Adaptable to different bridge designs and operational needs.
- Scalable: Capable of monitoring bridges of various sizes, materials, and load capacities.
- Durable: Resistant to environmental stresses such as extreme temperatures, corrosion, and vibration.
- Comprehensive: Equipped with advanced tools, such as strain gauges, ultrasonic sensors, fiber-optic monitoring systems, RFID readers, and AI-powered traffic classification capabilities.
- Focused on Storage Data: Ensuring essential data components and other non-removable components remain with the bridge while advanced systems (e.g. communications, power) can be redeployed to other bridges still in use.

6. Energy Efficiency and Environmental Resilience

The solution must function autonomously with portable power sources for mobile bridges and integrate with fixed power systems for stationary bridges. Sensors must operate reliably in diverse and challenging environments, from combat zones to urban areas.

7. Secure, Adaptable Data Communication

Data collected by the system will be securely transmitted when necessary. For initial feasibility, the focus is on:

- Localized, onboard data storage with retrieval options for personnel or vehicles.
- Secure communication mechanisms for direct connection, selective transmission, including burst transmissions or UAV retrieval.
- Flexibility for future enhancements to support continuous or real-time monitoring if required.

Version 2

IMPORTANT: A prize competition, xTechIgnite, will be used to identify small business concerns that meet the criteria for award for this topic. Winners selected from the xTechIgnite prize competition will be the only firms eligible to submit a SBIR proposal under this topic. All other proposals will not be evaluated. See the full xTechIgnite competition details here: <https://www.xtech.army.mil/competition/xtechignite/>.

PHASE I: This topic is only accepting Phase I proposals for a cost up to \$250,000 for a 6-month period of performance.

Phase I of the Bridge Health Monitoring (BHM) project will culminate in a comprehensive report that explores the various aspects of the system. The report will provide an in-depth analysis of the sensor technologies evaluated for potential use in the solution, including the selected sensors and the rationale behind their choice.

The study will also delve into the critical aspects of bridge health communication, power supply, and data management. Specifically, it will address how bridge health information will be transmitted to Commanders and Maintainers in an electronically monitored environment, ensuring seamless integration and situational awareness without undue risk. Additionally, the report will outline the power supply requirements for the BHM system and propose a solution for maintaining bridge health data continuity, regardless of whether the bridge is deployed or stored in a facility.

While the primary focus of the SBIR is on developing a BHM solution for the Heavy Assault Scissor Bridge (HASB), the Phase I investigation will also examine the potential for commonality across Army Bridge systems. The study will identify the essential components that must remain with a bridge and those that could be removed and adapted for use on other bridge types, thereby promoting a level of standardization and interoperability across the Army's bridge inventory.

The Phase I report will provide a thorough understanding of the BHM system's requirements, capabilities, and potential for scalability, laying the foundation for the development of a robust and effective bridge health monitoring solution.

PHASE II: Phase II of the Bridge Health Monitoring (BHM) project will focus on the fabrication and testing of a prototype system, building on the research and analysis conducted in Phase I. A key aspect of this phase will be the implementation of robust cyber security measures to ensure the system's integrity and protect against potential threats.

In addition to prototype development, the vendor will conduct a comprehensive sustainability assessment of the selected components to guarantee a viable path for long-term support and maintenance. This assessment will ensure that the chosen technical solutions can be supported and upgraded over time, minimizing the risk of obsolescence and ensuring the system's continued effectiveness.

The prototype development process will involve the creation of off-bridge components and breadboard systems, which will be thoroughly tested and optimized to ensure seamless integration and performance. The final prototype will be designed to be compatible with the Heavy Assault Scissor Bridge (HASB) and will include all necessary equipment to function as proposed.

In collaboration with the PdM Bridging team and the GVSC Bridge Technology Lab, the prototype will undergo rigorous validation and testing on a HASB to ensure its performance and accuracy. The vendor

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will also conduct a live demonstration of the solution at Fort Leonard Wood, showcasing its capabilities on a local bridge.

The deliverables for Phase II will include two complete systems, which will support additional field evaluations and testing. These systems will provide the Army with a tangible, functional solution for monitoring bridge health, enabling more informed decision-making and improved maintenance practices.

PHASE III DUAL USE APPLICATIONS:

- Critical Infrastructure: This full stack option can be fitted to provide the same real-time, non-invasive analysis.
- Predictive Maintenance: Can provide real-time feedback on the performance of a vehicle, equipment part, etc., to save time on repairs.
- Smart Cities: Allows for various sensors to track various assets at once in one single “pane of glass.”

REFERENCES:

1. Structural Health Monitoring key to a more resilient, modern infrastructure network
2. <https://www.usace.army.mil/Media/News/NewsSearch/Article/3276980/structural-health-monitoring-key-to-a-more-resilient-modern-infrastructure-netw/>
3. State of the Practice and Art for Structural Health Monitoring of Bridge Substructures
<https://www.fhwa.dot.gov/publications/research/infrastructure/structures/bridge/09040/09040.pdf>

KEYWORDS: Bridge Health Monitoring; gap crossing; assault bridging; military bridging; Heavy Assault Scissor Bridge; HASB; Medium Assault Bridge; MAB; Heavy Support Bridge; HSB; sustainment cost reduction

Version 2

A254-018 TITLE: Novel AI Techniques for Insights in Various Environments (NATIVE)

OUSD (R&E) CRITICAL TECHNOLOGY AREA(S): Advanced Computing and Software; Trusted AI and Autonomy

OBJECTIVE: Organizations across various sectors are increasingly inundated with vast amounts of data, making it challenging to identify and analyze anomalies and patterns effectively. Traditional methods often fall short in handling the scale and complexity of modern datasets, leading to missed opportunities and potential risks.

DESCRIPTION: In today's data-driven world, organizations, including the Army, face the challenge of managing and making sense of vast amounts of diverse data. This data comes from various sources, such as sensors, communication systems, operational logs, and more. The sheer volume and complexity of this data make it difficult to identify critical anomalies and patterns that could impact decision-making and operational effectiveness.

The desired outcome of this topic is to develop and implement innovative AI technologies that can efficiently process and analyze terabytes of data, including imagery, text, and signals, to detect anomalies and uncover patterns. Anomalies are deviations from the norm that could indicate potential issues, threats, or opportunities. This effort will also involve detecting biases and deficiencies within the datasets, ensuring that relevant data is identified for labeling, so that the AI models built from the SBIRs are not only accurate but also fair and reliable.

By leveraging advanced AI techniques, such as machine learning, deep learning, and natural language processing, we aim to create AI models that can automatically and accurately identify these anomalies and patterns.

IMPORTANT: A prize competition, xTechIgnite, will be used to identify small business concerns that meet the criteria for award for this topic. Winners selected from the xTechIgnite prize competition will be the only firms eligible to submit a SBIR proposal under this topic. All other proposals will not be evaluated. See the full xTechIgnite competition details here: <https://www.xtech.army.mil/competition/xtechignite/>.

PHASE I: This topic is accepting Direct to Phase II proposals for a cost up to \$2,000,000 for an 18-month period of performance.

Proposers interested in submitting a DP2 proposal must provide documentation to substantiate that the scientific and technical merit and feasibility equivalent to a Phase I project has been met. Documentation can include data, reports, specific measurements, success criteria of a prototype, etc.

(DIRECTTO) PHASE II: During Phase II, firms should expect to engage in a research and development effort focused on refining and validating their AI capabilities for identifying and analyzing anomalies and patterns in large datasets. The goal is to develop a robust, scalable, and secure prototype that can be packaged and transition to Project Linchpin's model marketplace. This phase will involve extensive testing and iteration to ensure the AI models meet performance, accuracy, and security standards. Firms will also collaborate closely with Project Linchpin to access operational data at the and onboard their solutions onto the Impact Level 5 (IL5) environment. By the end of Phase II, the expectation is to deliver a well-defined, functional prototype that demonstrates the AI technology's effectiveness.

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PHASE III DUAL USE APPLICATIONS: The AI technologies being developed for anomaly detection and pattern recognition have numerous commercial applications across a wide range of industries. In financial services, they can be used for fraud detection, risk management, and compliance monitoring, helping to prevent financial losses and reputational damage. Healthcare institutions can employ them for real-time patient monitoring, disease outbreak detection, and personalized medicine, leading to improved patient outcomes and more efficient resource allocation. Retailers can benefit from improved inventory management, customer behavior analysis, and demand forecasting, enabling them to optimize supply chains and enhance the customer experience. Manufacturers can utilize AI for predictive maintenance, quality control, and supply chain optimization, reducing downtime and improving overall efficiency. Cybersecurity firms can enhance intrusion detection, threat intelligence, and incident response, helping to protect against increasingly sophisticated cyber threats. Transportation and logistics companies can optimize routes, vehicle maintenance, and cargo management, reducing costs and improving delivery times. Energy companies can manage grids, forecast demand, and optimize energy distribution, leading to a more sustainable and reliable energy supply. Additionally, AI-powered anomaly detection and pattern recognition can be applied in various other industries, such as:

1. Media and entertainment: content recommendation, audience analysis, and piracy detection
2. Education: personalized learning, student performance analysis, and academic integrity monitoring
3. Real estate: property valuation, market trend analysis, and predictive maintenance
4. Environmental monitoring: climate modeling, air quality monitoring, and wildlife conservation

These applications demonstrate the broad impact of AI in enhancing operational efficiency, decision-making, and innovation across various industries, ultimately leading to increased productivity, competitiveness, and economic growth.

REFERENCES:

1. <https://dinov2.metademolab.com/>
2. <https://huggingface.co/models>

KEYWORDS: Self Supervised Vision Transformer Models; Foundational Models; Visual Search; Generative Models; Retrieval-augmented generation

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A254-019 TITLE: Generative AI Enabled Tactical Network

OUSD (R&E) CRITICAL TECHNOLOGY AREA(S): Advanced Computing and Software; Trusted AI and Autonomy

OBJECTIVE: The objective of this topic is to create a realistic modeling and simulation environment using Generative AI for NGC2, the Army's new approach to a data-centric C2 architecture.

DESCRIPTION: GenAI would be used to create realistic tactical data streams to create a diverse set of scenarios representing current threat, blue force, and logistics Command and Control and maneuver operations. The environment should reflect a realistic tactical network (DDIL environment) with multiple data access and delivery demands in real time. The generated data would be at scale and based on realistic models (e.g. tracks should be following likely routes/roads based on local terrain at a realistic pace and elevation vs randomly placed on a map at a random time and space).

Another objective is the use AI (or some other technique) to simulate limited bandwidth as data is 'exchanged' from producer to consumer to model a DDIL environment that logically aligns to the scenario fed by the GenAI data.

The Army's Next Gen Command and Control program is a large part of the effort to modernize the Army's network. It will provide commanders with the adaptive C2 architecture needed to make rapid decisions in a contested environment. NGC2 is the Army's joint effort with industry to build a "data-centric" command and control system enabled through network transport. The goal is to recreate the service's enterprise data architecture and renew its operational software framework.

IMPORTANT: A prize competition, xTechIgnite, will be used to identify small business concerns that meet the criteria for award for this topic. Winners selected from the xTechIgnite prize competition will be the only firms eligible to submit a SBIR proposal under this topic. All other proposals will not be evaluated. See the full xTechIgnite competition details here: <https://www.xtech.army.mil/competition/xtechignite/>.

PHASE I: This topic is only accepting Phase I proposals for a cost up to \$250,000 for a 6-month period of performance.

Firms should expect to deliver a feasibility study around producing software that when run, creates and exposes an API that delivers tactically relevant data at scale following a logical scenario given near peer threat behavior today. Ideally, users should be able to toggle features to affect the volume and or velocity of the data generated and the ability to artificially interrupt the data or lose packets to simulate a DDIL environment or the loss of network transport. The study should address deployment options and impacts of the software being used in both a LAN and cloud environments.

PHASE II: Firms will produce and deliver software that when run, creates and exposes an API that delivers tactically relevant data at scale following a logical scenario given near peer threat behavior today. The application should allow users to toggle features to affect the volume and or velocity of the data being generated and the ability to artificially interrupt the data flow or lose packets to simulate a DDIL environment or the loss of network transport. Users should be able to define the data types, data fields, size, and other data attributes as desired or simply allow the software to 'decide' the generated data ontologies.

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PHASE III DUAL USE APPLICATIONS: GenAI has many commercial use cases. It applies in all big data industries like healthcare, social media, advertising, and investing.

- **Financial Services:** Leverage GenAI synthetic data for modeling of stocks, market movement, and risk assessments.
- **Healthcare & Life Sciences:** Synthetic data for research/drug development as well as patient simulations.
- **Autonomous Vehicles:** Synthetic data can be used to model real-world situations for autonomous driving, flight, and more in a 3D environment.

REFERENCES:

1. <https://federalnewsnetwork.com/army/2024/09/armys-demand-for-genai-surgin-with-focus-on-integration/>
2. <https://www.defenseadvancement.com/news/british-army-training-simulations-to-be-enhanced-by-generative-ai/>

KEYWORDS: Generative AI; Modeling and Simulation Data; Training Data; Artificial Intelligence

Version 2

A254-020 TITLE: Artificial Intelligence for Aided Driving of Ground Combat Vehicles

OUSD (R&E) CRITICAL TECHNOLOGY AREA(S): Trusted AI and Autonomy, Advanced Computing and Software

OBJECTIVE: Develop and integrate Artificial Intelligence (AI) technology that can augment current and future sensor hardware enhancing the ability of the driver to maneuver and operate large, heavy, ground combat vehicles. These vehicles typically weigh 40 to 80 tons and have limited to zero direct line of sight making it difficult for the driver to safely maneuver the vehicle.

DESCRIPTION: Develop and integrate Artificial Intelligence and Machine Learning technology that can augment current and future sensor hardware enhancing the ability of the driver to maneuver and operate large, heavy, ground combat vehicles. This can be done by improving driver vision and situation awareness with AI/ML based crew aids such as using AI for computer vision and object detection and/or using a large language model AI. This capability will support an AI Driver Assist System similar to Apple's Siri or Amazon's Alexa that is tailored toward driver combat scenarios. This capability will provide the foundation towards partial autonomy and could also lead to a fully autonomous system in the future.

IMPORTANT: A prize competition, xTechIgnite, will be used to identify small business concerns that meet the criteria for award for this topic. Winners selected from the xTechIgnite prize competition will be the only firms eligible to submit a SBIR proposal under this topic. All other proposals will not be evaluated. See the full xTechIgnite competition details here: <https://www.xtech.army.mil/competition/xtechignite/>.

PHASE I: This topic is accepting Direct to Phase II proposals for a cost up to \$2,000,000 for a 24-month period of performance.

Proposers interested in submitting a DP2 proposal must provide documentation to substantiate that the scientific and technical merit and feasibility equivalent to a Phase I project has been met. Documentation can include data, reports, specific measurements, success criteria of a prototype, etc.

(DIRECT TO) PHASE II: To develop, integrate, and demonstrate AI/ML technologies to enhance the driver's ability to maneuver and operate the vehicle.

PHASE III DUAL USE APPLICATIONS: Analysis shows commercial potential across multiple fields including the automotive industry, security and law enforcement, and logistics and fleet management. Specific examples of potential dual-use could include: Advanced Driver Assistance systems that employ AI/ML and sensor fusion technologies for obstacle detection, lane keeping, and semi-autonomous driving features, AI-enabled route optimization, surveillance of vehicle surroundings, and real-time threat assessment.

REFERENCES:

1. <https://aimagazine.com/articles/the-power-of-advanced-ai-assisted-driving-systems>
2. <https://www.contents.com/magazine/artificial-intelligence/revolutionising-the-road-how-ai-is-transforming-driving-experiences/>

KEYWORDS: Driver Assist System; Partial Autonomy; Detection Algorithms; Hazard Detection

Version 2

A254-021 TITLE: Ruggedized Sensors to Increase Driving Visibility and Vehicle Safety

OUSD (R&E) CRITICAL TECHNOLOGY AREA(S): Integrated Sensing and Cyber

OBJECTIVE: Vehicle drivers could benefit from sensor systems that provide enhanced awareness of the vehicle surroundings and improve the driver's ability to operate the vehicle in Degraded Visual Environments (DVE), such as nighttime or low-visibility weather conditions. This topic seeks to provide ruggedized sensor systems that can integrate into vehicles to increase driving visibility and vehicle safety by enabling ADAS capabilities such as Forward/Reverse Collision Warning, Blind Spot Warnings, Automatic Brake Assist, and Road Departure Mitigation. These sensor systems could also enhance visibility of the vehicle's exterior for situational awareness, such as vehicle security or visibility of the rear exterior during towing operations.

DESCRIPTION: The objective of this topic is to develop and integrate or ruggedize commercial sensor technology that could enhance the ability of a driver to maneuver and operate ground combat vehicles. This sensor technology will help increase the driver's awareness of the vehicle surroundings, enable advanced driver-assistance systems (ADAS) for improved vehicle safety and maneuverability, and enhance overall visibility while driving during daytime, nighttime, or combat operations.

IMPORTANT: A prize competition, xTechIgnite, will be used to identify small business concerns that meet the criteria for award for this topic. Winners selected from the xTechIgnite prize competition will be the only firms eligible to submit a SBIR proposal under this topic. All other proposals will not be evaluated. See the full xTechIgnite competition details here: <https://www.xtech.army.mil/competition/xttechignite/>.

PHASE I: This topic is accepting Direct to Phase II proposals for a cost up to \$2,000,000 for an 18-month period of performance.

Proposers interested in submitting a DP2 proposal must provide documentation to substantiate that the scientific and technical merit and feasibility equivalent to a Phase I project has been met. Documentation can include data, reports, specific measurements, success criteria of a prototype, etc.

(DIRECT TO) PHASE II: To develop, harden, integrate, and demonstrate technologies to enhance the driver's ability to maneuver and operate the vehicle.

PHASE III DUAL USE APPLICATIONS: The technologies developed under this topic are directly applicable to advanced driver assistance systems (ADAS) that are common throughout the commercial automobile industry. ADAS improves the driving experience and provides vehicle operation/safety benefits from improved LiDAR, radar, and camera sensor technologies.

REFERENCES:

1. <https://na.develon-ce.com/en/news-stories/the-cutting-edge/top-safety-features-heavy-equipment>
2. <https://www.forconstructionpros.com/construction-technology/construction-safety-technology/article/22131512/improved-safety-through-advancements-in-object-detection>

KEYWORDS: Driving Sensors, Driver Assist System; ADAS; Advanced Driver Assistance Systems; Forward Collision Warning; Reverse Collision Warning; Backup Camera; Autonomous Vehicle; Vehicle Sensors

Version 2

A254-022 TITLE: AI Enabled Source Selection Solution for Contract Proposal Evaluation

OUSD (R&E) CRITICAL TECHNOLOGY AREA(S): Trusted AI and Autonomy

OBJECTIVE: Provide a comprehensive software-as-a-service (SaaS) solution that automates and standardizes the evaluation and source selection processes while tailoring the user experience to the Army's unique conditions/constraints.

DESCRIPTION: This solution should address principal challenges experienced during the evaluation and source selection processes including length of time required to conduct evaluations; varying levels of experience possessed by evaluators; inconsistent treatment of Offerors by evaluators; and deviation from solicitation instructions and evaluation criteria, potentially leading to protest. This solution is critical to accelerate the overall acquisition process, field capabilities more rapidly to the Soldier, and significantly improve contract outcomes including fewer successful protests.

The Army's pursuit of a software solution to automate, standardize, and accelerate the evaluation and source selection processes represents a novel and innovative approach to a challenge traditionally addressed using general-purpose capabilities such as Microsoft Word and Excel or outmoded procurement systems. Additionally, the current processes are heavily error-prone due to individual evaluator inexperience, human mistakes, and evaluator fatigue.

The envisioned solution seeks to transform this process by harnessing of the power of AI and related private sector innovations to perform many functions traditionally performed manually by human staff. Many activities in the areas of review, analysis, and quality assurance can be performed at scale by AI and related commercial technologies. Reviewing and analyzing large amounts of evaluation data for inconsistencies, traditionally performed by humans over many weeks, can now be performed at scale through AI tools that perform these functions in just seconds.

IMPORTANT: A prize competition, xTechIgnite, will be used to identify small business concerns that meet the criteria for award for this topic. Winners selected from the xTechIgnite prize competition will be the only firms eligible to submit a SBIR proposal under this topic. All other proposals will not be evaluated. See the full xTechIgnite competition details here: <https://www.xtech.army.mil/competition/xtechignite/>.

PHASE I: This topic is accepting Direct to Phase II proposals for a cost up to \$2,000,000 for an 18-month period of performance.

Proposers interested in submitting a DP2 proposal must provide documentation to substantiate that the scientific and technical merit and feasibility equivalent to a Phase I project has been met. Documentation can include data, reports, specific measurements, success criteria of a prototype, etc.

(DIRECT TO) PHASE II: The successful small business should be prepared to rapidly deliver, due to the urgent need for this capability, an initial focused Minimum Viable Product (MVP) thirty (30) calendar days following D2P2 award to demonstrate the maturity and feasibility of their concept. Subsequent to this initial MVP, a series of additional related MVPs in response to additional features requirements will be built to constitute an initial release. During this major research and development effort, the successful small business should demonstrate expert level knowledge of Army acquisition processes, standards, and practices in building a well-defined prototype software product. The desired result at the end of the Phase

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2 effort is well-defined prototype of an AI-enabled source selection software solution which automates and streamlines the source selection process from issuance of a solicitation through contract award.

PHASE III DUAL USE APPLICATIONS: Currently available private sector solutions applicable to this challenge emanate from large firms such as Appian, CACI, Mantech, and Noblis. In all cases, the evaluation and source selection software market represents a small portion of the large businesses portfolio raising concerns about commitment to the solution. Current commercially available solutions are not tailored to the Federal processes or regulations, and do not leverage the power of an AI-enabled evaluation and source section system and thereby are unsuitable for this challenge. The framework for developing an AI-enabled source selection and evaluation tool in the defense space that is compliant with stringent federal regulations could be applicable to other highly regulated sectors that rely heavily on federal contracts.

REFERENCES:

1. <https://www.dau.edu/acquipedia-article/source-selection>
2. https://ncmahq.org/Web/Shared_Content/CM-Magazine/CM-Magazine-February-2023/AI-Is-Coming-For-Contracting.aspx

KEYWORDS: Artificial Intelligence (AI); Evaluation; Federal Acquisition Regulation; Organizational Conflict of Interest (OCI); Blockchain; Neural Networks

Version 2

A254-023 TITLE: AI-enabled Portfolio Management

OUSD (R&E) CRITICAL TECHNOLOGY AREA(S): Trusted AI and Autonomy

OBJECTIVE: This platform will integrate tools and best practices in a central portal to modernize the Army's acquisition process, supporting both Business-to-Business (B2B) and Business-to-Consumer (B2C) needs. The envisioned solution for this topic is an IT Acquisition Requirements Intake and Portfolio Management solution that will serve as the front-end to the Army's modernized acquisition process, assessing new software, hardware, and services requirements against qualification criteria and against existing capabilities. Without this, the Army risks creating unnecessary contracts, developing redundant systems, and wasting resources on needs that could be met with existing capabilities or contracts.

DESCRIPTION: This solution will address key challenges in Acquisition requirements intake and portfolio management including:

1. Lack of consistent processes and templates for intake, review, analysis, and acceptance of new IT Acquisition requirements;
2. Inconsistent governance for prioritizing and sequencing new Acquisition requirements;
3. Limited visibility into the status of approved requirements during the acquisition process;
4. Insufficient visibility into the Army's portfolio of services, contracts, and hardware/software assets; and
5. Inadequate scanning of available contracts and hardware/software during portfolio review and requirements approval.

Each of the above challenges is addressed by development of a modern Acquisition requirements intake and portfolio management capability built on advanced AI capabilities and leveraging commercial market research and development (R&D).

IMPORTANT: A prize competition, xTechIgnite, will be used to identify small business concerns that meet the criteria for award for this topic. Winners selected from the xTechIgnite prize competition will be the only firms eligible to submit a SBIR proposal under this topic. All other proposals will not be evaluated. See the full xTechIgnite competition details here: <https://www.xtech.army.mil/competition/xtechignite/>.

PHASE I: This topic is accepting Direct to Phase II (DP2) proposals for a cost up to \$2,000,000 for an 18-month period of performance.

Proposers interested in submitting a DP2 proposal must provide documentation to substantiate that the scientific and technical merit and feasibility equivalent to a Phase I project has been met. Documentation can include data, reports, specific measurements, success criteria of a prototype, etc.

(DIRECT TO) PHASE II: The successful small business should be prepared to deliver, due to the time-sensitive need for this capability, an initial Minimum Viable Product (MVP) one hundred and twenty (120) calendar days following DP2 award to demonstrate the maturity and feasibility of their concept.

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Subsequent to this initial MVP, a series of additional related MVPs in response to additional features requirements will be built to constitute an initial release.

The desired outcome for this DP2 topic is the development of a well-defined prototype software product that demonstrates that artificial intelligence and machine learning can be used to effectively and efficiently manage an acquisition and contracts portfolio. An additional desired outcome is an automated and streamlined acquisition requirements intake process, integrated with external systems to scan the external environment for duplication and redundancy across the portfolio.

PHASE III DUAL USE APPLICATIONS: Currently available private sector solutions applicable to this challenge are limited due to the unique nature of the Federal Government's budget and appropriations processes. Commercially available Acquisition requirements intake and portfolio management solutions such as Plainview, Smartsheet, Microsoft Project, Zoho Projects, and Monday.com are not tailored to the Federal process or regulation, and do not leverage the power of an AI-enabled Acquisition requirements intake and portfolio management system and thereby are unsuitable for this challenge. A new AI-enabled solution that is tailored to Federal Acquisition processes and regulations is needed. The framework for developing an AI-enabled portfolio management tool that is compliant with stringent federal regulations could be applicable to other highly regulated industries such as Finance and Healthcare.

REFERENCES:

1. <https://www.pmi.org/disciplined-agile/the-importance-of-having-an-intake-process#:~:text=An%20%E2%80%9Cintake%20process%E2%80%9D%20refers%20to,is%20picked%20up%20by%20development.>

KEYWORDS: Portfolio Optimization; Business Process Redesign; Lean Six Sigma; Organizational Change Management; Communications Planning