

UNITED STATES SPECIAL OPERATIONS COMMAND
22.D Small Business Technology Transfer (STTR)
Phase I Proposal Submission Instructions

April 28, 2022: Topic issued for pre-release

May 17, 2022: USSOCOM begins accepting proposals via DSIP

June 8, 2022: DSIP Topic Q&A closes to new questions at 12:00 p.m. ET

June 16, 2022: Deadline for receipt of proposals no later than 12:00 p.m. ET

INTRODUCTION

The United States Special Operations Command (USSOCOM) seeks small businesses with strong research and development capabilities to pursue and commercialize technologies needed by Special Operations Forces through the Department of Defense (DoD) STTR 22.D Program Broad Agency Announcement (BAA).

Offerors responding to a topic in this BAA must follow all general instructions provided in the DoD STTR Program BAA. USSOCOM requirements in addition to or deviating from the DoD Program BAA are provided in the instructions below. A thorough reading of the “DoD STTR Program, STTR 22.D Program Broad Agency Announcement (BAA)”, located at <https://rt.cto.mil/rtl-small-business-resources/sbir-sttr/>, prior to reading these USSOCOM instructions is highly recommended. The Offeror is responsible for ensuring that their proposal complies with the requirements in the most current version of these instructions. Prior to submitting your proposal, please review the latest version of these instructions as they are subject to change before the submission deadline.

The USSOCOM SBIR/STTR Program Office will be hosting a virtual USSOCOM Industry Q&A Day on **May 12, 2022** to further specify requirements and to stimulate small business/research institute partnership-building. Please visit) <https://sofwerx.wufoo.com/forms/p1jwzlc16fopos/> for more information.

PHASE I PROPOSAL GUIDELINES

The Defense SBIR/STTR Innovation Portal (DSIP) is the official portal for DoD SBIR/STTR proposal submission. Offerors 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 STTR Program BAA.

Proposal Volumes are key in the qualification of the proposal. Offerors shall complete each of the following volumes: (1) Cover Sheet, (2) Technical Volume, (3) Cost Volume, (4) Company Commercialization Report, (5) PowerPoint Quad Chart, and (6) Fraud, Waste and Abuse Training.

Please Note:

1. It is the Offeror’s responsibility to make sure all DoD and SOCOM instructions are followed, and proper documentations is submitted. The DSIP (DoD’s SBIR/STTR proposal submission website) will NOT be able to ensure your submission is in accordance with both DoD and SOCOM instructions. The DSIP notice “100% submitted” means that the upload process is complete; it does NOT mean the proposal submission complies with the stated instructions and that all required documents are successfully uploaded.
2. SOCOM doesn’t assist Offerors with proposal preparation nor does SOCOM review of proposals for completeness. We recommend you use your local and state resources for assistance. (See DoD Instructions for resources information.)

3. SOCOM has encountered issues while downloading proposals due to lengthy file names. The Offeror shall not use more than 50 characters to include spaces in any of the proposal documents titles.

Cover Sheet (Volume 1)

Volume 1 is created as part of the DoD Proposal Submissions process. Follow all instructions provided in the DoD STTR Program BAA and DSIP.

Technical Volume (Volume 2)

The Technical Volume is not to exceed 5 pages and must follow the formatting requirements provided in the DoD STTR Program BAA titled "Format of Technical Volume (Volume 2)". USSOCOM will only evaluate the first five (5) pages of the Technical Volume. Additional pages will not be considered or evaluated.

Content of the Technical Volume:

Required items are specified in the DoD STTR Program BAA Phase I Technical Volume instructions section titled "Content of the Technical Volume 2".

The identification of foreign national involvement in a USSOCOM STTR topic is needed to determine if a firm is ineligible for award on a USSOCOM topic that falls within the parameters of the United States Munitions List, Part 121 of the International Traffic in Arms Regulation (ITAR). A firm employing a foreign national(s) (as defined in section titled "Foreign Nationals" of the DoD STTR Program BAA) to work on a USSOCOM ITAR topic must possess an export license to receive a STTR Phase I contract.

Cost Volume (Volume 3)

The Phase I Base amount must not exceed \$150,000.00. Costs must be identified on the Proposal Cover Sheet (Volume 1) and in Volume 3. Once the proposal is initiated in DSIP, the Offeror will have access to the required USSOCOM specific Cost Volume instructions and template.

A minimum of 40% of the research and/or analytical work in Phase I must be conducted by the proposing firm. A minimum of 30% of the research and/or analytical work must be conducted by a not-for-profit (typically an education institution or a laboratory). The percentage of work is measured by both direct and indirect costs as a percentage of the total contract cost.

Company Commercialization Report (CCR) (Volume 4)

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

Supporting Documents (Volume 5)

In addition to the documentation outlined in the DoD STTR Program BAA, the following documents must also be included with Volume 5: (1) Power Point Quad Chart, (2) Section K, and (3) Resumes.

- (1) PowerPoint Quad Chart: Potential Offerors shall submit a one slide Power Point quad chart. The Quad Chart is intended to describe a preliminary assessment of the STTR Phase I feasibility proposal. The quad chart shall follow the below requirements:
 - > Number of pages – 1
 - > Font – Times New Roman, 11 Point (or in size relevance to)
 - > Page orientation – landscape

- > Paper size – 8.5 x 11 inch
- > Upper left quad – Pictorial data or representation **and** Intended Capability Focus Areas (CFAs). See Topic description for more detail on the CFAs
- > Upper right quad – Description of effort and perceived benefits
- > Lower left quad – Summary cost data; labor, materials, and subcontracting
- > Lower right quad – Project schedule and milestones

(2) Section K: If Section K is not submitted with the proposal, the proposal will still be considered responsive, but the completed Section K shall be required at the time of award.

(3) Resumes: Include resumes.

Fraud, Waste and Abuse Training (Volume 6)

Fraud, Waste and Abuse (FWA) training is required for Phase I proposals. Please refer to the DoD STTR Program BAA instructions for full details.

DISCRETIONARY TECHNICAL AND BUSINESS ASSISTANCE (TABA)

USSOCOM does not provide Discretionary Technical and Business Assistance for Phase I awards.

INQUIRIES

During the Pre-Release and Open Periods of the DoD STTR Program BAA, all questions must be submitted to the online Defense SBIR/STTR Innovation Portal (DSIP) Topic Q&A. All questions and answers submitted to DSIP Topic Q&A will be released to the general public. USSOCOM does NOT allow inquirers to communicate directly in any manner to the topic authors (differs from the DoD STTR Program BAA instructions). All inquiries through DSIP must include the topic number in the subject line of the e-mail.

Consistent with DoD STTR instructions, USSOCOM will not answer programmatic questions, such as who the technical point of contact is, the number of contracts to be awarded, the source of funding, transition strategy.

Site visits will not be permitted during the Pre-release and Open Periods of the DoD STTR Program BAA.

EVALUATION AND SELECTION

All Offerors will be evaluated in accordance with the evaluation criteria listed in the DoD STTR Program BAA, with the following exceptions:

1. Proposals missing any of the six stated volumes or those that do not comply with the requirement that 40% of the work is to be executed by the proposing firm and 30% of the work is to be executed by a Not-For-Profit rule (as stated in Volume 3) of the work conducted by the proposing firm will not be evaluated. Likewise, proposals that exceed the maximum price allowed as per Table 1 of these instructions will be considered non-responsive.
2. The technical evaluation will use the Evaluation Criteria provided in DoD STTR Program BAA instructions. The Technical Volume and Power Point quad chart will be reviewed holistically. Once the evaluations are complete, all Offerors will be notified in a timely manner.

The Cost Volume award amount is set at a not to exceed (NTE) amount and a technical evaluation of the proposal cost will be completed to assess price fairness and reasonableness. The Government

evaluation team will assess the technical approach presented for the effort based on the number of labor hours by labor category, the key personnel level of involvement, materials, subcontractors and consultants (scope of work, expertise, participation and proposed effort), and other direct cost as proposed.

Additionally, input on technical aspects of the proposals may be solicited by USSOCOM from non-Government consultants and advisors who are bound by appropriate non-disclosure requirements. When appropriate, non-Government advisors may have access to Offeror’s proposals and may be utilized to objectively review a proposal in a particular functional area and provide comments and recommendations to the Government’s decision makers. They may not establish final assessments of risk, or rate or rank Offerors’ proposals. All advisors shall comply with procurement Integrity Laws and shall sign Non-Disclosure and Rules of Conduct/Conflict of Interest statements. The Government shall take into consideration requirements for avoiding conflicts of interest. Submission of a proposal in response to this request constitutes approval to release the proposal to Government support contractors.

Offerors will be notified of selection or non-selection status for a Phase I award within 90 days of the closing date of this BAA topic by the USSOCOM Contracting Office. This notification will come by e-mail to the Corporate Official identified by the Offeror during proposal submission. The Government will also notify the Offerors if their proposal is considered non-responsive (disqualified).

A non-selected Offeror can make a written request to the Contracting Officer, within 30 calendar days of receipt of notification of non-selection, for informal feedback. The Contracting Officer will provide informal feedback after receipt of an Offeror’s written request rather than a debriefing as specified in the DoD STTR Program BAA instructions.

AWARD AND CONTRACT INFORMATION

Table 1: Consolidated STTR Topic Information

| Topic | Technical Volume (Vol 2) | Additional Info. (Vol 5) | Period of Performance | Award Amount | Contract Type |
|---------------------------------|---------------------------------|---------------------------------|------------------------------|---------------------|----------------------|
| <i>Phase I</i> SOCOM22D-ST01 | Not to exceed 5 pages | Quad Chart – 1 Page | Not to exceed 6 months | NTE \$150,000.00 | Firm-Fixed- Price |

The Government will conduct evaluations and selections for STTR Phase I topic award(s) listed in this BAA. SOCOM22D-ST01 awards will be made by USSOCOM STTR Contracting Officer.

ADDITIONAL INFORMATION

Phase I proposals shall NOT include:

- 1) Any travel for Government meetings. All meetings with the Government will be conducted via electronic media.
- 2) Government furnished property or equipment.
- 3) Priced or Unpriced Options.
- 4) “Basic Research” (or “Fundamental Research”) defined as a “Systematic study directed toward greater knowledge or understanding of the fundamental aspects of phenomena and/or observable facts without specific applications toward processes or products in mind.”
- 5) Discretionary Technical and Business Assistance (TABAs)

SOCOM STTR 22.D Topic Index
Release 1

SOCOM22D-ST01 Phase I Open Call for Science and Technology (S&T) Innovation

SOCOM22D-ST01 **TITLE:** Phase I Open Call for Science and Technology (S&T) Innovation

OUSD (R&E) MODERNIZATION PRIORITY: Microelectronics; Directed Energy; Cybersecurity; Network Command, Control and Communications; Autonomy; Artificial Intelligence / Machine Learning; General Warfighting Requirements (GWR)

TECHNOLOGY AREAS: Sensors; Electronics; Information Systems; Battle Space; Space Platform; Weapons

The technology within this topic is restricted under the International Traffic in Arms Regulation (ITAR), which controls the export and import of defense-related material and services. Offerors must disclose any proposed use of foreign nationals, their country of origin, and what tasks each would accomplish in the statement of work in accordance with the solicitation. Additionally, Offerors will describe compliance mechanisms offerors have in place or will put in place to address any ITAR issues that arise during the course of agreement administration.

OBJECTIVE: The objective of this Open Call for S&T Innovation topic is to develop **applied research** toward an innovative capability within SOCOM S&T Capability Focus Areas (CFA). The following are the CFAs and areas of interest.

DESCRIPTION:

Next Generation Intelligence, Surveillance, Reconnaissance, and Situational Awareness

The focus is to increase and enhance Special Operations Forces (SOF) ability to understand and manage threats and the environment, process multiple data and communications inputs for optimized decision making, and support rapid, on-the-move ability to learn and communicate knowledge to enhance tactically relevant situational awareness in peer/near peer environments. Develop cross-cutting ISR capabilities in all domains, to include sea, air, land, cyber, and space.

The technology areas of interest are intelligence systems and sensors that provide persistent, autonomous, and near-real time CPED (collection, processing, exploitation, and dissemination), leveraging artificial intelligence and machine learning to provide predictive analysis, current operational and intelligence pictures utilizing myriad sensors, LPI/LPD communications, and machine processing to augment the analyst and operator in multiple domains.

- 1) (U) Collaborative Automation and Minimization of PED through machine learning and other offboarding efforts
- 2) (U) Exploitation of maritime access opportunities (Data Transport, Platform) to fuse with other domains, e.g. ground, air, cyber.
- 3) (U) Expansion of ISR operations to include exploitation of cyber, social media, and publicly available information
- 4) (U) Explore miniaturized space efforts and advocate for SOF equities in larger US Space Command and US Space Force programs to integrate SOF tactical capabilities and technologies with national and strategic capabilities
- 5) (U) Stealth for sensor and data access, emplacement, access, collection, transport, and fusion

Next Generation Effects

The technology areas of interest are force protection at the edge, non-kinetic scalable effects, Mission Information Support Operations, Electronic Warfare, Cyber Effects, and Tactical directed energy.

Specific technologies of interest within the Cyber Effects category are:

- 1) (U) Cyber Platforms that have the capability to provide digital and physical situational awareness in connected environments through utilization of IoT devices, networks, and systems.
- 2) (U) Cyber Applications capable of tracking and exploiting targeted mobile electronics, SCADA systems, and IoT devices.
- 3) (U) Cyber payloads with deny, disrupt, degrade, or destroy capabilities that are able to be employed to both networked and air-gapped computer devices and systems.

Futures

The overall objective of Futures is to serve as the Command's high-risk, asymmetric, and disruptive concept, capability and technology investigator and incubator. The capability and technology areas of interest are:

- 1) (U) Utilization of neuromorphic computing for SOF-peculiar data processing and machine learning applications.
- 2) (U) Characterization and **the feasibility of** low-rate fabrication of high-performance batteries for SOF-peculiar requirements. Specifically, those with gravimetric energy densities > 700W-h/kg and volumetric energy densities > 1000 W-h/l (Li2-S, Li2-O2, or others).
- 3) (U) Secure, federated deep reinforcement learning (DRL) for optimization of distributed Deep-Q Networks (DQN) in heterogenous networks. Desired investigation includes reduction of client-server communication to facilitate Edge User operation (limitations on communication bandwidth, data privacy, and other SOF-peculiar concerns).
- 4) (U) Hypercognition through novel data sensory input, including incorporation and characterization of advanced mathematical elements of multimodal visualization, characterization of haptic, auditory and other sensory cues in data processing.

PHASE I: Conduct a feasibility study to assess what is in the art of the possible that satisfies the requirements specified in the above paragraphs entitled "Objective" and "Description."

The objective of this USSOCOM Phase I STTR effort is to conduct and document the results of a thorough feasibility study ("Technology Readiness Level 3") to investigate what is in the art of the possible within the given trade space that will satisfy a needed technology. The feasibility study should investigate all options that meet or exceed the minimum performance parameters specified in this write up. It should also address the risks and potential payoffs of the innovative technology options that are investigated and recommend the option that best achieves the objective of this technology pursuit. The funds obligated on the resulting Phase I STTR contracts are to be used for the sole purpose of conducting a thorough feasibility study using scientific experiments and laboratory studies as necessary. Operational prototypes will not be developed with USSOCOM STTR funds during Phase I feasibility studies. Operational prototypes developed with other than STTR funds that are provided at the end of Phase I feasibility studies will not be considered in deciding what firm(s) will be selected for Phase II.

PHASE II: Develop, install, and demonstrate a prototype system determined to be the most feasible solution during the Phase I feasibility study.

PHASE III DUAL USE APPLICATIONS: This system could be used in a broad range of military and commercial applications.

REFERENCES:

1. Singer, Neal. March 2022. Sandia Labs. Neuromorphic Computing Widely Applicable, Sandia Researchers show
<https://www.sandia.gov/labnews/2022/03/11/neuromorphic-computing-widely-applicable-sandia-researchers-show/>
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<https://journals.plos.org/plosone/article?id=10.1371/journal.pone.0264364>
3. <https://www.humanbrainproject.eu/en/silicon-brains/>
4. <https://www.youtube.com/watch?v=V3MIOAru6Qk>
5. <https://www.youtube.com/watch?v=TetLY4gPDpo>
6. Zue et al. 2017. Gravimetric and Volumetric Energy Densities of Lithium-Sulfur Batteries
<li.mit.edu/A/Papers/17/Xue17MiaoCOE.pdf>
7. Li, L & Wang, J. Jan 2019. Fabrication of low-tortuosity Ultra High Area Capacity Battery Electrodes through magnetic alignment of emulsion-based slurries
<https://www.osti.gov/servlets/purl/1498274>

KEYWORDS: microelectronics; directed energy; cybersecurity; network command, control and communications; autonomy; artificial intelligence; machine learning; general warfighting requirements; sensors; electronics; information systems; battle space; data processing; energy; batteries; situational awareness; computer devices and systems; sensory cues; cyber; stealth; social media; publicly available information; collection; processing; exploitation; dissemination