

DEPARTMENT OF THE ARMY
DoD 24.4 Small Business Innovation Research (SBIR)
Annual Broad Agency Announcement (BAA)
Component-Specific Proposal Instructions
Release 9

March 5, 2024: Topics issued for pre-release

March 20, 2024: Army begins accepting proposals via DSIP

April 9, 2024: DSIP Topic Q&A closes to new questions at 12:00 p.m. ET

April 23, 2024: Deadline for receipt of proposals no later than 12:00 p.m. ET

INTRODUCTION

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.

Proposers are encouraged to thoroughly review the DoD Program BAA and register for the Defense SBIR/STTR Innovation Portal (DSIP) Listserv to remain apprised of important programmatic and contractual changes.

- The DoD Program BAA is located at: <https://www.defensesbirsttr.mil/SBIR-STTR/Opportunities/#announcements>. Be sure to select the tab for the appropriate BAA cycle.
- Register for the DSIP Listserv at: <https://www.dodsbirsttr.mil/submissions/login>.

CONTACT INFORMATION

Direct specific questions pertaining to the administration of the Department of the Army SBIR Program and proposal preparation instructions to the Point of Contact identified in the Topic announcement. General questions can be directed to the following:

Email: usarmy.pentagon.hqda-asa-alt.mbx.army-applied-sbir-program@army.mil

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

How to Submit a Compliant and Responsive Proposal Webinar: https://youtu.be/YyXMWUYo_zo

Mailing Address:

Army Applied SBIR Office

2530 Crystal Drive, Suite 11192

Arlington, Virginia 22202

RESPONSIVENESS AND TIMELINESS

Proposals will only be evaluated in response to an active, corresponding Army topic. Proposals will be initially screened to determine responsiveness and timeliness. Proposals passing this initial screening will be technically evaluated by engineers or scientists, through a peer or scientific review process, to determine the most promising technical and scientific approaches. Assessment of responsiveness may continue during technical evaluation and after selection. If at any point the proposal is deemed untimely, unresponsive, ineligible, or non-responsible, the proposal will be disqualified/rejected, and a contract will not be awarded.

Interested firms shall follow the DoD Program BAA instructions as well as the Army's component-specific proposal instructions herein, when preparing and submitting proposals. The DoD 24.4 SBIR Program BAA can be found here: <https://www.defensesbirstr.mil/SBIR-STTR/Opportunities/>.

The Government reserves the right to disqualify/reject proposals for failing to meet any of the requirements of the SBA SBIR/STTR Policy Directive, the DoD Program BAA instructions, the Army's component-specific proposal instructions herein, and/or in the topic itself. The following include, but are not limited to, the common reasons for which proposals are disqualified/rejected:

- System for Award Management (refer to section 'Representations through the System for Award Management (SAM) below for SAM specific requirements).
- The proposal is missing required number of signatures and/or content.
- Minimum Performance Percentage of Work is not allocated properly.
- Work as proposed does not meet the definition of Research and Development required for funding.
- Proposal submitted beyond deadline.
- Commercialization Plan is submitted in a format other than the prescribed template at Appendix D – Commercialization Plan Template, enclosed herein.
- Price exceeds the stated award guideline limitation identified within the corresponding SBIR opportunity.
- Proposal exceeds the stated page count(s) or formatting requirements
- Firm is NOT an eligible small business.
- Firm does NOT meet the ownership and control requirements.
- Firm is 50% or more owned or managed by a corporate entity that is not a small business.
- Firm will NOT perform the prescribed percentage of the research and/or analytical work.
- Primary employment of the Principal Investigator for this project is NOT with the firm.
- Firm has been convicted of a fraud-related crime.
- Principal Investigator or Corporate Official has been convicted of a fraud-related crime.
- Firm and affiliates have employed, on average over the last 24 months, more than 500 employees.
- Firm has been awarded a contract from the US Government for essentially equivalent work.
- Claiming data rights assertions without including a Data Rights Assertions Table.
- Lack of proper documentation for research utilizing human/animal subjects or recombinant DNA.
- Lack of information or negative information concerning use of foreign nationals.
- Offeror requests to award to a different firm/entity after proposal submission.
- Failure or refusal to submit certified or other than certified cost data in accordance with Defense Federal Acquisition Regulation Supplement (DFARS) Clause 252.215-7010, Requirements for Certified Cost or Pricing Data and Data Other Than Certified Cost or Pricing Data.
- Proposal is for a topic other than that which is identified.

REPRESENTATIONS THROUGH THE SYSTEM FOR AWARD MANAGEMENT (SAM)

The purpose of electronic Representations and Certifications (Reps/Certs) is to provide all Offerors with a portal in which to submit Reps/Certs in a publicly accessible format, nullifying the requirement to submit identical information in response to each and every Federal contract solicitation.

Interested firms are required to be registered and active in SAM (www.sam.gov) before submitting a proposal and shall continue to be registered until time of award, during performance, and through final payment of any contract. Firms are reminded to update SAM data as necessary, ensuring their Reqs/Certs reflect the proper North American Industry Classification System (NAICS) code and Product and Service Code (PSC) supporting this effort:

NAICS: 541715, Research and Development in the Physical, Engineering, and Life Sciences (except Nanotechnology and Biotechnology)

PSC: AC12, National Defense R&D Services; Department of Defense - Military; Applied Research

A firm may NOT submit an offer on behalf of another entity. The proposed firm's Entity Information shall match the Entity Information (Commercial and Government Entity (CAGE) Code / DoD Activity Address Code (DoDAAC) / Unique Entity Identifier (UEI)) contained in the proposal to be eligible for award.

Proposing firms with no SAM registration, inactive SAM registration(s), or SAM registration(s) with improper representations and certifications will be disqualified and shall not be considered for award.

ELIGIBILITY

The Army's SBIR Program is subject to small business size, affiliation rules, and ownership or investment disclosure and registration requirements referenced in 13 C.F.R. §§ 121.701-705, Size and Eligibility Requirements for the Small Business Innovation Research (SBIR) and Small Business Technology Transfer (STTR) Programs, and the Small Business Administration's SBIR/STTR Program Policy Directive (MAY 2023). These eligibility requirements are unique and do not correspond to those of other small business programs.

Proposing firms may refer to Section 4.2, Proposing Small Business Concern Eligibility and Performance Requirements, of BAA 24.4, to include any amendments, for full eligibility requirements.

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

Proposing small business concerns that are owned in majority part by multiple venture capital operating companies (VCOCs), hedge funds, or private equity funds are eligible to submit applications or receive awards for this topic.

- Proposing small business concerns shall identify each foreign national, foreign entity, or foreign government holding or controlling greater than a 5% equity stake in the proposing small business concern, whether such equity stake is directly or indirectly held.
- The proposing small business concern shall also identify any and all of its ultimate parent owner(s) and any other entities and/or individuals owning more than a 5% equity stake in its chain of ownership.

VCOCs, hedge funds and private equity firms are allowed to hold minority shares of SBIR/STTR awardee so long as they do not have control of the awardee company and so long as their affiliation with the awardee, if any, does not put the awardee firm over the size limit.

If the VCOC is itself more than 50% directly owned and controlled by one or more individuals who are citizens or permanent resident aliens of the United States, the VCOC is allowed to have majority ownership and control of the awardee. In that case, the VCOC and the awardee, and all other affiliates, shall have a total of 500 employees or less.

Anticipated Structure/Award Information

For this topic, Department of the Army will accept Phase I proposals for the cost of up to \$250,000 for up to a 6-month period of performance and Direct to Phase II proposals for the cost of up to \$2,000,000 for a 24-month period of performance.

Proposals that do not comply with the requirements detailed in the DoD Program BAA, these Component Instructions, and the research objectives of the topic are considered non-conforming and therefore shall not be evaluated nor considered for award.

PHASE I PROPOSAL INSTRUCTIONS

The DSIP is the official portal for DoD SBIR/STTR proposal submission. Proposers (also referred to herein as “offeror(s)”) are required to submit proposals via DSIP; proposals submitted by any other means will be disregarded. Detailed instructions regarding registration and proposal submission via DSIP are provided in the DoD SBIR Program BAA.

Phase I proposal submissions under these Component Instructions shall include the following:

- Volume 1: Proposal Coversheet
- Volume 2: Technical Volume (breakdown below)
 - Technical Proposal (5 pages maximum)
 - Commercialization Plan (8 slides maximum saved as PDF – Offerors shall utilize the template found at Appendix D – Commercialization Plan Template)
- Volume 3: Cost Volume
- Volume 4: Company Commercialization Report (Auto generated for prior Federal SBIR or STTR awardees)
- Volume 5: Supporting Documents (Please see requirements outlined in the DoD Program BAA for more information)
 - Contractor Certification Regarding Provision of Prohibition on Contracting for Certain Telecommunications and Video Surveillance Services or Equipment
 - Disclosures of Foreign Affiliations or Relationships to Foreign Countries
 - Disclosure of Funding Sources
- Volume 6: Fraud, Waste, and Abuse Training Certificate

Volume 1 - Proposal Coversheet

The proposal coversheet shall follow the instructions and requirements provided in the DoD SBIR 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.

Volume 2 - Technical Volume

These following instructions supersede those stated in section 5.3.c of the DoD Program BAA.

The technical volume shall not exceed five (5) pages and shall follow the formatting requirements provided in the DoD SBIR Program BAA. Proposing small business concerns shall also submit an eight (8) slide Commercialization Plan, utilizing the template found at Appendix D – Commercialization Plan Template attached hereto. The Commercialization Plan shall be converted to a pdf and attached to the end of the five (5) page technical volume, resulting in one pdf file to be uploaded to DSIP as Volume 2. The Commercialization Plan does not count towards the technical volume 5-page limit. Any proposals submitted without a Commercialization Plan, or in a format other than the template provided at Appendix D – Commercialization Plan Template, shall be deemed unresponsive, and will not be evaluated nor considered for award.

Volume 2a - Part One Technical Proposal

The technical proposal shall contain two (2) key sections – technical approach and team qualifications. The technical approach section shall contain details on how the proposer is going to solve the problem. It shall detail key elements of the firm’s approach, any risks, relevant past work and how success was measured along with how success will be measured for this effort. The team qualifications section shall highlight the key personnel working on the project, and the resources that will be brought to bear on solving the problem. Further, if proposing the use of Foreign National personnel as defined at section 3 of the DoD Program BAA, offerors shall specify each Foreign National’s country of origin, the type of visa or work permit under which they are performing, and provide an explanation of their anticipated level of involvement on this project - Offerors may be asked to provide additional information during negotiations in order to verify the foreign citizen’s eligibility to participate in the SBIR. 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).

Volume 2b - Part Two Commercialization Plan

Offerors shall refer to and utilize the eight (8) slide template found at Appendix D – Commercialization Plan Template, attached hereto, when preparing the commercialization plan.

The commercialization plan content requirements, as described at Appendix D, include:

1. SBIR Project Title: Opening slide that includes the SBIR project title, principal investigator name/title key (or other relevant) personnel, and subcontractors, firm name, topic number, and proposal number.
2. Bottom Line Up Front (BLUF): Slide that outlines/summarizes key areas of the Commercialization Plan. See slide 2 of Appendix D.
3. Company Information & Background: Focused objectives/core competencies; Specialization area(s); Products with significant sales; Concise history of previous Federal and non-Federal funding, Regulatory experience (if applicable), Past commercialization successes; and Past failure and how your firm overcame
4. Customer and Competition: Clear description of key technology objectives; Current competition and/or alternative solutions; Advantages of company’s solution compared to competing products or services; Description of hurdles to acceptance of the proposed innovation; and Description of possible areas where your technology may be utilized or is underutilized.
5. Market: Provide an analysis of market size, and estimated market share after first year sales and after 5 years; Explain milestones target dates of plan to obtain market share; Respond to specific questions regarding your qualifications and approach to bring the product to market (See slide 5 of Appendix D)
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 temporal competitive advantage; Describe how you will protect the intellectual property that enables commercialization of its products while keeping competitors at bay.
7. Financing: Plans for securing necessary non-SBIR funding; Describe your firm’s revenue stream generation.
8. Assistance and mentoring: Plans for securing needed technical or business assistance through mentoring, partnering, or through arrangements with government sponsored (e.g., State assistance programs, Federally-funded research laboratories, Manufacturing Extension Partnership centers), not-for-profits (e.g., SBDC), commercial accelerators, DOD Prime Contractors, or other assistance provider.

Volume 3 - Cost Volume

The Cost Volume shall follow all instructions and requirements provided in the DoD SBIR Program BAA. The following instructions supersede those stated in section 5.3. d of the DoD Program BAA.

Unless otherwise noted in the topic, the Phase I award amount shall not exceed \$250,000 for a 6- month period of performance. Phase I 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 on the Proposal Cover Sheet (Volume 1) and in Volume 3.

For pricing purposes, offerors shall assume a contract or agreement start date of approximately 180 calendar days after the closing date of the solicitation (in accordance with SBIR/STTR Policy Directive paragraph 7(c)(1)(ii)). Awards are executed as FAR-based firm-fixed-price contracts. Fixed price payments shall be tied to measurable milestones, as agreed to by the Government.

In the event that adequate price competition, as defined in FAR 15.403-1(1), is not realized, the Government will conduct additional proposal analysis, in accordance with the techniques identified at FAR 15.404-1. In accordance with FAR 15.402(a), Contracting officers shall purchase supplies and services from responsible sources at fair and reasonable prices. If the Contracting Officer is unable to deem the offeror as responsible (FAR 9.1), the offeror will be disqualified. Proposals lacking a fair and reasonable price will be eliminated.

Volume 3 - Content of the Cost Volume

ALL proposed costs shall be accompanied by documentation to substantiate how the cost was derived. For example, if you proposed travel costs to attend a project-related meeting or conference, and used a travel website to compare flight costs, include a screenshot of the comparison. Similarly, if you proposed to purchase materials or equipment, and used the internet to search for the best source, include your market research for those items. You do not necessarily have to propose the cheapest item or supplier, but you should explain your decision to choose one item or supplier over another. It's important to provide enough information to allow evaluators and contracting personnel to understand how the proposer plans to use the requested funds. Failure to include the documentation with your 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.

Note: Some items in the cost breakdown may not apply to the proposed project. If that is the case, there is no need to provide information on each and every item.

Cost Breakdown Guidance:

- **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.

- The Offeror shall provide the basis for establishing the reasonableness of price through price analysis. Proposing firms shall provide substantiating documentation for the costs (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.
- **SUBCONTRACTS:** A subcontract is any contract as defined at FAR 2.101, other than one involving an employer-employee relationship, entered into by the prime contractor (awardee) calling for supplies or services for the performance of the contract.
 - Provide data showing the degree of Subcontractor competition and the basis for establishing the source and reasonableness of price through price analysis.
 - All subcontractor costs and consultant costs, such as labor, travel, equipment, materials, shall be detailed at the same level as prime contractor costs. Provide detailed substantiation of subcontractor costs in your cost proposal.
 - Percentage of Work Requirement: For Phase I, the offeror shall perform a minimum of two-thirds (66.66%) of the research and/or analytical effort. One third (33.33%) may be subcontracted to another firm or research organization/facility. The percentage of work is measured by both direct and indirect costs.
 - Offerors shall not propose to subcontract to the issuing agency, to any other Federal Government agency, or to other units of the Federal Government, except Federal Laboratories in rare circumstances. 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 may be rejected.

- Offerors shall ensure subcontracting arrangements are with United States Small Businesses to the maximum extent practicable. Offerors proposing a subcontractor arrangement with other than a United States Small Business (such as, a large business, foreign firm, foreign government, educational institution, unit of Federal Government, etc.) may be required to submit further explanation, and/or have the submitted proposal disqualified.
- TRAVEL:
 - 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.). NOTE: Virtual meetings shall be utilized to the maximum extent practicable.
 - 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, 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.

If selected for award, failure to include the documentation with your 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.

Volume 4 - Company Commercialization Report (CCR)

Completion of the CCR as Volume 4 of the proposal submission in DSIP is required for prior SBIR/STTR awardees. Please refer to the DoD SBIR Program BAA for full details on this requirement. Information contained in the CCR will be considered by the Department of the Army during proposal evaluations.

Volume 5 - Supporting Documents

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).

All proposing small business concerns are REQUIRED to submit the following documents to Volume 5:

1. Contractor Certification Regarding Provision of Prohibition on Contracting for Certain

- Telecommunications and Video Surveillance Services or Equipment
- 2. Disclosures of Foreign Affiliations or Relationships to Foreign Countries
- 3. Disclosure of Funding Sources
- 4. SBIR Funding Agreement Certification

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

- Additional Cost Information
- Technical Data Rights (Assertions)
- Allocation of Rights
- Other (only as specified in the topic)

Please only submit documents that are identified immediately above and in the DoD Program BAA. All other documents submitted will be disregarded.

Volume 6 Fraud, Waste and Abuse Training

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

DIRECT TO PHASE II (DP2) PROPOSAL INSTRUCTIONS

The DSIP is the official portal for DoD SBIR/STTR proposal submission. Proposers (also referred to herein as “offeror(s)”) are required to submit proposals via DSIP; proposals submitted by any other means will be disregarded. Detailed instructions regarding registration and proposal submission via DSIP are provided in the DoD SBIR Program BAA.

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 should include all relevant information including, but not limited to: technical reports, test data, prototype designs/models, and performance goals/results. Work submitted within the feasibility documentation must have been substantially performed by the proposer and/or the Principal Investigator.

The Army will not evaluate the proposer’s related Phase II proposal if it determines that the proposer has failed to demonstrate that technical merit and feasibility 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.

Feasibility documentation cannot be based upon any prior or ongoing federally funded SBIR or STTR work and DP2 proposals MUST NOT logically extend from any prior or ongoing federally funded SBIR or STTR work.

For topics eligible for DP2 proposal submission under these Component Instructions, proposals shall include the following:

- Volume 1: Proposal Coversheet
- Volume 2: Technical Volume (breakdown below)
 - Feasibility Documentation – Part One A (5 Pages maximum)
 - Technical Proposal – Part One B (10 pages maximum)
 - Commercialization Plan – Part Two (8 slides maximum saved as PDF – Offerors shall utilize the template found at Appendix D – Commercialization Plan Template)
- Volume 3: Cost Volume

- Volume 4: Company Commercialization Report (Auto generated for prior Federal SBIR or STTR awardees)
- Volume 5: Supporting Documents (Please see requirements outlined in the DoD Program BAA for more information)
 - Contractor Certification Regarding Provision of Prohibition on Contracting for Certain Telecommunications and Video Surveillance Services or Equipment
 - Disclosures of Foreign Affiliations or Relationships to Foreign Countries
 - Disclosure of Funding Sources
- Volume 6: Fraud, Waste, and Abuse Training Certificate

Volume 1 - Proposal Coversheet

The proposal coversheet shall follow the instructions and requirements provided in the DoD SBIR 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.

Volume 2 - Technical Volume

These following instructions supersede those stated in section 5.3.c of the DoD Program BAA.

The Technical Volume shall include three (3) parts:

- Feasibility Documentation (Part One A);
- Technical Proposal (Part One B); and
- Commercialization Plan (Part Two).

The technical volume shall not exceed 15 pages, inclusive of the Feasibility Determination (Part One A), which is subject to a maximum of five (5) pages, and the Technical Proposal (Part One B), which is subject to a maximum of 10 pages. Proposing small business concerns shall also submit an eight (8) slide Commercialization Plan, utilizing the template found at Appendix D – Commercialization Plan Template attached hereto. The Commercialization Plan shall be converted to a pdf and attached to the end of the five (5) page technical volume, resulting in one pdf file to be uploaded to DSIP as Volume 2. The Commercialization Plan does not count towards the technical volume 5-page limit. Any proposals submitted without a Commercialization Plan, or in a format other than the template provided at Appendix D – Commercialization Plan Template, shall be deemed unresponsive, and will not be evaluated nor considered for award.

Offerors shall number all pages of their proposal consecutively. Font size should not be smaller than 10-point on standard 8-1/2" x 11" paper with one-inch margins. The header on each page of the Technical Volume should contain your company name, topic number, and proposal number assigned by DSIP when the Cover Sheet was created. The header may be included in the one-inch margin. Except as stated herein, the Technical Volume shall follow the formatting requirements provided in the DoD SBIR Program BAA. Any proposals submitted in a different format, or exceeding the page count limits shall not be reviewed.

Volume 2 - PART ONE: Feasibility and Technical Proposal

Offerors are free to structure each section of Volume 2, PART ONE as they like, so long as it provides sufficient detail for evaluators to understand the proposed work, who will carry it out, and how the business plans to commercialize results. Volume 2, PART ONE shall include the following:

Volume 2 - PART ONE A: Feasibility Documentation (5 pages):

- The offeror shall provide documentation in its proposal to substantiate that the scientific and technical merit and feasibility described in the Phase I section of the topic component-specific

instructions 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 from the Phase I effort.

- 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.
- If technology in the feasibility documentation is subject to Intellectual Property (IP), the offeror 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. Documentation of IP ownership or license rights shall be included in the Technical Volume of the proposal.

Volume 2, PART ONE B: Technical Proposal (10 pages). At a minimum, the technical proposal shall address all of the following:

- What are you trying to do? Describe your firm's technical approach/solution. Articulate your firm's objectives without jargon.
- What is new in your firm's approach and why will your firm be successful?
- If your firm is successful, what difference will this technology make?
- What are the technical risks?
- What is the Period of Performance? In other words, how long will it take to complete the contract, including a milestone schedule to justify the requested period of performance.

Volume 2b - PART TWO - Commercialization Plan

Offerors shall refer to and utilize the eight (8) slide template found at Appendix D – Commercialization Plan Template, attached hereto, when preparing the commercialization plan.

The commercialization plan content requirements, as described at Appendix D, include:

1. **SBIR Project Title**: Opening slide that includes the SBIR project title, principal investigator name/title key (or other relevant) personnel, and subcontractors, firm name, topic number, and proposal number.
2. **Bottom Line Up Front (BLUF)**: Slide that outlines/summarizes key areas of the Commercialization Plan. See slide 2 of Appendix D.
3. **Company Information & Background**: Focused objectives/core competencies; Specialization area(s); Products with significant sales; Concise history of previous Federal and non-Federal funding, Regulatory experience (if applicable), Past commercialization successes; and Past failure and how your firm overcame
4. **Customer and Competition**: Clear description of key technology objectives; Current competition and/or alternative solutions; Advantages of company's solution compared to competing products or services; Description of hurdles to acceptance of the proposed innovation; and Description of possible areas where your technology may be utilized or is underutilized.
5. **Market**: Provide an analysis of market size, and estimated market share after first year sales and after 5 years; Explain milestones target dates of plan to obtain market share; Respond to specific questions regarding your qualifications and approach to bring the product to market (See slide 5 of Appendix D)
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 temporal competitive advantage; Describe how you will protect the intellectual property that enables commercialization of its products while keeping competitors at bay.
7. **Financing**: Plans for securing necessary non-SBIR funding; Describe your firm's revenue stream generation.

8. Assistance and mentoring: Plans for securing needed technical or business assistance through mentoring, partnering, or through arrangements with government sponsored (e.g., State assistance programs, Federally-funded research laboratories, Manufacturing Extension Partnership centers), not-for-profits (e.g., SBDC), commercial accelerators, DOD Prime Contractors, or other assistance provider.

Volume 3 - Cost Volume

The Cost Volume shall follow all instructions and requirements provided in the DoD SBIR Program BAA. The following instructions supersede those stated in section 5.3. d of the DoD Program BAA.

Unless otherwise noted in the topic, the Army will accept DP2 proposals for a cost up to \$2,000,000 for a 24-month period of performance. Proposers are required to use the Cost Proposal method as provided on the DSIP submission site. The Cost Volume (and supporting documentation) DOES NOT count toward the page limit of the Technical Volume.

For pricing purposes, offerors shall assume a contract or agreement start date of approximately 180 calendar days after the closing date of the solicitation (in accordance with SBIR/STTR Policy Directive paragraph 7(c)(1)(ii)). Awards are executed as FAR-based firm-fixed-price contracts. Fixed price payments shall be tied to measurable milestones, as agreed to by the Government.

In the event that adequate price competition, as defined in FAR 15.403-1(1), is not realized, the Government will conduct additional proposal analysis, in accordance with the techniques identified at FAR 15.404-1. In accordance with FAR 15.402(a), Contracting officers shall purchase supplies and services from responsible sources at fair and reasonable prices. If the Contracting Officer is unable to deem the offeror as responsible (FAR 9.1), the offeror will be disqualified. Proposals lacking a fair and reasonable price will be eliminated.

Volume 3 - Content of the Cost Volume

ALL proposed costs shall be accompanied by documentation to substantiate how the cost was derived. For example, if you proposed travel costs to attend a project-related meeting or conference, and used a travel website to compare flight costs, include a screenshot of the comparison. Similarly, if you proposed to purchase materials or equipment, and used the internet to search for the best source, include your market research for those items. You do not necessarily have to propose the cheapest item or supplier, but you should explain your decision to choose one item or supplier over another. It's important to provide enough information to allow evaluators and contracting personnel to understand how the proposer plans to use the requested funds. Some items in the cost breakdown may not apply to the proposed project. If that is the case, there is no need to provide information on each and every item.

Cost Breakdown Guidance:

- **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.

- The Offeror shall provide the basis for establishing the reasonableness of price through price analysis. Proposing firms shall provide substantiating documentation for the costs (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.
- **SUBCONTRACTS:** A subcontract is any contract as defined at FAR 2.101, other than one involving an employer-employee relationship, entered into by the prime contractor (awardee) calling for supplies or services for the performance of the contract.
 - Provide data showing the degree of Subcontractor competition and the basis for establishing the source and reasonableness of price through price analysis.
 - All subcontractor costs and consultant costs, such as labor, travel, equipment, materials, shall be detailed at the same level as prime contractor costs. Provide detailed substantiation of subcontractor costs in your cost proposal.
 - Percentage of Work Requirement: For DP2, the offeror shall perform a minimum of one-half (50%) of the research and/or analytical effort. The percentage of work is measured by both direct and indirect costs.
 - Offerors shall not propose to subcontract to the issuing agency, to any other Federal Government agency, or to other units of the Federal Government, except Federal Laboratories in rare circumstances. 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 may be rejected.

- Offerors shall ensure subcontracting arrangements are with United States Small Businesses to the maximum extent practicable. Offerors proposing a subcontractor arrangement with other than a United States Small Business (such as, a large business, foreign firm, foreign government, educational institution, unit of Federal Government, etc.) may be required to submit further explanation, and/or have the submitted proposal disqualified.
- TRAVEL:
 - 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.). NOTE: Virtual meetings shall be utilized to the maximum extent practicable.
 - 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, 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.

If selected for award, failure to include the documentation with your 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.

Volume 4 - Company Commercialization Report (CCR)

Completion of the CCR as Volume 4 of the proposal submission in DSIP is required for prior SBIR/STTR awardees. Please refer to the DoD SBIR Program BAA for full details on this requirement. Information contained in the CCR will be considered by the Department of the Army during proposal evaluations.

Volume 5 - Supporting Documents

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).

All proposing small business concerns are REQUIRED to submit the following documents to Volume 5:

1. Contractor Certification Regarding Provision of Prohibition on Contracting for Certain

- Telecommunications and Video Surveillance Services or Equipment
2. Disclosures of Foreign Affiliations or Relationships to Foreign Countries
 3. Disclosure of Funding Sources
 4. SBIR Funding Agreement Certification

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

- Additional Cost Information
- Technical Data Rights (Assertions)
- Allocation of Rights
- Other (only as specified in the topic)

Please only submit documents that are identified immediately above and in the DoD Program BAA. All other documents submitted will be disregarded.

Volume 6 Fraud, Waste and Abuse Training

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

DISCRETIONARY TECHNICAL AND BUSINESS ASSISTANCE

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 small business concern 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 base SBIR award amount).
- Firm-Selected Vendor: If approved, the contractor may receive up to \$6,500 in contract obligation (in addition to the base SBIR award amount) 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 base SBIR award amount).
 - Firm-Selected Vendor: If approved, the contractor may receive up to \$50,000 in contract obligation (included in the base SBIR award amount) per project.

EVALUATION AND SELECTION

The Army shall conduct an evaluation of each responsive, timely, eligible proposal in accordance with the evaluation criteria listed in the DoD Program BAA, as supplemented herein. 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. Designated support contractors may review submissions for the purposes of technical evaluation. All support contractors are bound by appropriate non-disclosure agreements.

As previously stated herein, timeliness, responsiveness, and eligibility will be assessed upon initial screening, during evaluation, and after selection. Proposals that do not comply with the instructions and requirements detailed in this document, the DoD Program BAA, or the corresponding Topic posting (including the research objective(s)), will be considered ineligible, nonresponsive, untimely, or non-conforming and therefore will not be evaluated or considered for award.

Using the evaluation criteria, the Government will evaluate each responsive, timely, eligible proposal in its entirety. Proposals will not be evaluated against each other during the evaluation process, but rather evaluated on their own individual merit to determine how well the proposal meets the criteria stated in this BAA and the corresponding opportunity.

Consistent with the instructions and evaluation criteria specified in the DoD Program BAA (see Section 6.0 – Phase I Evaluation Criteria), as supplemented by the component-specific instructions herein (e.g. Appendix A, B & C, as applicable), and the corresponding Topic posting, selected proposals are those that, through a peer or scientific review, have been determined to be a best value to the Government as they have demonstrated the strongest understanding of the problem to be solved and offered the most capable solutions with the greatest overall benefit and potential to meet the Government's requirement and determined to be the most advantageous to the Government.

Proposing firms will be notified via email of selection or non-selection status for a Phase I or direct to Phase II 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. The Army promotes transparency regarding the technical evaluation for all Army SBIR proposals. The Army will provide a technical evaluation narrative to the proposer in accordance with the SBA Policy Directive, Appendix I, paragraph 4. The selection decision notice contains instructions for retrieving the technical evaluation narrative.

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 contract negotiation and further consideration. The Government Contracting Officer shall evaluate selected proposal(s) for price reasonableness utilizing the various proposal analysis techniques described at FAR 13.106-3, or 15.404-1, to ensure a fair and reasonable price is paid. 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. In the event that an Offeror has not provided fair and reasonable pricing, the Offeror shall be eliminated from further consideration for award.

Upon an affirmative determination of price reasonableness 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 reject the proposal or dissolve 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.

FEEDBACK

The Army promotes transparency regarding the technical evaluation for all Army SBIR proposals. The Army will provide feedback to applicants that are not selected for further consideration in accordance with the SBIR Policy Directive, Appendix I, Subsection 4, Paragraph (d). 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. Acquisitions conducted under 15 U.S.C. § 638 are awarded via “other competitive procedures” in accordance with the SBIR Policy Directive and FAR 6.102(d)(2). These “other competitive procedures” are distinct from “competitive proposals” as identified at FAR 6.401(b). Therefore, offerors are neither entitled to, nor will they be provided FAR Part 15 debriefs.

PROTESTS

Refer to the DoD SBIR Program BAA for procedures to protest the Announcement. As further prescribed in FAR 33.106(b), FAR 52.233-3, Protests after Award shall be submitted to:

Email: usarmy.pentagon.hqda-asa-alt.mbx.army-applied-sbir-program@mail.mil

Mailing Address:

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

For protests filed with the Government Accountability Office (GAO), a copy of the protest shall be submitted to the Component POC (identified above) within one day of filing with the GAO. Protests of small business status of a selected proposing small business concern may also be made to the Small Business Administration.

Appendix A Phase I Evaluation Criteria

Applied SBIR Phase I Proposal Review v2-0-3 Evaluation Criteria Defined		DEFINITION
INTRODUCTION	weight 3%	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.
POTENTIAL FOR ARMY IMPACT	weight 25%	<p>OPERATIONAL IMPACT At the scale of a single Army end-user, argue that their jobs or lives will be significantly improved if your solution is adopted. What is the impact of your solution for a soldier/Army civilian vs. today's solutions?</p> <p>POTENTIAL SCALE OF IMPACT Here, we're looking for an idea of how broad the impact you described above could be. Look into the future to a time when your solution is both technically mature and actively in use by Army personnel. Describe the scale and scope of your impact within the context of the Army.</p>
TECHNICAL FEASIBILITY	weight 25%	<p>SCIENTIFIC FEASIBILITY Is the science behind the solution sound? Convince readers who don't have deep expertise in your field that your innovation is built atop sound scientific and engineering principles.</p> <p>ENABLING TECHNOLOGIES Point to the foundational technologies that you rely on to deliver your solution. Do the required enabling technologies introduce added risk? Using proven (and ideally Army fielded) underlying technologies and techniques helps to lower technical risk.</p> <p>ALTERNATIVE TECHNICAL APPROACHES From a technologist's perspective, why is your proposed solution the best choice for the Army? Refute the alternative engineering approaches others are using. Why does your technology win?</p> <p>TECHNICAL RISK MITIGATION No matter your current technology readiness level, technical risks remain. Identify those risks. Present a credible plan to tackle those risks.</p>
TRANSITION	weight 20%	<p>ARMY TRANSITION PATHWAY Planning for success, what's next for you after this SBIR award? Describe the next type of deal you aim to make with the Army, e.g. a CRADA, a different SBIR contract, a CSO, etc. Briefly outline your current plan to unlock that next opportunity and/or share the biggest risks you see post this SBIR award.</p> <p>SBIR MILESTONE SCHEDULE Please share with us a thoughtful execution plan. Strike a balance between giving us a sense of the detailed thinking behind the scenes and the need for your contracting officer to manage a reasonably small number of milestones during your period of performance.</p>
FIRM CASH FLOW	weight 10%	<p>FIRM SURVIVAL RISK SBIR funds are meant to fuel growth rather than stave off a firm's impending financial failure. Demonstrate that your company will survive financially as a going concern through the early stages of a Phase III contract, sometimes referred to as "transitioning" into use by Army personnel.</p> <p>OTHER PEOPLE'S MONEY Make the case that non-Army and/or non-DoD dollars will continue to fund improvements to your solution from which the Army will benefit in the future. Companies who cannot demonstrate non-Army and/or non-DoD funding sources for future solution enhancements are less attractive to the Applied SBIR program.</p> <p>FINANCIAL PROFIT POTENTIAL Through the Applied SBIR program, the Army wants to take advantage of the speed and scalability of dual-use companies. Make your best case that your product is or will be profitable. If you have more than one product, please focus your argument on the product / solution presented for this SBIR program.</p>
TEAM ABILITY	weight 10%	Prove your team has executed well as a group. Please draw clear distinctions between private sector, DoD and civilian government work. What milestones have you accomplished as a group in this company?
SUBMISSION QUALITY	weight 5%	<p>QUALITY OF PROSE Prove you write clearly. Prove you argue convincingly.</p> <p>DATA QUALITY & ATTRIBUTION Support your arguments with relevant, properly attributed data to enhance your credibility.</p>



Appendix B Direct to Phase II Evaluation Criteria

Applied SBIR D2P2 Proposal Review v2-0-4 Evaluation Criteria Defined



		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.
POTENTIAL FOR ARMY IMPACT	OPERATIONAL IMPACT	At the scale of a single Army end-user, argue that their jobs or lives will be significantly improved if your solution is adopted. What is the impact of your solution for a soldier/Army civilian vs. today's solutions?
	POTENTIAL SCALE OF IMPACT	Here, we're looking for an idea of how broad the impact you described above could be. Look into the future to a time when your solution is both technically mature and actively in use by Army personnel. Describe the scale and scope of your impact within the context of the Army.
TECHNICAL FEASIBILITY	SCIENTIFIC FEASIBILITY	Is the science behind the solution sound? Convince readers who don't have deep expertise in your field that your innovation is built atop sound scientific and engineering principles.
	ENABLING TECHNOLOGIES	Point to the foundational technologies that you rely on to deliver your solution. Do the required enabling technologies introduce added risk? Using proven (and ideally Army-felded) underlying technologies and techniques helps to lower technical risk.
	ALTERNATIVE TECHNICAL APPROACHES	From a technologist's perspective, why is your proposed solution the best choice for the Army? Refute the alternative engineering approaches others are using. Why does your technology win?
	TECHNICAL RISK MITIGATION	No matter your current technology readiness level, technical risks remain. Identify those risks. Present a credible plan to tackle those risks.
TRANSITION	ARMY TRANSITION PATHWAY	Planning for success, what's next for you after this SBIR award? Describe the next type of deal you aim to make with the Army, e.g. a CRADA, a different SBIR contract, a CSO, etc. Briefly outline your current plan to unlock that next opportunity and/or share the biggest risks you see post this SBIR award.
	SBIR MILESTONE SCHEDULE	Please share with us a thoughtful execution plan. Strike a balance between giving us a sense of the detailed thinking behind the scenes and the need for your contracting officer to manage a reasonably small number of milestones during your period of performance.
FIRM CASH FLOW	FIRM SURVIVAL RISK	SBIR funds are meant to fuel growth rather than stave off a firm's impending financial failure. Demonstrate that your company will survive financially as a going concern through the early stages of a Phase III contract, sometimes referred to as "transitioning" into use by Army personnel.
	OTHER PEOPLE'S MONEY	Make the case that non-Army and/or non-DoD dollars will continue to fund improvements to your solution from which the Army will benefit in the future. Companies who cannot demonstrate non-Army and/or non-DoD funding sources for future solution enhancements are less attractive to the Applied SBIR program.
	FINANCIAL PROFIT POTENTIAL	Through the Applied SBIR program, the Army wants to take advantage of the speed and scalability of dual-use companies. Make your best case that your product is or will be profitable. If you have more than one product, please focus your argument on the product / solution presented for this SBIR program.
TEAM ABILITY	weight 10%	Prove your team has executed well as a group. Please draw clear distinctions between private sector, DoD and civilian government work. What milestones have you accomplished as a group in this company?
SUBMISSION QUALITY	QUALITY OF PROSE	Prove you write clearly. Prove you argue convincingly.
	DATA QUALITY & ATTRIBUTION	Support your arguments with relevant, properly attributed data to enhance your credibility.

Appendix C Phase II Evaluation Criteria

Applied SBIR Phase II Proposal Review v2-0-3 Evaluation Criteria Defined



		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.
POTENTIAL FOR ARMY IMPACT	OPERATIONAL IMPACT	At the scale of a single Army end-user, argue that their jobs or lives will be significantly improved if your solution is adopted. What is the impact of your solution for a soldier/Army civilian vs. today's solutions?
	POTENTIAL SCALE OF IMPACT	Here, we're looking for an idea of how broad the impact you described above could be. Look into the future to a time when your solution is both technically mature and actively in use by Army personnel. Describe the scale and scope of your impact within the context of the Army.
TECHNICAL FEASIBILITY	SCIENTIFIC FEASIBILITY	Is the science behind the solution sound? Convince readers who don't have deep expertise in your field that your innovation is built atop sound scientific and engineering principles.
	ENABLING TECHNOLOGIES	Point to the foundational technologies that you rely on to deliver your solution. Do the required enabling technologies introduce added risk? Using proven (and ideally Army-fielded) underlying technologies and techniques helps to lower technical risk.
	ALTERNATIVE TECHNICAL APPROACHES	From a technologist's perspective, why is your proposed solution the best choice for the Army? Refute the alternative engineering approaches others are using. Why does your technology win?
	TECHNICAL RISK MITIGATION	No matter your current technology readiness level, technical risks remain. Identify those risks. Present a credible plan to tackle those risks.
TRANSITION	ARMY TRANSITION PATHWAY	Planning for success, what's next for you after this SBIR award? Describe the next type of deal you aim to make with the Army, e.g. a CRADA, a different SBIR contract, a CSO, etc. Briefly outline your current plan to unlock that next opportunity and/or share the biggest risks you see post this SBIR award.
	SBIR MILESTONE SCHEDULE	Please share with us a thoughtful execution plan. Strike a balance between giving us a sense of the detailed thinking behind the scenes and the need for your contracting officer to manage a reasonably small number of milestones during your period of performance.
FIRM CASH FLOW	FIRM SURVIVAL RISK	SBIR funds are meant to fuel growth rather than stave off a firm's impending financial failure. Demonstrate that your company will survive financially as a going concern through the early stages of a Phase III contract, sometimes referred to as "transitioning" into use by Army personnel.
	OTHER PEOPLE'S MONEY	Make the case that non-Army and/or non-DoD dollars will continue to fund improvements to your solution from which the Army will benefit in the future. Companies who cannot demonstrate non-Army and/or non-DoD funding sources for future solution enhancements are less attractive to the Applied SBIR program.
	FINANCIAL PROFIT POTENTIAL	Through the Applied SBIR program, the Army wants to take advantage of the speed and scalability of dual-use companies. Make your best case that your product is or will be profitable. If you have more than one product, please focus your argument on the product / solution presented for this SBIR program.
TEAM ABILITY	weight 5%	Prove your team has executed well as a group. Please draw clear distinctions between private sector, DoD and civilian government work. What milestones have you accomplished as a group in this company?
SUBMISSION QUALITY	QUALITY OF PROSE	Prove you write clearly. Prove you argue convincingly.
	DATA QUALITY & ATTRIBUTION	weight 2%

Commercialization Strategy Template

General Instructions/Guidance:

1. As stated above, small business firms shall prepare an eight (8) slide commercialization plan, utilizing the template and format below. The commercialization plan shall be converted to a pdf and attached to the end of the end of Volume 2 – Technical Volume (see page limitations in the instructions above), resulting in one pdf file to be uploaded to DSIP as Volume 2.
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.

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.

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.

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.

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.**

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

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.

Army SBIR 24.4 Topic Index
Release 9

- A244-015 Novel Positioning, Navigation, and Timing (PNT) Signal Classification Techniques
- A244-016 Autonomous Optical Sensors

A244-015

TITLE: Novel Positioning, Navigation, and Timing (PNT) Signal Classification Techniques

OUSD (R&E) CRITICAL TECHNOLOGY AREA(S): Trusted Artificial Intelligence (AI) and Autonomy; Integrated Sensing and Cyber

OBJECTIVE: The purpose of this topic is to develop the capability to classify signals in real-time that impact navigation systems. The intent is to better understand the type(s) of signal(s) experienced in relevant environments to appropriately apply mitigation techniques before harm can be done. Currently, navigation systems depend on Radio Frequency (RF) signals that can be influenced by a variety of interference sources. It is a challenge to understand the signal characteristics quickly enough to react to/mitigate negative impacts. Current antenna technologies treat all signals as the same and attempt to ignore them equally. With more sophisticated interference sources, this is not always successful. However, if the technique used to interfere with navigation is identified, more impactful mitigation methods can be implemented.

DESCRIPTION: This effort provides a risk reduction approach to improve on performance, provide for cost savings, and expand the application of the technology sensor solution set to include additional Army aviation assets. It seeks to demonstrate novel adaptive learning techniques to perform PNT signal classification of the battlefield environment. The proposed topic seeks to build upon AI/Machine Learning (ML) algorithm technologies that have been demonstrated as impactful for this solution. We have seen progress throughout the community demonstrating the ability to classify signals using AI/ML. This topic will build upon the progress and move towards real-time signal classification. ML approaches allow adaptability in the detection process that can be used to identify new unknown interference sources. These new signal types can be used to subsequently train an antenna system without requiring an upgrade. This will allow faster decisions, affording more protection to the navigation system.

PHASE I: This topic is accepting Direct to Phase II (DP2) proposals. 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.

PHASE II: It is expected that vendors should provide:

- Two antenna systems capable of detecting and classifying interference signals in real-time and protecting the navigation solution from harm.
- Data collection of relevant signals, training the AI/ML solution, and successfully demonstrating the ability to detect and identify the signal types in a relevant environment.

It is desired that the antenna design allows AI/ML training/techniques to be portable from one antenna system to another. This will support upgrading antenna systems to handle new signals as well as providing support to other antenna systems in the same environment. The demonstration antenna system consists of antenna elements, antenna electronics, and associated AI/ML algorithms (hardware (HW) and software (SW) solution). The Army intends to assess these antenna systems in a relevant environment.

PHASE III DUAL USE APPLICATIONS:

- Advanced PNT technologies have been used by the military and the private sector for decades. PNT firms can be divided into two categories: emerging and legacy. Legacy PNT firms focus on Global Positioning Systems (GPS)-enabled tech and inertial guidance systems. Emerging PNT organizations focus on major enhancements to existing systems or entirely new approaches.
- End-users for the PNT technology market span multiple sectors.

- The defense market can be divided into land, air, space, and naval with applications for autonomous vehicles, drones, and satellites.
- Government and civil applications include traffic management, rail control, disaster management, and other critical government infrastructures.
- Commercial applications include transport and logistics, aviation, marine, agriculture, mobile mapping, and surveying.

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KEYWORDS: Positioning, Navigation, and Timing (PNT); Artificial Intelligence (AI); Machine Learning (ML); AI/ML algorithms; Signal Classification; Antenna; Antenna System; Radio Frequency (RF) signals; Global Positioning System (GPS); Global Navigation Satellite System (GNSS); Interference sources; Navigation systems

OUSD (R&E) CRITICAL TECHNOLOGY AREA(S): Integrated Sensing and Cyber; Trusted AI and Autonomy; Integrated Network Systems-of-Systems

OBJECTIVE: This project aims to develop a portable optical sensor that can capture high-quality real-time imagery data during missile tests. The sensor will be positioned near a missile launcher during the launch or near the target to analyze the terminal phase of the flight. The missile tests will occur in remote locations where proper test infrastructure is unavailable. The Autonomous Optical Sensor (AOS) system will incorporate several high-speed imaging cameras with advanced artificial intelligence and machine learning capabilities. These features will enable the sensor to calibrate and manage itself and assist in positioning itself accurately. The system will be designed to operate autonomously for an extended period with either a battery or a renewable energy source. The sensor will wirelessly receive setup and calibration data from a centralized command and control center. The command center will provide guidance or queuing data for the AOS to initiate its track of a System Under Test (SUT). The AOS system's cutting-edge technology will make it possible to collect accurate and reliable data, even in the most challenging test conditions.

DESCRIPTION: The sensor is designed to operate with minimal or no intervention from an operator. Once deployed, it will capture imagery data of a System Under Test (SUT) using advanced geospatial and optical sensor auto-calibration technologies. The sensor will be equipped with organic computing, distributed network, and power systems to manage the positioning and the collection, processing, and transport of real-time imaging data. This eliminates the need for transporting raw data to a centralized location for processing and analysis. Furthermore, the setup and calibration task will be minimized since the sensor will self-align and calibrate itself before test operations. The results of the computing work done at the edge, such as real-time imagery, sensor calibration updates, or other actionable information, will be transmitted to the main data center for review and analysis after the test.

PHASE I: In Phase I of this project, the goal is to research and define an integrated AOS configuration that includes various types of optical sensors, such as visible and electro-optical/infrared, as well as data processing, networking, and power systems. Additionally, an analysis will be conducted to determine how the system will be managed by an AI framework that employs specialized algorithms and techniques. These algorithms will facilitate positioning, calibration, real-time management, and control of the overall design. Moreover, the awardee will define the control method to include the sensor's feasibility for learning different support configurations or adaptive learning. A process of training the algorithms to adapt to changing conditions or new datasets will have to be designed. By the end of Phase I, the awardee will have defined the optimal configuration of AOS and AI framework necessary to satisfy AOS requirements.

PHASE II: In Phase II of the project, the awardee will create a prototype of the AOS based on the analysis conducted during Phase I. However, integrating AI-enabled or cognitive projects into existing operations can be challenging. Adapting the AOS to current T&E infrastructures may require refining an integrated system design (AI software/hardware) to achieve optimal performance, accuracy, and reliability. It is expected that the AI will need to be iteratively refined and optimized based on the Phase I designs. Functional testing in an operational context is a crucial part of system development. This will facilitate the AI-optimization process for this type of system since it involves an ongoing learning approach to development. The prototype should be able to achieve self-localization and alignment, obtain queuing or positioning data from an external sensor of an SUT, and maintain track of an SUT. Both self-localization and alignment are critical for AI-enabled systems to understand and navigate within their

environment effectively. By accurately determining their position and aligning their measurements and actions with a common reference frame, these systems can interact with other devices, objects, or entities and perform tasks such as mapping, object recognition, navigation, or coordination.

PHASE III DUAL USE APPLICATIONS:

Primary commercial dual-use potential is tied to collecting real-time imagery supporting air traffic management (ATM) at airports or surveillance of defined sensitive areas.

1. Monitoring and managing air traffic flow: Help track flights in real-time using radar data or other surveillance systems primarily to identify incursions by small UAS.
2. Assisting in airspace coordination: I can provide information about airspace restrictions, temporary flight restrictions (TFRs), and other limitations in the defined sensitive areas. This can help ensure aircraft stay within designated airspace and avoid potential conflicts.
3. Alerting operators of potential safety or security concerns: Notify operators of any unusual behavior, deviations from flight plans, or potential security threats. This can help maintain the safety and security of the defined sensitive areas.

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KEYWORDS: Artificial Intelligence; Adaptive Learning; Autonomous Control; Self-Alignment and localization; Intelligent Instrumentation