

**DEPARTMENT OF THE AIR FORCE  
SMALL BUSINESS INNOVATION RESEARCH (SBIR) PROGRAM  
SBIR X20.1 PILOT COMMERCIAL SOLUTIONS OPENING (CSO)  
FOR AFWERX SPECIAL TOPICS**

*This solicitation applies to Air Force (AF) 20.1 Special Topics AF201- CSO1 and AF201-DCSO1 ONLY;  
It is NOT effective for other AF or DoD topics.*

**10 December 2019:** Issued for pre-release

**14 January 2020:** Begin accepting proposals

**12 February 2020:** Full proposals due no later than **8:00 p.m. ET**

In accordance with Section 879 of the National Defense Authorization Act for Fiscal Year (FY) 2017 (Public Law 114-328), Congress has authorized the use of the Defense Commercial Solutions Opening Pilot Program. This program allows agencies to obtain solutions or potential new capabilities fulfilling requirements, closing capability gaps, or providing potential technological advancements. Therefore, consistent with Section 879 of the FY17 NDAA, AF is soliciting proposals under a Commercial Solutions Opening.

**IMPORTANT**

**Deadline for Receipt:** Full proposals must be submitted no later than **8:00 p.m. ET, 12 February 2020** to the DoD Submission Web site at <https://dodsbirsttr.mil/submissions>. Proposals submitted after 8:00 p.m. ET will not be accepted for review.

AF recommends early submission, as computer traffic gets heavy near announcement closing. **Do not wait until the last minute.** AF is not responsible for missed proposal submission due to servers being “down” or inaccessible. Please assure the email address listed in the proposal is accurate. AF is not responsible for ensuring notifications are received by firms changing mailing address/email address/company points of contact after proposal submission without proper notification to the AF. Changes of this nature that occur after proposal submission or award (if selected) for Phase I and II shall be sent to the Air Force SBIR/STTR site address, [afsbirsttr-info@us.af.mil](mailto:afsbirsttr-info@us.af.mil).

**Classified proposals will not be accepted under the AF SBIR Program.**

**AF Special Topics Changes:**

- AF Special Topic released under a CSO vs. Broad Agency Announcement for SBIR 20.1.
- RAPID Matching Ratio for all Government funding changed to 2:1 (SBIR to non-SBIR funds).
- RAPID (matching) funds are required to propose under AF201-DCSO1, Direct to Phase II.
- A Phase I purchase order template is provided to assist small businesses when generating proposals.  
Note: If selected for award, the resulting purchase order may not be identical.

**SBIR/STTR Updates and Notices:** To receive notifications about AF Special Topics and other AF innovation opportunities, please register at <https://www.afwerx.af.mil/join.html>.

**Help Desk:** If you have questions about the AF SBIR/STTR Programs, please call the AF SBIR/STTR Help Desk at 1-800-222-0336, or email to [AFSBIRSTTR-Info@us.af.mil](mailto:AFSBIRSTTR-Info@us.af.mil), or visit the AF SBIR/STTR Web site at <https://www.afsbirsttr.af.mil/>. If you have any questions about the AF Special Topics, please visit <https://www.afwerx.af.mil/sbir.html> or email to [sbir@afwerx.af.mil](mailto:sbir@afwerx.af.mil).

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## 1.0 INTRODUCTION

**Firms must ensure proposals meet all requirements of this CSO currently posted on FEDBIZOPS and the DoD website at the time the announcement closes.**

The Air Force (AF) invites small business firms to submit proposals under this CSO for the Small Business Innovation Research (SBIR) Program. Firms with the capability to conduct research and development (R&D) in any of the AF-related topics described in Section 14.0 and to commercialize the results of that R&D are encouraged to participate.

The *2014 Quadrennial Defense Review* (QDR) established innovation as a central line of effort in the national defense strategy of the United States. The decisive military advantage of the United States over its adversaries and peer competitors is steadily eroding. Consequently, under section 879 of the National Defense Authorization Act (NDAA) for Fiscal Year (FY) 2017 (Pub. L. 114-328) contracting officers may acquire innovative commercial items, technologies, or services using a competitive procedure called a Commercial Solutions Opening (CSO). Under a CSO, the Department of Defense may competitively select proposals received in response to a general solicitation, similar to a Broad Agency Announcement, based on a review of proposals by scientific, technological, or other subject-matter expert peers. Use of a CSO in accordance with Class Deviation 2018-O0016 is considered to be a competitive procedure for the purposes of 10 U.S.C. chapter 127 and FAR 6.102. Finally, contracting officers shall treat items, technologies, and services acquired using a CSO as commercial items. While the “traditional” Phase II proposal process is covered in this announcement, **this CSO is for SBIR Phase I and Direct to Phase II proposals.**

A separate CSO will not be issued requesting Phase II proposals, and unsolicited proposals will not be accepted. All firms that are awarded SBIR and STTR Phase I awards originating from this CSO will be eligible to participate in Phase II competitions and potential Phase III awards. The AF will notify Phase I awardees of the Phase II proposal submission requirements. Submission of Phase II proposals will be in accordance with instructions provided within this CSO. The details on the due date, content, and submission requirements of the Phase II proposal will be provided by the AF either in the Phase I award or by subsequent notification. If a firm submits their Phase II proposal prior to the dates provided by the AF, it may be rejected without evaluation. All SBIR/STTR Phase II awards made on topics from solicitations prior to and including Solicitation 19.2 will be conducted in accordance with the procedures specified in those solicitations.

The AF Program Manager is Mr. David Shahady, The AF SBIR/STTR Program Office can be contacted at [afsbirsttr-info@us.af.mil](mailto:afsbirsttr-info@us.af.mil). For general inquiries or problems with the electronic submission, contact the DoD SBIR/STTR Help Desk via email at [DoDSBIRSupport@reisystems.com](mailto:DoDSBIRSupport@reisystems.com) (9:00 a.m. to 5:00 p.m. ET, Monday through Friday). For technical questions about the topics during the pre-announcement period (10 December 2019 through 14 January 2020), please visit <https://afwerx.af.mil/sbir.html> or email [sbir@afwerx.af.mil](mailto:sbir@afwerx.af.mil). For information on obtaining answers to your technical questions during the formal announcement period (08 January 2020 through 12 February 2020), go to <https://sbir.defensebusiness.org>. Your complete proposal **must** be submitted via the submissions site at <https://dodsbirsttr.mil/submissions> on or before the **8:00 pm ET, 12 February 2020 deadline.**

The AF is not obligated to make any awards under Phase I or Phase II, and all awards are subject to availability of funds. AF is not responsible for any monies expended by the proposer before the issuance of any award. The Air Force reserves the right to award a contract or Other Transaction for any purpose, to include prototype, as a result of this CSO.

General information related to the AF Small Business Program is found at the AF Small Business website, <http://www.airforcesmallbiz.af.mil/>. The site contains information related to contracting opportunities within the AF, as well as business information and upcoming outreach/conference events. Other informative sites include those for the Small Business Administration (SBA), [www.sba.gov](http://www.sba.gov), and the Procurement Technical Assistance Centers, <http://www.ptac.us.org>. These centers provide Government contracting assistance and guidance to small businesses, generally at no cost.

## 2.0 PROGRAM DESCRIPTION

### 2.1 Objectives

The objectives of the AF SBIR Program include stimulating technological innovation, strengthening the role of small business in meeting DoD research and development needs, fostering and encouraging participation by minority and disadvantaged persons in technological innovation, and increasing the commercial application of DoD-supported research or research and development results.

The DoD 10 Technology Focus Areas of interest are (*proposals are not required to address topics in these 10 Technology Focus Areas of interests but these do represent Air Force Strategic priorities*):

1. **Artificial Intelligence:** Improve algorithms, address data quality, optimize human-machine coordination and disrupt adversaries' efforts.
2. **Autonomy:** Address teaming of autonomous systems; machine perception, reasoning and intelligence; human and autonomy systems trust and interaction.
3. **Communications:** Addressing high-performance, low power embedded processing and developing algorithms for self-configuring, self-healing and resource allocation.
4. **Cyber:** Address behavioral issues, develop self-securing networks and develop methodologies to assess cyber effects and consequences.
5. **Directed Energy:** Address power scaling, jitter reduction, laser size and weight, adaptive optics, beam propagation and target tracking.
6. **Hypersonics:** Address high temperature materials, hypersonic vehicle manufacturing, air breathing propulsion and hypersonic guidance and control systems.
7. **Microelectronics:** Develop economically competitive domestic manufacturing capabilities, improve radiation hardening and develop radio frequency (RF) technologies for specialty applications with nuclear, space and electronic warfare capabilities.
8. **Quantum Sciences:** Address quantum clocks and sensors, quantum communications technologies and develop enabling technologies for quantum computing in the areas of cryogenics and photon detection.
9. **Space:** Developing low earth orbit nano-satellites for missile warning, intelligence, surveillance, reconnaissance, navigation and communications.
10. **Biotechnology:** applications related to disease prevention and mitigation, rapid emergency medical response and trauma management, environmental remediation, and advanced materials.

The AF SBIR Program follows the policies and practices of the Small Business Administration (SBA) SBIR/STTR Policy Directive updated on May 2, 2019. The guidelines presented in this CSO incorporate and make use of the flexibility of the SBA SBIR Policy Directive to encourage proposals based on scientific and technical approaches most likely to yield results important to the AF and the private sector. The SBIR Policy Directive is available at [http://www.sbir.gov/sites/default/files/sbir\\_pd\\_with\\_1-8-14\\_amendments\\_2-24-14.pdf](http://www.sbir.gov/sites/default/files/sbir_pd_with_1-8-14_amendments_2-24-14.pdf).

### 2.2 Three Phase Program

The SBIR/STTR Program is a three-phase program. Phase I is to determine, to the extent possible, the scientific, technical, and commercial merit and feasibility of ideas submitted under the SBIR/STTR Program. Phase I awards are a maximum of \$50,000. The period of performance is generally three months. Proposals should concentrate on research or research and development which will significantly contribute to proving the scientific and technical feasibility, and commercialization potential of the proposed effort, the successful completion of which is a prerequisite for further AF support in Phase II. Proposers are encouraged to consider whether the research or research and development being proposed to the AF also has private sector potential, either for the proposed application or as the basis for other applications.

Phase II awards will be made to firms on the basis of results of their Phase I effort and/or the scientific merit, technical merit, and commercialization potential of the Phase II proposal. Phase II awards are typically \$25,000 to \$1,500,000 in size and the period of performance is generally between 6 and 24

months. Phase II is the principal research or research and development effort and is expected to produce a well-defined deliverable prototype. A Phase II contractor may receive up to one additional, sequential Phase II award for continued work on the project.

Under Phase III, the firm is required to obtain funding from either the private sector, a non-SBIR/STTR Government source, or both, to develop the prototype into a viable product or non-R&D service for sale in military or private sector markets. SBIR/STTR Phase III refers to work that derives from, extends, or completes an effort made under prior SBIR/STTR funding agreements, but is funded by sources other than the SBIR/STTR Program. Phase III work is typically oriented towards commercialization of SBIR/STTR research or technology.

### 2.3 CSO Pilot Procedure

This CSO is a competitive solicitation posted on a Government Point of Entry, [www.fbo.gov](http://www.fbo.gov), through 12 February 2020, seeking solution proposals from SBCs. This CSO seeks innovative, commercial technologies that propose new solutions or potential new capabilities that fulfill requirements, close capability gaps, or provide potential technological advancements in support of the AF. This CSO may result in the award of prototype projects, which include not only commercially available technologies fueled by commercial or strategic investment, but also concept demonstrations, pilots, and agile development activities that can incrementally improve commercial technologies, existing government-owned capabilities, or concepts for broad defense application(s). The Government reserves the right to award a contract or an Other Transaction for any purpose, to include a prototype, as a result of this CSO.

### 2.4 AF Special Topic Information

The Air Force SBIR/STTR Program office is continuing to pilot new processes via “AF Special Topics” (AF201-CSO1) in order to accelerate technologies to the warfighter. The AF Special Topics are different in several ways from the standard AF SBIR/STTR proposal, award and execution. Special Topics have shortened technical durations, reduced reporting requirements, and varying award amounts compared to normal SBIR/STTR Topics. There are additional unique features associated with each of the Special Topics that are listed in the sections below. Consolidated information on all SBIR/STTR topics can be found in Chart 1.

**CHART 1: SPECIAL SBIR/STTR TOPIC INFORMATION**

Applicable Topics	Phase I				Phase II			
	Technical Volume (Vol 2)	Additional Info (Vol 5)	Award Amount	*Technical & Reporting Duration	Technical Volume (Vol 2)	Additional Info (Vol 5)	Technical & Reporting Duration	Initial Award Amount
AF201-CSO1	NTE 5 pages	15-slide deck	NTE \$50,000	3 months (2 month technical, 1 month reporting)	NTE 15 pages	15-slide deck, 100 second video, phone/ video interview	NTE 27 months	NTE \$1,500,000
AF201-DCSO1 Direct to Phase II	N/A	N/A	N/A	N/A	NTE 15 pages	15-slide deck, 100 second video, phone/ video interview	NTE 27 months	NTE \$1,500,000*

\*Maximum of \$1,500,000 SBIR Funding; can exceed this amount with matching government funds.

### **Special Topics AF201-CSO1 and AF 201-DCSO1**

AF201-CSO1 and AFI201-DCSO1 are sponsored by AFWERX, <https://www.afwerx.af.mil/>, a catalyst for agile Air Force engagement across industry, academia, and non-traditional contributors to create transformative opportunities and foster an Air Force culture of innovation. AF201-CSO1 is a call for SBIR Phase I proposals and AFI201-DCSO1 is a call for SBIR Direct-To-Phase II proposals

For all Special Topics: The Phase I proposals shall include a technical volume (uploaded in Volume 2) that shall not exceed 5 pages and a slide deck not to exceed 15 slides (uploaded in Volume 5). The technical volume and slide deck will be reviewed holistically. It is recommended (but not required) that more detailed information is included in the technical volume and higher level information is included in the pitch deck. The cost volume (Volume 3) for the Special Topics will cover the total effort broken down into the specified technical and reporting periods (See Chart 1 for specific times). AF 201-CSO1 and AF20A-TCSO1 shall follow the Phase I Work Plan Outline as noted in the “Phase I Work Plan Outline” section 5.3c except that there is only one required Progress report and no requirement for a Technical review due to the short technical duration. Final reporting for Phase I awardees will take the form of a presentation (with a SF298) in accordance with the contract.

It is critical that proposers for the Special Topics are registered in the System for Award Management, <https://www.sam.gov/>; you will not be eligible for an award if not registered. Additionally, verify that you are registered to receive contracts (not just grants) and that your address matches between your proposal and SAM.

The AF 201-CSO1 and AF20A-TCSO1 call for Phase II proposals shall occur shortly after Phase I award. The AF Special Topics will have specific Phase II instructions. Unless otherwise stated in the Special Topics paragraphs above, all other requirements as noted in the following sections apply to the AF Special Topics. If there are any questions with the AF Special Topics, please contact [afsbirsttr-info@us.af.mil](mailto:afsbirsttr-info@us.af.mil).



### 3.0 DEFINITIONS

The following definitions from the SBA SBIR Policy Direction, the Federal Acquisition Regulation (FAR) and 10 USC 2371b apply for the purposed of this CSO:

#### 3.1 Performance Benchmarks for Progress Toward Commercialization

In accordance with the SBA SBIR Policy Directive Sec 4.(a)(3), DoD established a threshold for the application of a benchmark where it is applied only to Phase I applicants that have received more than twenty (20) awards over the prior five (5) fiscal years as determined by the Small Business Administration. The ratio of Phase II awards received to Phase I awards received during this period must be at least 0.25.

Additional information on performance benchmarking for Phase I applicants can be found at <https://www.sbir.gov/performance-benchmarks>.

#### 3.2 Commercialization

The process of developing products, processes, technologies, or services and the production and delivery (whether by the originating party or others) of the products, processes, technologies, or services for sale to or use by the Federal government or commercial markets.

#### 3.3 Essentially Equivalent Work

Work that is substantially the same research, which is proposed for funding in more than one contract proposal or grant application submitted to the same Federal agency or submitted to two or more different Federal agencies for review and funding consideration; or work where a specific research objective and the research design for accomplishing the objective are the same or closely related to another proposal or award, regardless of the funding source.

#### 3.4 Export Control

The International Traffic in Arms Regulations (ITAR), 22 CFR Parts 120 through 130, and the Export Administration Regulations (EAR), 15 CFR Parts 730 through 799, will apply to all projects with military or dual-use applications that develop beyond fundamental research, which is basic and applied research ordinarily published and shared broadly within the scientific community. More information is available at [https://www.pmddtc.state.gov/?id=ddtc\\_kb\\_article\\_page&sys\\_id=24d528fddbfc930044f9ff621f961987](https://www.pmddtc.state.gov/?id=ddtc_kb_article_page&sys_id=24d528fddbfc930044f9ff621f961987).

NOTE: Export control compliance statements are not all-inclusive and do not remove submitters' liability to 1) comply with applicable ITAR/EAR export control restrictions or 2) inform the Government of potential export restrictions as efforts proceed.

#### 3.5 Foreign Nationals

Foreign Nationals (also known as Foreign Persons) as defined by 22 CFR 120.16 means any natural person who is not a lawful permanent resident as defined by 8 U.S.C. § 1101(a)(20) or who is not a protected individual as defined by 8 U.S.C. § 1324b(a)(3). It also means any foreign corporation, business association, partnership, trust, society or any other entity or group that is not incorporated or organized to do business in the United States, as well as international organizations, foreign governments and any agency or subdivision of foreign governments (e.g., diplomatic missions).

"Lawfully admitted for permanent residence" means the status of having been lawfully accorded the privilege of residing permanently in the United States as an immigrant in accordance with the immigration laws, such status not having changed.

"Protected individual" means an individual who (A) is a citizen or national of the United States, or (B) is an alien who is lawfully admitted for permanent residence, is granted the status of an alien lawfully admitted for temporary residence under 8 U.S.C. § 1160(a) or 8 U.S.C. § 1255a(a)(1), is admitted as a

refugee under 8 U.S.C. § 1157, or is granted asylum under Section 8 U.S.C. § 1158; but does not include (i) an alien who fails to apply for naturalization within six months of the date the alien first becomes eligible (by virtue of period of lawful permanent residence) to apply for naturalization or, if later, within six months after November 6, 1986, and (ii) an alien who has applied on a timely basis, but has not been naturalized as a citizen within 2 years after the date of the application, unless the alien can establish that the alien is actively pursuing naturalization, except that time consumed in the Service's processing the application shall not be counted toward the 2-year period.

### **3.6 Fraud, Waste and Abuse**

- a. **Fraud** includes any false representation about a material fact or any intentional deception designed to deprive the United States unlawfully of something of value or to secure from the United States a benefit, privilege, allowance, or consideration to which an individual or business is not entitled.
- b. **Waste** includes extravagant, careless or needless expenditure of Government funds, or the consumption of Government property, that results from deficient practices, systems, controls, or decisions.
- c. **Abuse** includes any intentional or improper use of Government resources, such as misuse of rank, position, or authority or resources.

### **3.7 Funding Agreement**

Any contract, grant, or cooperative agreement entered into between any Federal Agency and any small business concern for the performance of experimental, developmental, or research work, including products or services, funded in whole or in part by the Federal Government. Only the contract method will be used by DoD Components for all SBIR awards.

### **3.8 Certified HUBZone Small Business Concern**

An SBC that has been certified by SBA under the Historically Underutilized Business Zones (HUBZone) Program (13 C.F.R. § 126) as a HUBZone firm listed in the Dynamic Small Business Search (DSBS).

### **3.9 Proprietary Information**

Proprietary information is information that you provide which constitutes a trade secret, proprietary commercial or financial information, confidential personal information or data affecting the national security.

### **3.10 Research or Research and Development**

Any activity that is:

- a. A systematic, intensive study directed toward greater knowledge or understanding of the subject studied.
- b. A systematic study directed specifically toward applying new knowledge to meet a recognized need; or
- c. A systematic application of knowledge toward the production of useful materials, devices, and systems or methods, including design, development, and improvement of prototypes and new processes to meet specific requirements.

### **3.11 Research Involving Animal Subjects**

All activities involving animal subjects shall be conducted in accordance with DoDI 3216.01 "Use of Animals in DoD Programs," 9 C.F.R. parts 1-4 "Animal Welfare Regulations," National Academy of Sciences Publication "Guide for the Care & Use of Laboratory Animals," as amended, and the Department of Agriculture rules implementing the Animal Welfare Act (7 U.S.C. §§ 2131-2159), as well as other applicable Federal and state law and regulation and DoD instructions.

"Animal use" protocols apply to all activities that meet any of the following criteria:

- a. Any research, development, test, evaluation or training, (including experimentation) involving an animal or animals.

- b. An animal is defined as any living or dead, vertebrate organism (non-human) that is being used or is intended for use in research, development, test, evaluation or training.
- c. A vertebrate is a member of the subphylum Vertebrata (within the phylum Chordata), including birds and cold-blooded animals.

See DoDI 3216.01 for definitions of these terms and more information about the applicability of DoDI 3216.01 to work involving animals.

### **3.12 Research Involving Human Subjects**

All research involving human subjects shall be conducted in accordance with 32 C.F.R. § 219 “The Common Rule,” 10 U.S.C. § 980 “Limitation on Use of Humans as Experimental Subjects,” and DoDD 3216.02 “Protection of Human Subjects and Adherence to Ethical Standards in DoD-Supported Research,” as well as other applicable Federal and state law and regulations, and DoD component guidance. Offerors must be cognizant of and abide by the additional restrictions and limitations imposed on the DoD regarding research involving human subjects, specifically as they regard vulnerable populations (DoDD 3216.02), recruitment of military research subjects (DoDD 3216.02), and informed consent and surrogate consent (10 U.S.C. § 980) and chemical and biological agent research (DoDD 3216.02). Food and Drug Administration regulation and policies may also apply.

“Human use” protocols apply to all research that meets any of the following criteria:

- a. Any research involving an intervention or an interaction with a living person that would not be occurring or would be occurring in some other fashion but for this research.
- b. Any research involving identifiable private information. This may include data/information/specimens collected originally from living individuals (broadcast video, web-use logs, tissue, blood, medical or personnel records, health data repositories, etc.) in which the identity of the subject is known, or the identity may be readily ascertained by the investigator or associated with the data/information/specimens.

See DoDD 3216.02 for definitions of these terms and more information about the applicability of DoDI 3216.02 to research involving human subjects.

### **3.13 Research Involving Recombinant DNA Molecules**

Any recipient performing research involving recombinant DNA molecules and/or organisms and viruses containing recombinant DNA molecules shall comply with the National Institutes of Health Guidelines for Research Involving Recombinant DNA Molecules, dated January 2011, as amended. The guidelines can be found at: [https://osp.od.nih.gov/wp-content/uploads/2013/06/NIH\\_Guidelines.pdf](https://osp.od.nih.gov/wp-content/uploads/2013/06/NIH_Guidelines.pdf). Recombinant DNA is defined as (i) molecules that are constructed outside living cells by joining natural or synthetic DNA segments to DNA molecules that can replicate in living cells or (ii) molecules that result from the replication of those described in (i) above.

### **3.14 Service-Disabled Veteran-Owned Small Business (SDVOSB)**

A small business concern owned and controlled by a Service-Disabled Veteran or Service-Disabled Veterans, as defined in Small Business Act 15 USC § 632(q)(2) and SBA’s implementing SDVOSB regulations (13 CFR 125).

### **3.15 Small Business Concern (SBC)**

A concern that meets the requirements set forth in 13 C.F.R. § 121.702 (available [here](#)). An SBC must satisfy the following conditions on the date of award:

- a. Is organized for profit, with a place of business located in the United States, which operates primarily within the United States or which makes a significant contribution to the United States

economy through payment of taxes or use of American products, materials or labor;

b. Is in the legal form of an individual proprietorship, partnership, limited liability company, corporation, joint venture, association, trust or cooperative, except that if the concern is a joint venture, each entity to the venture must meet the requirements set forth in paragraph (c) below;

c. Is more than 50% directly owned and controlled by one or more individuals (who are citizens or permanent resident aliens of the United States), other small business concerns (each of which is more than 50% directly owned and controlled by individuals who are citizens or permanent resident aliens of the United States), or any combination of these; and

d. Has, including its affiliates, not more than 500 employees. (For explanation of affiliate, see [www.sba.gov/size](http://www.sba.gov/size).)

**3.16 Subcontract**

A subcontract is any agreement, other than one involving an employer-employee relationship, entered into by an awardee of a funding agreement calling for supplies or services for the performance of the original funding agreement. This includes consultants.

**3.17 United States**

"United States" means the fifty states, the territories and possessions of the Federal Government, the Commonwealth of Puerto Rico, the Republic of the Marshall Islands, the Federated States of Micronesia, the Republic of Palau, and the District of Columbia.

**3.18 Women-Owned Small Business Concern**

An SBC that is at least 51% owned by one or more women, or in the case of any publicly owned business, at least 51% of the stock is owned by women, and women control the management and daily business operations.

**3.19 Federal Laboratory**

As defined in 15 U.S.C. §3703, means any laboratory, any Federally funded research and development center (FFRDC), or any center established under 15 U.S.C. §§ 3705 & 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.

**3.20 Principal Investigator**

The principal investigator/project manager is the individual designated by the applicant to provide the scientific and technical direction to a project supported by the funding agreement.

For both Phase I and Phase II, the primary employment of the principal investigator must be with the SBC at the time of award and during the conduct of the proposed project. Primary employment means that more than one-half of the principal investigator's time is spent in the employ of the SBC. This precludes full- time employment with another organization. Occasionally, deviations from this requirement may occur, and must be approved in writing by the contracting officer after consultation with the agency AF SBIR Program Manager/Coordinator. Further, an SBC may replace the principal investigator on an SBIR Phase I or Phase II award, subject to approval in writing by the contracting officer.

**3.21 Commercial Solutions Opening**

A competitive procedure contracting officers may use to acquire innovative commercial items, technologies or services.

**3.22 Innovative**

- (1) Any new technology, process, or method, including research and development; or
- (2) Any new application of an existing technology, process, or method.

### **3.23 Other Transaction**

Refers to the type of Other Transaction Agreement (OTA) that may be placed as a result of this CSO. This type of OT is authorized by 10 U.S.C 2371b for prototype projects directly relevant to enhancing the mission effectiveness of military personnel and the supporting platforms, systems, components, or material proposed to be acquired or developed by the DoD, or for the improvement of platforms, systems, components, or materials in use by the armed forces. This type of OTA is treated by DoD as an acquisition instruments, commonly referred to as an “other transaction” for a prototype or a Section 2371b “other transaction.” The definition of a "prototype project" in the context of an OT is as follows: a prototype project addresses a proof of concept, model, reverse engineering to address obsolescence, pilot, novel application of commercial technologies for defense purposes, agile development activity, creation, design, development, demonstration of technical or operational utility, or combinations of the foregoing. A process, including a business process, may be the subject of a prototype project.

### **3.24 RAPID Investment**

See Section 13.0 for an extensive discussion on RAPID Investment.

## 4.0 PROPOSAL FUNDAMENTALS

Unless otherwise specified, this section applies to both Phase I and II proposals, including Direct to Phase II.

### 4.1 Introduction

The proposal must provide sufficient information to demonstrate to the evaluator(s) that the proposed work represents an innovative approach to the investigation of an important scientific or engineering problem and is worthy of support under the stated criteria. The proposed research or research and development must be responsive to the chosen topic, although it need not use the exact approach specified in the topic. Anyone contemplating a proposal for work on any specific topic should determine that:

- a. The technical approach has a reasonable chance of meeting the topic objective,
- b. This approach is innovative, not routine, with potential for commercialization and
- c. The proposing firm has the capability to implement the technical approach, i.e., has or can obtain people and equipment suitable to the task.

### 4.2 Offeror Eligibility and Performance Requirements

- a. Each proposer must qualify as a small business concern as defined by 13 C.F.R §§ 701-705 at time of award and certify to this in the Cover Sheet section of the proposal. The eligibility requirements for the SBIR/STTR programs are unique and do not correspond to those of other small business programs (see Section 3.15 of this CSO). Proposers must meet eligibility requirements for Small Business Ownership and Control (see 13 CFR § 121.702 and Section 4.4 of this CSO).
- b. A minimum of two-thirds of the research and/or analytical work in Phase I must be conducted by the proposing firm. For Phase II, a minimum of one-half (50%) of the research and/or analytical work must be performed by the proposing firm. The percentage of work is measured by both direct and indirect costs.
- c. For both Phase I and II, the primary employment of the principal investigator must be with the small business firm at the time of the award and during the conduct of the proposed effort. Primary employment means that more than one-half of the principal investigator's time is spent with the small business. Primary employment with a small business concern precludes full-time employment at another organization.
- d. For both Phase I and Phase II, all research or research and development work must be performed by the small business concern and its subcontractors in the United States.
- e. **Benchmarks.** Proposers with prior SBIR/STTR awards must meet two benchmark requirements for Progress Towards Commercialization as determined by the Small Business Administration (SBA) on 1 June each year.
  - (1) For all proposers with greater than 20 Phase I awards over the past five fiscal years excluding the most recent year (currently FY 2013-2017), the ratio of Phase II awards to Phase I awards must be at least 0.25.
  - (2) For all proposers with greater than 15 Phase II awards over the last ten fiscal years excluding the last two years (currently FY 2007-2016), the proposer must have received, to date, an average of at least \$100,000 of sales and/or investments per Phase II award received or have received a number of patents resulting from the SBIR work equal to or greater than 15% of the number of Phase II awards received during the period.

Consequence of failure to meet the benchmarks:

- SBA will identify and notify Agencies on 1 June of each year the list of companies that fail to meet minimum performance requirements. These companies will not be eligible to submit a proposal for a Phase I award for a period of one year from that date.
- Because this requirement only affects a company's eligibility for new Phase I awards, a company that fails to meet minimum performance requirements may continue working on its current ongoing SBIR/STTR awards and may apply for and receive new Phase II and Phase III awards.
- To provide companies with advance warning, SBA notifies companies on 1 April if they are failing the benchmarks. If a company believes that the information used was not complete or accurate, it may provide feedback through the SBA Company Registry at [www.sbir.gov](http://www.sbir.gov).
- In addition, SBA has posted a [Guide to SBIR/STTR Program Eligibility](#) to help small businesses understand program eligibility requirements, determine if they will be eligible at the time of award, and accurately complete necessary certifications.
- The benchmark information on the companies will not be available to the public.
- *At this time, SBA is not compiling a list of companies that will be deemed ineligible to submit a proposal for a new Phase I (or Direct-to-Phase II) award due to failure to meet the Commercialization Benchmark requirement.*

#### **4.3 Joint Ventures**

Joint ventures and limited partnerships are permitted, provided that the entity created qualifies as a small business in accordance with the Small Business Act, 13 U.S.C. § 121.701.

#### **4.4 Majority Ownership in Part**

Majority ownership in part by multiple venture capital, hedge fund, and private equity firms: Small businesses that are owned in majority part by multiple venture capital operating companies (VCOs), hedge funds, or private equity funds are ineligible to submit applications or receive awards for opportunities in this CSO.

#### **4.5 Conflicts of Interest**

Contract awards to firms owned by or employing current or previous Federal Government employees could create conflicts of interest for those employees which may be a violation of Federal law. Proposing firms should contact the cognizant Ethics Counselor from the employee's Government agency for further guidance if in this situation.

#### **4.6 Classified Proposals**

Classified proposals will not be accepted under the DoD SBIR Program. If topics will require classified work during Phase II, the proposing firm must have a facility clearance in order to perform the Phase II work. For more information on facility and personnel clearance procedures and requirements, please visit the Defense Security Service Web site at: <http://www.dss.mil/index.html>.

#### **4.7 Research Involving Human Subjects**

All research involving human subjects, to include use of human biological specimens and human data, shall comply with the applicable Federal and state laws and agency policy/guidelines for human subject protection (see Section 3.12).

Institutions to be awarded funding for research involving human subjects must provide documentation of a current Federal Assurance of Compliance with Federal regulations for human subject protection, for example a Department of Health and Human Services, Office for Human Research Protections Federal wide Assurance (<http://www.hhs.gov/ohrp>).

Additional Federal Assurance documentation may also be requested by the AF. All institutions engaged in human subject research, to include subcontractors, must also have a valid Assurance. In addition, personnel involved in human subject research must provide documentation of completing appropriate training for the protection of human subjects. Institutions proposing to conduct human subject research that meets one of the exemption criteria in 32 CFR 219.101 are not required to have a Federal Assurance of Compliance. If selected, institutions must also provide documentation of Institutional Review Board (IRB) approval or a determination from an appropriate official in the institution that the work meets one of the exemption criteria with 32 CFR 219. As part of the IRB review process, evidence of appropriate training for all investigators should accompany the protocol. The protocol, separate from the proposal, must include a detailed description of the research plan, study population, risks and benefits of study participation, recruitment and consent process, data collection and data analysis.

The amount of time required for the IRB to review and approve the protocol will vary depending on such things as the IRB's procedures, the complexity of the research, the level of risk to study participants and the responsiveness of the Investigator. The average IRB approval process can last between one and three months. Once the IRB has approved the research, the AF will review the protocol and the IRB's determination to ensure that the research will be conducted in compliance with DoD and DoD Component policies. The DoD review process can last between three to six months. Ample time should be allotted to complete both the IRB and DoD approval processes prior to recruiting subjects. **No funding can be used towards human subject research until ALL approvals are granted.**

#### **4.8 Research Involving Animal Subjects**

All research, development, testing, experimentation, education or training involving the use of animals shall comply with the applicable Federal and agency rules on animal acquisition, transport, care, handling, and use (see Section 3.11).

For submissions containing animal use, proposals should briefly describe plans for their Institutional Animal Care and Use Committee (IACUC) review and approval.

All Recipients must receive their IACUC's approval as well as secondary or headquarters-level approval by a DoD veterinarian who is trained or experienced in laboratory animal medicine and science. **No animal research may be conducted using DoD funding until all the appropriate DoD office(s) grant approval.**

#### **4.9 Research Involving Recombinant DNA Molecules**

All research involving recombinant DNA molecules shall comply with the applicable Federal and state law, regulation and any additional agency guidance. Research shall be approved by an Institutional Biosafety Committee.

#### **4.10 Use of Unmanned Aircraft Systems (UAS)**

All activities involving the operation of Unmanned Aerial Systems shall be conducted IAW Department of Defense Memo entitled "Guidance for the Domestic Use of Unmanned Aircraft Systems in the U.S. National Airspace, dated 18 August 2018 and DOD memo entitled, "Delegation Authority to Approve Exemptions for Using Commercial-Off-The-Shelf Unmanned Aerial Systems in Support of Urgent Needs, dated 16 November 2018. Contractor personnel operating DoD or DoD-contracted UAS in U.S. National Airspace, whether or not the domestic use is related to an intelligence activity, will comply with all laws, regulations, and guidance relating to the operation of UAS in U.S. National Airspace. Specific programs utilizing UAS are required to obtain an exemption for operational use of a UAS; therefore, additional documentation may be requested by the AF to support an exemption request. The DOD exemption approval process can last as much as two months. **No funding can be used for contracted-UAS operations until ALL approvals are granted.**



#### 4.11 Proposal Status and Feedback

The Principal Investigator (PI) and Corporate Official (CO) indicated on the Proposal Cover Sheet (Volume 1) will be notified by e-mail regarding proposal selection or non-selection. The SBC will receive a notification for each proposal submitted. Please read each notification carefully and note the Proposal Number and Topic Number referenced. **If changes occur to the company mail or email address(es) or company points of contact after proposal submission, the information should be provided to the AF at [afsbirsttr-info@us.af.mil](mailto:afsbirsttr-info@us.af.mil) and [sbir@afwerx.af.mil](mailto:sbir@afwerx.af.mil).**

Any feedback requests must be submitted in writing within 30 calendar days after receipt of notification of non-selection. Written requests for feedback must be submitted via [www.afsbirsttr.af.mil](http://www.afsbirsttr.af.mil) through the SBIR system. Requests for feedback should include the company name and the telephone number/e-mail address for a specific point of contact, as well as an alternate. Additionally, include the topic number under which the proposal(s) was submitted, and the proposal number(s). Feedback requests received more than 30 calendar days after receipt of notification of non-selection will be fulfilled at the Contracting Officers' discretion. Unsuccessful offerors are entitled to no more than one feedback response for each proposal.

**IMPORTANT:** Proposals submitted to the AF are received and evaluated by different offices within the Air Force and handled on a Topic-by-Topic basis. Each office operates within their own schedule for proposal evaluation and selection. Updates and notification timeframes will vary by office and Topic. If your company is contacted regarding a proposal submission, it is not necessary to contact the AF to inquire about additional submissions. Additional notifications regarding your other submissions will be forthcoming.

We anticipate having all the special topic proposals evaluated and our Phase I contract decisions within approximately 30 calendar days of proposal receipt. All questions concerning the status of a proposal, or feedback, should be directed to [sbir@afwerx.af.mil](mailto:sbir@afwerx.af.mil).

#### 4.12 CSO Protests

Interested parties may have the right to protest this CSO by filing directly with the agency by serving the Contracting Officer (listed below) with the protest, or by filing with the Government Accountability Office (GAO). If the protest is filed with the GAO, a copy of the protest shall be received in the office designated below within one day of filing with the GAO. The protesting firm shall obtain written and dated acknowledgment of receipt of the protest from:

Ms. Kristina Croake  
AF SBIR/STTR Contracting Officer  
2275 B Street, Bldg. 16, Room 156  
Wright Patterson AFB OH 45433  
Email: [kristina.croake@us.af.mil](mailto:kristina.croake@us.af.mil)

#### 4.13 Selection and Award Protests

Protest of Phase I and Phase II selections and awards need to be directed to the AF SBIR/STTR Contracting Officer or by filing with the Government Accountability Office (GAO). If the protest is filed with the GAO, a copy of the protest shall be received in the office of the DoD Component within one day of filing with the GAO. Protests of the small business status of a selected firm may also be made to the Small Business Administration.

#### 4.14 Phase I Award Information

- a. **Number of Phase I Awards.** The number of Phase I awards will be consistent with the AF RDT&E budget, the number of anticipated awards for interim Phase I modifications, and the number of

anticipated Phase II contracts. No Phase I contracts will be awarded until evaluation of all qualified proposals for a specific topic is completed.

- b. **Type of Funding Agreement.** Each Phase I proposal selected for award will be funded under negotiated contracts or purchase orders and will include a reasonable fee or profit consistent with normal profit margins provided to profit-making firms for R/R&D work. Firm-Fixed-Price or Firm-Fixed-Price Level of Effort type contracts and/or Other Transactions can be negotiated and are at the discretion of the Contracting Officer.
- c. **Dollar Value.** The Phase I contract values are stated in Chart 1 of Section 2.4 of this CSO.
- d. **Timing.** The SBA SBIR Policy Directive, Section 7(c) (1) (ii), states that agencies should issue the Phase I award no more than 180 calendar days after the closing date of the solicitation. Normally proposing firms will receive Phase I or Direct to Phase II selection/non-selection notification within 30 calendar days of the CSO closing date.

#### 4.15 Phase II Award Information

- a. **Number of Phase II Awards.** The number of Phase II awards will depend upon the results of the Phase I efforts and the availability of funds. Historically, approximately 40% of the Phase I awards will result in Phase II projects. This is merely an advisory estimate and the Government may make no awards, fewer awards, or more awards.
- b. **Type of Funding Agreement.** Each Phase II proposal selected for award will be funded under a negotiated contract or Other Transaction and will include a reasonable fee or profit consistent with normal profit margins provided to profit-making firms for R/R&D work. Firm-Fixed Price or Firm-Fixed-Price Level of Effort and/or an Other Transaction may be negotiated and are at the discretion of the Contracting Officer.
- c. **Average Dollar Value.** The maximum Phase II contract value is stated in Chart 1 of Section 2.4 of this CSO and is generally between \$25,000 and \$1,500,000.
- d. **Timing.** Normally the time between the AF receipt of a Phase II Special Topic proposal and the award of a Phase II Special Topic contract is less than 60 calendar days.

#### 4.16 Questions about this CSO and CSO Topics

##### a. General SBIR Questions/Information

**1. AF Help Desk.** The AF SBIR/STTR Help Desk is prepared to address general questions about this CSO, the proposal preparation and electronic submission process and other program-related areas. The Help Desk may be contacted from 9:00 a.m. to 5:00 p.m. ET Monday through Friday at:

- Phone: 1-800-222-0336
- E-mail: [AFSBIRSTTR-Info@us.af.mil](mailto:AFSBIRSTTR-Info@us.af.mil)

**NOTE: Address all questions regarding this CSO to the AF SBIR/STTR Help Desk using the contact information above. DO NOT contact the DoD SBIR/STTR Help Desk.**

**2. AF SBIR/STTR Special Topic Updates and Notices:** To be notified of AF Special Topics updates and other Air Force innovation opportunities, please register at <https://www.afwerx.af.mil/join.html>. If you have any questions about the AF Special Topics, please visit <https://www.afwerx.af.mil/sbir.html> or email [sbir@afwerx.af.mil](mailto:sbir@afwerx.af.mil).

- b. **Direct Contact with Topic Authors.** This CSO goes into pre-release on **10 December 2019**. During pre-release, proposing firms have an opportunity to contact the AF Special Topics staff by emailing [sbir@afwerx.af.mil](mailto:sbir@afwerx.af.mil). Questions should be limited to those related to improved understanding of topic requirements. Proposing firms may not ask for advice or guidance on solution approach or submit additional material to the topic author. If information provided during an exchange is deemed necessary for proposal preparation, it will be made available to all parties through an amendment to the

CSO.

- c. **Online Q&A Webinars ('Ask me Anything'):** Between the start of the pre-release, **10 December 2019**, and the deadline for proposal submittals, **12 February 2020**, the USAF Special Topic staff will hold a series of online webinars where proposing firms may ask questions regarding the special topics. Each of these online webinars will be recorded and posted online afterwards. More information on these webinars can be found at <https://www.afwerx.af.mil/sbir.html>.
- d. **SITIS Q&A System.** Once the AF begins accepting proposals on **14 January 2020** proposers may submit written questions through SITIS at <https://sbir.defensebusiness.org/topics>. In SITIS, the questioner and respondent remain anonymous. All questions and answers are posted electronically for general viewing.

Questions are limited to technical information related to improving the understanding of a particular topic's requirements. Any other questions, such as those asking for advice or guidance on solution approach, will not receive a response. Proposing firms may locate the topic to which they want to submit a technical question by using the Topic Search feature on this Web site. Then, using the form at the bottom of the topic description page, enter and submit the question. Answers are generally posted within seven working days of question submission. (Answers will also be e- mailed directly to the inquirer when the inquirer provides an e-mail address.)

**Proposing firms are advised to monitor SITIS during the CSO period for questions and answers. Proposing firms should also frequently check the SBIR/STTR Portal for updates and amendments to the topics.**

#### **4.17 Registrations and Certifications**

Proposing firms must be registered in the DoD Submission system at <https://www.dodsbirsttr.mil/submissions/> in order to prepare and submit proposals.

Before the AF can award a contract, proposing firms must be registered in the System for Award Management (SAM). It is in the firm's interest to visit SAM and ensure all data is up to date to avoid award delays or possible disqualification. SAM allows firms interested in conducting business with the Federal government to provide basic information on business capabilities and financial information. To register, visit [www.sam.gov](http://www.sam.gov).

Follow instructions found on the SAM Web site on how to obtain a Commercial and Government Entry (CAGE) code and SAM Management Identifier (SAMMI) number. Once obtained, firms should update their profiles on the DoD Submission Web site, <https://www.dodsbirsttr.mil/submissions/>.

In addition to the standard Federal and DoD procurement certifications, the SBA SBIR/STTR Policy Directive requires the collection of certain information from firms at award and during the award life cycle. Each firm must provide this additional information at the time of the Phase I and Phase II award, prior to final Phase I payment, prior to receiving 50% of the total Phase II award amount, and prior to final Phase II payment.

#### **4.18 Promotional Materials**

Promotional and non-project related discussion is discouraged, and additional information provided via Universal Resource Locator (URL), except where explicitly requested, links or on computer disks, CDs, DVDs, video tapes or any other medium will not be accepted or considered in the proposal evaluation.

#### **4.19 Prior, Current, or Pending Support of Similar Proposals or Awards**

**IMPORTANT** -- It is permissible, with proper notification, to submit identical proposals or proposals containing a significant amount of essentially equivalent work (see Section 3.3) for consideration under numerous Federal program solicitations. However, it is unlawful to enter into contracts or grants requiring essentially equivalent effort. If there is any question concerning prior, current, or pending support of similar proposals or awards, it must be disclosed to the soliciting agency or agencies as early as possible. See Section 5.4.c (12).

#### **4.20 Fraud and False Statements**

Knowingly and willfully making any false, fictitious, or fraudulent statements or representations may be a felony under the Federal Criminal False Statement Act (18 U.S.C. Sec 1001), punishable by a fine of up to \$10,000, up to five years in prison, or both.

The Department of Defense, Office of Inspector General Hotline (“Defense Hotline”) is an important avenue for reporting fraud, waste, abuse, and mismanagement within the Department of Defense. The Office of Inspector General operates this hotline to receive and investigate complaints or information from contractor employees, DoD civilians, military service members and public citizens. Individuals who wish to report fraud, waste or abuse may contact the Defense Hotline at (800) 424-9098 between 8:00 a.m. and 5:00 p.m. Eastern Time or visit <http://www.dodig.mil/Components/Administrative-Investigations/DoD-Hotline/Hotline-Complaint/> to submit a complaint. Mailed correspondence should be addressed to the Defense Hotline, The Pentagon, Washington, DC 20301-1900, or e-mail addressed to [hotline@dodig.mil](mailto:hotline@dodig.mil).

#### **4.21 State and Other Assistance Available**

Many states have established programs to provide services to those small business firms and individuals wishing to participate in the Federal SBIR Program. These services vary from state to state, but may include:

- Information and technical assistance;
- Matching funds to SBIR recipients;
- Assistance in obtaining Phase III funding.

Contact your State SBIR/STTR Support office at [https://www.sbir.gov/state\\_services?state=105813#](https://www.sbir.gov/state_services?state=105813#) for further information. Small Businesses may seek general administrative guidance from small and disadvantaged business utilization specialists located in various [Defense Contract Management](#) activities throughout the continental United States.

**4.22 Government Use of Support Contractors on AF SBIR/STTR Program:** Restrictive notices notwithstanding, proposals may be handled for administrative purposes only, by support contractors; U Group, Oasis Systems, Riverside Research, Peerless Technologies, HPC-COM, Mile Two, Wright Brother Institute, Valid Evaluation, MacB (an Alion Company). In addition, only Government employees and technical personnel from Federally Funded Research and Development Centers (FFRDCs) MITRE and Aerospace Corporations working under contract to provide technical support to AF Life Cycle Management Center and Space and Missiles Centers may evaluate proposals. All support contractors are bound by appropriate non-disclosure agreements. If you have concerns about any of these contractors, you should contact Ms. Kristina Croake, AF SBIR/STTR Contracting Officer, [kristina.croake@us.af.mil](mailto:kristina.croake@us.af.mil).

## **5.0 SBIR PHASE I PROPOSAL**

### **Air Force Topic AF201-CSO1**

#### **5.1 INTRODUCTION**

This CSO and the DoD SBIR/STTR Submission Web site are designed to reduce the time and cost required to prepare a formal proposal.

A complete proposal consists of:

- 0. Registration**
  - 0.1. DUNS Number
  - 0.2. System for Award Management (SAM) (CAGE Code)
  - 0.3. Small Business Association ID
  - 0.4. DoD SBIR/STTR ID
- 1. Volume 1: Proposal Cover Sheet**
  - 1.1. Basic Information (CAGE, DUNS)
  - 1.2. Certification Questions
  - 1.3. Business Information
  - 1.4. Proposal Information
  - 1.5. Contact Information
- 2. Volume 2: Technical Volume**
  - 2.1. Up to 5 Page White Paper (required template at <https://www.afwerx.af.mil/resources/AF201-001-Phase-1-Proposal-TEMPLATE.docx>)
    - 2.1.1. Identification of Problem or Opportunity
    - 2.1.2. Phase I Technical Objectives
    - 2.1.3. Phase I Work Plan Outline (including sub-contractors)
    - 2.1.4. Related Work
    - 2.1.5. Relationship with Future R&D
    - 2.1.6. Commercialization Strategy
    - 2.1.7. Key Personnel (listed)
    - 2.1.8. Facilities/Equipment
- 3. Volume 3: Cost Volume**
  - 3.1. Direct Labor Costs
  - 3.2. Direct Material Costs
  - 3.3. Other Direct Costs
- 4. Volume 4: Company Commercialization Report**
- 5. Volume 5: Supporting Documents**
  - 5.1. 15 Page Slide Deck (recommended template at <https://www.afwerx.af.mil/resources/20.1-Open-Topic-Example-Slide-Deck.pdf>)
  - 5.2. Coversheet Supplement
  - 5.3. Supplemental Cost Information
  - 5.4. Resumes of Key Personnel
  - 5.5. \*Non-Proprietary\* Work Plan
  - 5.6. Technical Data Assertions
  - 5.7. Stand-Alone Section K (Signed)
  - 5.8. DoD Funding Agreement Certification (Signed)
- 6. Volume 6: Fraud, Waste and Abuse Training**

**NOTE: Refer to Chart 1 for submission requirements.**

The Submission Web site provides a structure for providing these five sections, but the proposing firm must begin entering its proposal by providing information for the Proposal Cover Sheet. Once the firm begins a Proposal Cover Sheet they will be assigned a proposal number. **Please make note of this proposal number and print it for future reference.**

A mandatory Phase I Proposal Technical Volume Template and a recommended Phase I Proposal Slide Deck Template are available on the Submission Web site and at <https://www.afwerx.af.mil/sbir.html>.

The proposer may add the remaining volumes or modify the Proposal Cover Sheet until the CSO closes. It is the proposing firm's responsibility to verify that the Technical Volume does not exceed the page limit after upload to the DoD SBIR/STTR Submission site by clicking on the "Verify Technical Volume" icon.

Signatures are not required on the electronic forms at the time of submission. If the proposal is selected for award, the AF Contracting Officer will contact the proposer for signatures at the time of award.

## 5.2 Marking Proprietary Proposal Information

Offerors that include in their proposals data that they do not want disclosed to the public for any purpose, or used by the Government except for evaluation purposes, shall:

- (1) Mark the first page of each Volume of the proposal submission with the following legend:

"This proposal includes data that shall not be disclosed outside the Government and shall not be duplicated, used, or disclosed-in whole or in part-for any purpose other than to evaluate this proposal. If, however, a contract is awarded to this offeror as a result of-or in connection with-the submission of this data, the Government shall have the right to duplicate, use, or disclose the data to the extent provided in the resulting contract. This restriction does not limit the Government's right to use information contained in this data if it is obtained from another source without restriction. The data subject to this restriction are contained in pages [insert numbers or other identification of sheets]"; and

- (2) Mark each sheet of data it wishes to restrict with the following legend:

"Use or disclosure of data contained on this page is subject to the restriction on the first page of this volume."

The DoD assumes no liability for disclosure or use of unmarked data and may use or disclose such data for any purpose.

Restrictive notices notwithstanding, proposals and final reports submitted through the DoD Submission Web site may be handled, for administrative purposes only, by support contractors. All support contractors are bound by appropriate non-disclosure agreements.

## 5.3 Phase I Proposal Instructions

When you prepare your proposal, keep in mind that Phase I should address the feasibility of a solution to the topic. The contract period of performance for the Special Topic Phase I shall be three (3) months, and the award shall not exceed \$50,000.

### a. Proposal Cover Sheet (Volume 1)

On the DoD Submission Web site at <https://www.dodsbirsttr.mil/submissions/>, prepare the Proposal Cover Sheet. The Cover Sheet must include a brief technical abstract of no more than 200 words that describes the proposed R&D project with a discussion of anticipated benefits and potential commercial applications. **Do not include proprietary or classified information in the Proposal Cover Sheet.** If your proposal is selected for award, the technical abstract and discussion of anticipated benefits may be publicly released on the Internet. Once the Cover Sheet is saved, the system will assign a proposal number. You may modify the cover sheet as often as necessary until the CSO closes.



**b. Format of Technical Volume (Volume 2)**

- (1) Type of file: The Technical Volume must be a single Portable Document Format (PDF) file, including graphics. Perform a virus check before uploading the Technical Volume file. If a virus is detected, it may cause rejection of the proposal. **Do not lock or encrypt the uploaded file. Do not include or embed active graphics such as videos, moving pictures, or other similar media in the document.**
- (2) Length Limitation: **The Technical Volume is limited to five (5) pages** (excluding the Table of Contents (on its own page), Cover Sheet Cost Volume Itemized Listing (a-j), and Company Commercialization Report). Only the Technical Volume and any enclosures or attachments count toward the 5-page limit. In the interest of equity, pages in excess of the 5-page limitation will not be considered for review or award. (Example, if the technical volume is 5 pages and a 15 page technical volume is submitted, only the first 5 pages will be considered during proposal review). The documents required for upload into Volume 5 “Other” category do not count towards the 5-page limit.
- (3) Layout: Number all pages of your proposal consecutively (*no type 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 the DoD SBIR/STTR Submission Web site when the Cover Sheet was created. The header may be included in the one-inch margin. Most proposals will be printed in black and white so make sure all graphics are distinguishable in black and white. To verify your proposal has been received click on the “Check Upload” icon to view your proposal. Typically, your uploaded file will be virus checked and converted to a .pdf document within the hour. If your proposal does not appear after an hour, please contact the DoD SBIR/STTR Help Desk via email at [DoDSBIRSupport@reisystems.com](mailto:DoDSBIRSupport@reisystems.com) (9:00 am to 5:00 pm ET Monday through Friday). Confirm all digital signatures contained in your proposal, if applicable, are still present after upload.

**c. Content of the Technical Volume (Volume 2)**

The Technical Volume should cover the following items in the order given below (*NOTE – all of these items are addressed in the template, which is available on the Submission Web site and at <https://www.afwerx.af.mil/resources/AF201-001-Phase-1-Proposal-TEMPLATE.docx>*

- (1) **Identification and Significance of the Problem or Opportunity.** Define the specific technical problem or opportunity addressed and its importance.
- (2) **Phase I Technical Objectives.** Enumerate the specific objectives of the Phase I work, including the questions the research and development effort will try to answer to determine the feasibility of the proposed approach.
- (3) **Phase I Work Plan Outline (including Subcontractors’ Efforts)**

Provide an explicit, detailed description of the Phase I approach. Indicate what tasks are planned, how and where the work will be conducted, a schedule of major events, and the final product(s) to be delivered. The Phase I effort should attempt to determine the technical feasibility of the proposed concept. The methods planned to achieve each objective or task should be discussed explicitly and in detail. At the beginning of your work plan outline section, include an outline of the work plan in the following format:

- **Scope:** List the major requirements and specifications of the effort.
- **Task Outline:** Provide a brief outline of the work to be accomplished over the span of the Phase I effort.

- **Deliverables**
- **Kickoff meeting** within 30 calendar days of contract start
- **Progress report (Only 1 for AF Special Topics)**
- **Final report** with SF 298

NOTE: A separate \*Non-Proprietary\* version of the Work Plan Outline should be included in Volume 5, Supporting Documents.

- (4) **Related Work.** Describe significant activities directly related to the proposed effort, including any conducted by the principal investigator, the proposing firm, consultants, or others. Describe how these activities interface with the proposed project and discuss any planned coordination with outside sources. The technical volume must persuade reviewers of the proposer's awareness of the state-of-the-art in the specific topic. Describe previous work not directly related to the proposed effort but similar. Provide the following: (1) short description, (2) client for which work was performed (including individual to be contacted and phone number) and (3) date of completion.

**(5) Relationship with Future Research or Research and Development**

- a) State the anticipated results of the proposed approach if the project is successful.
- b) Discuss the significance of the Phase I effort in providing a foundation for Phase II research or research and development effort.
- c) Identify the applicable clearances, certifications and approvals required to conduct Phase II testing and outline the plan for ensuring timely completion of said authorizations in support of Phase II research or research and development effort.

- (6) **Commercialization Strategy.** Describe in not more than one page your company's strategy for commercializing this technology in DoD, other Federal Agencies, and/or private sector markets. Provide specific information on the market need the technology will address and the size of the market. Also include a schedule showing the quantitative commercialization results from this SBIR/STTR project that your company expects to achieve.

Clearly describe existing commercial (government and non-government) traction of the proposed solution (that will be modified, adapted, validated or expanded during this SBIR/STTR effort), to include, where applicable, revenue, unit sales, user adoption, pre-sales, and investment. Broad adoption and commercial success are indicators of commercial potential and reduced technical risk.

The one-page Commercialization Strategy should be included in Volume 5, Supporting Documents, and is not included in the 5-page limit.

- (7) **Key Personnel.** Identify in the Technical Volume all key personnel who will be involved in this project; include information on directly related education, experience, and citizenship. A concise technical resume of the principal investigator, including a list of relevant publications, if any, must be included. (Please do not include Privacy Act Information). You must identify all U.S. permanent residents to be involved in the project as direct employees, subcontractors, or consultants. Full resumes of Key Personnel should be included in Volume 5, Supporting Documents, and do not count towards the 5-page limit.

- (8) **Facilities/Equipment.** Describe available instrumentation and physical facilities necessary to carry out the Phase I effort. Justify equipment purchases in this section and include detailed pricing information in the Cost Volume. State whether or not the facilities where the proposed work will be performed meet environmental laws and regulations of Federal, state (name), and



local Governments for, but not limited to, the following groupings: airborne emissions, waterborne effluents, external radiation levels, outdoor noise, solid and bulk waste disposal practices, and handling and storage of toxic and hazardous materials. Information on Facilities/Equipment should be included in Volume 3, Cost Volume and Volume 5, Supporting Documents, and does not count towards the 5-page limit.

- (9) **Subcontractors/Consultants.** Involvement of a university or other subcontractors or consultants in the project may be appropriate. If such involvement is intended, it should be identified and described according to the Cost Breakdown Guidance. A minimum of two- thirds of the research and/or analytical work in Phase I, as measured by direct and indirect costs, must be conducted by the proposing firm, unless otherwise approved in writing by the Contracting Officer. SBIR/STTR efforts may include subcontracts with Federal Laboratories and Federally Funded Research and Development Centers (FFRDCs). A waiver is no longer required for the use of Federal laboratories and FFRDCs; however, proposers must certify their use of such facilities on the Cover Sheet of the proposal. Information on Subcontractor/Consultants should be included in Volume 3, Cost Volume and Volume 5, Supporting Documents, and does not count towards the 5-page limit.

#### **d. Content of the Cost Volume (Volume 3)**

Complete the Cost Volume in the format shown in the Cost Breakdown Guidance by using the on-line cost volume form on the DoD Submission Web site. Some items in the Cost Breakdown Guidance may not apply to the proposed project. If that is the case, there is no need to provide information on each and every item. What matters is that enough information be provided to allow us to understand how you plan to use the requested funds if a contract is awarded. The Cost Volume must be adequate to enable AF personnel to determine the purpose, necessity and reasonability of each cost element. The cost volume will cover 2 months of technical effort (see Chart 1) and 1 month reporting. Provide sufficient detail (1-10 below) on how funds will be used if the contract is awarded. The on-line Cost Volume and Itemized Cost Volume Information will not count against the 5-page limit/15 slide limit. The itemized listing may be placed in the “Explanatory Material” section of the on-line Cost Volume (if enough room), or may be submitted in Volume 5, Supporting Documents, under the “Other” dropdown options. (Note: Only one file can be uploaded to the DoD Submission Site). Ensure that this file includes your complete Technical Volume and the information below.

- (1) Direct Labor Costs: Identify key personnel by name if possible or by labor category if specific names are not available. The number of hours, labor overhead and/or fringe benefits and actual hourly rates for each individual are also necessary.
- (2) Direct Material Costs: Justify cost for materials, parts, and supplies with an itemized list containing types, quantities, and price and where appropriate, purpose. If proposing direct material costs, justification information (to include vendor quotes, historical costs, etc.) can be included as “Supplemental Cost Information” in Volume 5, Other Supporting Documents.
- (3) Other Direct Costs: This category of costs includes specialized services such as machining or milling special testing or analysis, cost incurred in obtaining temporary use of specialized equipment. Proposals, which include leased hardware, must provide an adequate lease vs. purchase justification or rationale. If proposing other direct costs, additional information can be included as “Supplemental Cost Information” in Volume 5, Other Supporting Documents.
  - a) Travel: Include travel costs in “Other Direct Costs.” Travel costs must relate to the needs of the project. Break out travel cost by trip, with the number of travelers, airfare, per diem, lodging, etc. The number of trips required, as well as the destination and purpose of each trip should be reflected. Recommend budgeting at least one (1) trip to the Air Force

location managing the contract. For the special topic, greater travel expectations will be required as noted topic statements and corresponding SITIS Q&A. Estimation of travel costs need not be an overly onerous exercise, and your actual travel cost may differ from your proposed travel; however, this information allows the Contracting Officer to ensure the costs of travel are not excessive.

- b) Subcontracts: Include subcontract/consultant costs in “Other Direct Costs.” Involvement of university or other consultants in the planning and/or research stages of the project may be appropriate. If the offeror intends such involvement, describe in detail and include information in the Cost Volume. The proposed total of all consultant fees, facility leases or usage fees, and other subcontract or purchase agreements may not exceed one-third of the total contract price or cost, unless otherwise approved in writing by the Contracting Officer. Support subcontract costs with copies of the subcontract agreements. The supporting agreement documents must adequately describe the work to be performed. At a minimum, an offeror must include a Statement of Work (SOW) with a corresponding detailed Cost Volume for each planned subcontract.
  - Consultants: Provide a separate agreement letter for each consultant. The letter should briefly state what service or assistance will be provided, the number of hours required and hourly rate.

- (4) Special Tooling and Test Equipment and Material: The inclusion of equipment and materials will be carefully reviewed relative to need and appropriateness of the work proposed. The purchase of special tooling and test equipment must, in the opinion of the Contracting Officer, be advantageous to the Government and relate directly to the specific effort. They may include such items as innovative instrumentation and/or automatic test equipment. Title to property furnished by the Government or acquired with Government funds will be vested with the AF, unless it is determined that transfer of title to the contractor would be more cost effective than recovery of the equipment by the AF.

- (5) Any exceptions to the model Phase I purchase order (P.O.) found at <http://www.afsbirsttr.af.mil/Program/Overview/> should be included in your cost proposal. Full text for the clauses included in the P.O. may be found at <http://farsite.hill.af.mil>.

NOTE: If no exceptions are taken to an offeror’s proposal, the Government may award a contract without discussions (except clarifications as described in FAR 15.306(a)). Therefore, the offeror’s initial proposal should contain the offeror’s best terms from a cost or price and technical standpoint. If selected for award, the award contract or Purchase Order (PO) document received by your firm may vary in format/content from the model P.O. reviewed. If there are questions regarding the award document, contact the Phase I Contracting Officer listed on the selection notification. The Government reserves the right to conduct discussions if the Contracting Officer later determines them to be necessary.

- e. DD Form 2345: For proposals submitted under export-controlled topics (either International Traffic in Arms (ITAR) or Export Administration Regulations (EAR)), a copy of the certified DD Form 2345, Militarily Critical Technical Data Agreement, or evidence of application submission must be included. Approval of the DD Form 2345 will be verified if proposal is chosen for award. If applicable, the DD Form 2345 should be included in Volume 5, Supporting Documents, and does not count towards page limit.
- f. The AF does not participate in the Discretionary Technical and Business Program. Contractors should not submit proposals that include Discretionary Technical and Business Assistance.
- g. Supporting Documents (Volume 5)

Volume 5 is provided for small businesses to submit additional documentation to support the Technical Volume (Volume 2) which is limited to five (5) pages, and the Cost Volume (Volume 3). The Supporting Documents volume is available for use for submitting Phase I and Phase II proposals for both

the SBIR and STTR Programs. NOTE: The online application may only allow for a single document to be uploaded to the “Supporting Documents” Volume; therefore, the documents may need to be combined into a single PDF file before uploading to the application form. (NOTE – when combining PDF documents, ensure digital signatures are not stripped).

Additional documents that are acceptable and should be included in Volume 5 are:

- (1) **15 Slide Deck:** Include a slide deck that is 15 slides that will describe your overall proposal, including your technical information, team’s ability to perform the research and the commercialization potential of your proposed solution. An example slide deck can be found at: <https://www.afwerx.af.mil/sbir.html>
- (2) **Coversheet Supplement:** This document is intended to provide extra information that may be needed and should include the following information:
  - a. **Certification/Eligibility Check:** The online coversheet asks you many questions and, depending on your answer to these questions, you may need to provide more information. The list of the questions is reflected below along with any additional information needed.
    - 1) Do you allow for the release of contact information to Economic Development Organizations?
      - i. Either answer is awardable
    - 2) Are you a small business as described in section 3.15 of this CSO, with no more than 500 employees including affiliates?
      - i. If your firm is NOT an eligible small business, your proposal will be disqualified.
    - 3) Does your business concern meet the ownership and control requirements in 13 CFR 121.702?
      - i. If your firm does NOT meet the ownership and control requirements, your proposal will be disqualified.
    - 4) Is 50% or more of your firm owned or managed by a corporate entity?
      - i. If YES, and the corporate entity is also a small business as described in section 3.15 of this CSO, please include in this section a description of your corporate relationship, including any other affiliates of the owning corporate entity.
      - ii. If your firm is 50% or more owned or managed by a corporate entity that is not a small business, your proposal will be disqualified.
    - 5) At a minimum, will two-thirds of the research and/or analytical work in Phase I be carried out by your small business as described in section 4.2 of this CSO?
      - i. If your firm will NOT perform at least 2/3 of the research and/or analytical work, your proposal will be disqualified.
    - 6) Is primary employment of the principal investigator with your firm as described in section 4.2 of this CSO?
      - i. If primary employment of the Principal Investigator for this project is NOT with your firm, your proposal will be disqualified.
    - 7) Has your firm been convicted of a fraud-related crime involving SBIR and/or STTR funds or found civilly liable for a fraud-related violation involving Federal funds?
      - i. If your firm has been convicted of a fraud-related crime involved SBIR and/or STTR funds, your proposal will be disqualified.
    - 8) Has your firm’s Principal Investigator (PI) or Corporate Official (CO), or owner been convicted of a fraud-related crime involving SBIR and/or STTR funds or found civilly liable for a fraud-related violation involving Federal funds?
      - i. If your Principal Investigator or Corporate Official has been convicted of a fraud-related crime involved SBIR and/or STTR funds, your proposal will be disqualified.
    - 9) Has your firm met the performance benchmarks in section 3.1 of this CSO and listed by the SBA on their website as eligible to participate?

- i. Either answer is awardable.
- 10) Is your firm registered in the SBA's venture capital database as majority-owned by venture capital operating companies, hedge funds, or private equity firms?
  - i. If YES, please state whether the VCOC, hedge fund, or private equity firm is also a small business as defined by the SBA. If so, then the VCOC, hedge fund, or private equity firm may count as an 'affiliate' and their employee numbers will need to be added to your employee total.
  - ii. If your firm is majority-owned by venture capital operating companies, hedge funds, or private equity firms, your proposal will be disqualified.
- 11) Is your firm more than 50% owned by a single Venture Capital Owned Company (VCOC), hedge fund, or private equity firm?
  - i. If YES, please state whether the VCOC, hedge fund, or private equity firm is also a small business as defined by the SBA. If so, then the VCOC, hedge fund, or private equity firm may count as an 'affiliate' and their employee numbers will need to be added to your employee total.
  - ii. If your firm is more than 50% owned by a single venture capital operating company, hedge fund, or private equity firm, your proposal will be disqualified.
- 12) Is your firm more than 50% owned by multiple business concerns that are VCOCs, hedge funds, or private equity firms?
  - i. If YES, please state whether the VCOC, hedge fund, or private equity firm is also a small business as defined by the SBA. If so, then the VCOC, hedge fund, or private equity firm may count as an 'affiliate' and their employee numbers will need to be added to your employee total.
  - ii. If your firm is more than 50% owned by multiple venture capital operating companies, hedge funds, or private equity firms, your proposal will be disqualified.

**NOTE:** If questions 10, 11, or 12 are answered 'YES, then explain the ownership structure of your firm and that of your investors. If the VCs, hedge funds or PE firms that own equity in your company are themselves small businesses as defined by the SBA, then you may be still eligible for award.

More information can be found here: <https://www.sba.gov/document/support--affiliation-guide-size-standards>

**EXAMPLE 1:** Example: Company A owns Companies B, C and D (54.5%, 81% and 60%, respectively). Company A has the power to control Companies B, C and D. The companies are all affiliated. The receipts and/or number of employees of all four companies will be aggregated in determining the size of any one of them.

**EXAMPLE 2:** Investor X, Investor Y, and Company A each own 23% of Company B. No other stockholder owns more than 5% of Company B. All three persons will be presumed to control Company B. Each presumed affiliate may attempt to rebut the presumption by showing that its control or power to control does not exist. If the presumption is not overcome, then Company A and Investors X and Y will all be considered affiliates of Company B. In addition, all companies controlled by Company A and Investors X and Y would be affiliates of Company B.

- 13) Number of employees including all affiliates (average for preceding 12 months):
  - i. If your firm and affiliates have employed, on average over the last 12 months, more than 500 employees, your proposal will be disqualified.
- 14) Is your firm affiliated as set forth in 13 CFR 121.103?
  - i. If yes, then please describe your affiliations as described here:

<https://www.sba.gov/document/support--affiliation-guide-size-standards>

- ii. Note that this may include investors (VCs, hedge funds or PE firms) and their other controlled entities, if they own a controlling share of the company.

**NOTE:** A business that is wholly owned or substantially owned by investment companies or development companies that are licensed or qualified under the Small Business Investment Act of 1958 (SBIA), are not considered affiliates of those investment companies or development companies.

**EXAMPLE:** Company A is 51% owned by Company B, a Small Business Investment Company (SBIC) that is licensed under the SBIA. Company A is not affiliated with Company B.

15) As defined by SBA:

- i. Are you a socially or economically disadvantaged small business? - Either answer is awardable.
- ii. Are you a Woman-Owned small business (WOSB)? - Either answer is awardable.
- iii. Are you a certified HUBZone small business concern? - Either answer is awardable.
- iv. Are you a Service-Disabled Veteran-Owned small business (SDVOSB)? - Either answer is awardable.

16) Has the Defense Contracting Audit Agency (DCAA) or other agreed upon agency, performed a review of your accounts or records in connection with government contracts or subcontracts within the past 12 months?

- i. Either answer is awardable.

17) Does the proposed cost include Technical and Business Assistance (TAB)?

- i. The Air Force does not allow for TAB; therefore if you are applying for TAB, your proposal may be disqualified.

18) Has a proposal for essentially equivalent work (Section 3.3 of this CSO) been submitted to other US government agencies or DOD components?

- i. If the answer to this question is yes, you must include the requested information in the Coversheet Supplement.

19) Has a contract been awarded for any of the proposals listed above?

- i. If your firm has been awarded a contract from the US Government for essentially equivalent work, your proposal will be disqualified.

20) Are you submitting assertions in accordance with DFARS 252.227-7017

"Identification and assertions use, release, or disclosure restriction"?

- i. If you answered 'yes' to this question, you must include the table in Volume 5 of your proposal, which can be found at:

[https://www.jhuapl.edu/vendorforms/forms/data\\_rights\\_assertion\\_table.pdf](https://www.jhuapl.edu/vendorforms/forms/data_rights_assertion_table.pdf)

If you are claiming data rights assertions, but do not send a Data Rights Assertions Table, then your proposal will be disqualified.

- ii. Note: the purpose of Phase I is not to perform Research or Research and Development on your solution; thus, in the majority of cases, assertions will not be necessary in Phase I and may cause delays in contract award.

21) Are you proposing research that utilizes human/animal subjects or recombinant DNA as described in section 3.11, 3.12, and 3.13 of the solicitation?

If your firm does intend to perform research involving 1) human subjects, 2) animal subjects, or 3) recombinant DNA molecules, please include the following information (add attachments as needed):

- i. For 1) please provide a current Federal Assurance of Compliance with
- ii. Federal regulation for human subject protection and evidence of completed appropriate training in human subject protection for all involved personnel from your firm;

- iii. for 2) documentation verifying review and approval for the research from the Institutional Animal Care and Use Committee;
  - iv. and for 3) evidence of approval by the Institutional Biosafety Committee.
  - v. If the required documentation is not included in the proposal, the proposal will be disqualified.
- 22) Are teaming partners or subcontractors proposed?
- i. If yes, be sure to include this information in the proposal Coversheet (Volume 1), Cost Volume (Volume 3) and Supplemental Cost Information (Volume 5).
- 23) Are you proposing to use foreign nationals as defined in section 3.5 of the solicitation for work under the proposed effort?
- i. For these individuals, please provide the country(ies) of origin, work permit(s)/visa(s) held, and the specific tasks with the Work Plan to be assigned to each individual.
  - ii. If the cognizant Government Program Manager does not concur with the individuals' involvement or the information is not received by the specified date/time, your proposal will be disqualified.
- 24) What percentage of the principal investigator's total time will be on the project?
- i. Any non-zero answer is awardable.
  - ii. If the answer is below 25%, please describe the principal investigator's other roles.
- 25) Is the principal investigator a woman?
- i. Either answer is awardable.
- 26) Is the principal investigator socially/ economically disadvantaged?
- i. Either answer is awardable.

- b. **Prior, Current, or Pending Support of Similar Proposals or Awards:** If a proposal submitted in response to this CSO is substantially the same as another proposal that was funded, is now being funded, or is pending with another Federal Agency, or another or the same DoD Component, you must reveal this on the Proposal Cover Sheet (Volume 1) and provide the following information in the Coversheet Supplement:

Name of Federal Agency to which the Proposal was submitted, or from which an award is expected or has been received	Date of Proposal Submission or date of award	Title of Proposal (if SBIR/STTR, include Proposal Number and SBIR/STTR topic number)	Name and Title of Principal Investigator for each proposal submitted or award received	Was awarded? If so, include contract number.
(LIST)	(LIST)	(LIST)	(LIST)	(LIST)

**NOTE: If this does not apply, state in the proposal "No prior, current, or pending support for proposed work."**

The identification of similar proposals or awards is particularly important for the special topics, as they are broader in nature than many of the traditional SBIR/STTR topics. **Failure to disclose similar proposals or awards will result in your proposal being disqualified.** Additionally, re-using parts or whole proposals from previously awarded proposals will likely result in your proposal being deemed essentially equivalent. For example, if you submit a 100-second video with a Phase II proposal and it is awarded, then you use the same (or substantially similar) video

for another proposal, your proposal would likely be deemed essentially equivalent and therefore likely disqualified.

- c. **Foreign Citizens.** Identify any foreign citizens or individuals holding dual citizenship expected to be involved on this project as a direct employee, subcontractor, or consultant. For these individuals, please specify their country of origin, the type of visa or work permit under which they are performing and an explanation of their anticipated level of involvement on this project. Offerors frequently assume that individuals with dual citizenship or a work permit will be permitted to work on a SBIR/STTR project and do not report them. This is not necessarily the case and a proposal will be rejected if the requested information is not provided. Therefore, firms should report any and all individuals expected to be involved on this project that are considered a foreign national as defined in Section 3.5 of the CSO. You may be asked to provide additional information during negotiations in order to verify the foreign citizen's eligibility to participate on a SBIR/STTR contract. Supplemental information provided in response to this paragraph will be protected in accordance with the Privacy Act (5 U.S.C. 552a), if applicable, and the Freedom of Information Act (5 U.S.C. 552(b) (6)). Proposals including the involvement of foreign nationals should include this table:

Full Name	Foreign National (Yes or No)	Country of Origin	Type of Visa or Work Permit	Description of Involvement (specific task(s) in the work plan)
(LIST)	(LIST)	(LIST)	(LIST)	(LIST)

3) **Supplemental Cost Information:** This document will be used for you to explain any additional information surrounding the cost information you submitted in the Cost Volume (Volume 3) in the online form. The Supplemental Cost Information detail must be adequate to enable Air Force personnel to determine the purpose, necessity and reasonability of each cost element provided in the Cost Volume. Information in this section should include the following where applicable:

- a. **Direct Labor:** For any notable instances (i.e. a significant number of hours, very high hourly wages or significant labor overhead/fringe rates), please justify them in this section. A helpful resource for telling if a wage is very high is <https://www.bls.gov/bls/blswage.htm>.
- b. **Direct Material Costs:** Justify costs for materials, parts, and supplies with an itemized list containing types, quantities, and price and where appropriate, purposes. For the materials included in the cost volume, please provide the basis for the listed costs. This can be historical information, vendor quotes, catalogs, etc.
- c. **Travel Costs (included in Other Direct Costs):** For AF Special Topics greater travel expectations will likely be required. If travel was proposed (as an Other Direct Cost), justify those expenses here. Cost for travel funds must be justified and related to the needs of the project. For the travel costs included in the proposal provide the number of trips, travelers per trip, specific locations and purpose of each trip. Also include, to the extent practicable, the basis for the proposed flight, lodging, per diem (meals), and ground transportation costs. A useful resource for this section is <https://www.gsa.gov/travel/plan-book/per-diem-rates>.
- d. **Special Tooling and Test Equipment and Material:** While special tooling and test equipment and material cost may be included under Phase I, the inclusion of



equipment and material will be carefully reviewed relative to need and appropriateness for the work proposed. The purchase of special tooling and test equipment must, in the opinion of the 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.

- e. **Copies of Subcontract Agreements:** Involvement of university or other consultants in the planning and/or research stages of the project may be appropriate. If the offeror intends such involvement, describe in detail and include information in the Cost Volume. The proposed total of all consultant fees, facility leases or usage fees, and other subcontract or purchase agreements may not exceed one-third of the total contract price or cost, unless otherwise approved in writing by the Contracting Officer. Support subcontract costs with copies of the subcontract agreements. The supporting agreement documents must adequately describe the work to be performed. **At a minimum, an offeror must include a Statement of Work (SOW) with a corresponding detailed Cost Volume for each planned subcontract.**
- f. **Copies of Consultant Agreements:** Provide a separate agreement letter for each consultant. The letter should briefly state what service or assistance will be provided, the number of hours required and hourly rate.

Some proposing firms choose to work with subcontractors or consultants that help proposing firms determine the feasibility of their solutions for a specific DoD customer through customer discovery assistance. **If the proposing firm is working with a customer discovery firm like this for any Special Topic, the associated agreement, is required to be included with the proposal.**

- g. **Cost Sharing:** Cost sharing is NOT permitted for Phase I proposals under this CSO.

NOTE: When a proposal is selected for award, you must be prepared to submit further documentation to the Component Contracting Officer to substantiate costs (e.g., an explanation of cost estimates for equipment, materials, and consultants or subcontractors).

- 4) **Resumes of Key Personnel:** Identify in the Technical Volume all key personnel, including and especially the Principal Investigator, who will be involved in this project; include information on directly related education, experience, and citizenship. A technical resume of the principal investigator, including a list of publications, if any, must be part of that information.
- 5) **Non-Proprietary Work Plan Outline:** Your Phase I contract will include a non-proprietary version of your work plan outline. Please include a separate, non-proprietary version of your work plan in this section, free of any proprietary markings. This should be attached as a stand-alone document so that it can be easily attached to the final contract. The AF uses the \*Non-Proprietary\* Work Plan Outline as the initial draft of the Phase I Statement of Work (SOW); therefore, do not include Proprietary information in the \*Non-Proprietary\* Work Plan Outline. To do so will necessitate a request for revision and may delay contract award.
- 6) **Technical Data Rights (Assertions):** Rights in technical data, including software, developed under the terms of any contract resulting from proposals submitted in response to this CSO generally remain with the contractor, except that the Government obtains a royalty-free license to use such technical data only for Government purposes during the period



commencing with contract award and ending five years after completion of the project under which the data were generated. This data should be marked with the restrictive legend specified in DFARS 252.227-7018. Upon expiration of the five year restrictive license, the Government has unlimited rights in the SBIR/STTR data. During the license period, the Government may not release or disclose SBIR/STTR data to any person other than its support services contractors except: (1) For evaluation purposes; (2) As expressly permitted by the contractor; or (3) A use, release, or disclosure that is necessary for emergency repair or overhaul of items operated by the Government. See DFARS clause 252.227-7018, "Rights in Noncommercial Technical Data and Computer Software – Small Business Innovation Research (SBIR) Program."

- a. If you answered 'yes' to question 20 in the Certification/Eligibility Check, you must include the following table in your proposal, which can be found at: [https://www.jhuapl.edu/vendorforms/forms/data\\_rights\\_assertion\\_table.pdf](https://www.jhuapl.edu/vendorforms/forms/data_rights_assertion_table.pdf) If you are claiming data rights assertions, but do not send a Data Rights Assertions Table, then your proposal will be disqualified.
- b. Note: the purpose of Phase I is not to perform Research or Research and Development on your solution; thus, in the majority of cases, assertions will not be necessary in Phase I and may cause delays in contract award.

If a proposer plans to submit assertions in accordance with DFARS 252.227-7017, those assertions must be identified and assertion of use, release, or disclosure restriction **MUST** be included with your proposal submission. The contract cannot be awarded until assertions have been approved.

- 7) **Stand-Alone Section K (Signed):** In order to expedite the Phase I contracting process, please fill out and sign the 'Stand-Alone Section K' found at <https://www.afwerx.af.mil/sbir.html> and include in this section.
- 8) **DoD Funding Agreement Certification (Signed):** The Air Force Special Topics require that a Funding Agreement Certification be completed and signed at time of proposal submission and included in Volume 5. This certification can be found at: <https://www.afsbirsttr.af.mil/Program/Phase-I-and-II/> under "Phase I and II Certification – Funding Agreement."
- 9) Additional Documents that are acceptable and may be included in Volume 5 for Phase Is are:
  1. Customer Memorandum (see template at [https://www.afwerx.af.mil/resources/19.2P2-20.1D2P2-SBIR-Open-Topic-Customer-Memorandum\\_9.10.19.docx](https://www.afwerx.af.mil/resources/19.2P2-20.1D2P2-SBIR-Open-Topic-Customer-Memorandum_9.10.19.docx)) or Letters of Support.
  2. Lifecycle Certification (see example at <https://www.afsbirsttr.af.mil/Portals/60/Pages/Phase%20I-II/SBIR-STTR-Phase-I-II-Life%20Cycle%20Certifications.pdf> )
  3. Allocation of Rights (see example at <https://www.afsbirsttr.af.mil/Portals/60/Pages/Phase%20I-II/Model%20agreement%20for%20the%20allocation%20of%20rights.pdf>)
  4. ITAR/EAR Certification: For proposals whose solutions fall under export-controlled regulations (either International Traffic in Arms (ITAR) or Export Administration Regulations (EAR)), a copy of the certified DD Form 2345, Militarily Critical Technical Data Agreement, or evidence of application submission must be included. The form, instructions, and FAQs may be found at the United States/Canada Joint Certification Program website, <http://www.dla.mil/HQ/InformationOperations/Offers/Products/LogisticsApplications/JCP/DD2345Instructions.aspx>. Approval of the DD Form 2345 will be verified if proposal is chosen for award.
  5. Exceptions to Phase I Purchase Order: Any exceptions to the model Phase I purchase order (P.O.) found at <http://www.afsbirsttr.af.mil/Program/Overview/> should be included in this section. Full text for the clauses included in the P.O. may be found at <http://farsite.hill.af.mil>
  6. Other

## h. Fraud, Waste and Abuse Training (Volume 6)

Please note that the Fraud, Waste and Abuse Training must be completed prior to submission of your proposal. This training must be completed for each proposal you submit. The SBIR/STTR Program training related to Fraud, Waste and Abuse is available at: <https://www.dodsbirsttr.mil/submissions/>. Once completed, print out the last slide and add the following elements to the final slide:

1. “The undersigned has fully and completely reviewed this training on behalf of the proposer/awardee, understands the information presented, and has the authority to make this certification on behalf of the proposer/awardee. The undersigned understands providing false or misleading information during any part of the proposal, award, or performance phase of a SBIR or STTR contract or grant may result in criminal, civil or administrative sanctions, including but not limited to: fines, restitution, and/or imprisonment under 18 USC 1001; treble damages and civil penalties under the False Claims Act, 31 USC 3729 et seq.; double damages and civil penalties under the Program Fraud Civil Remedies Act, 31 USC 3801 et seq.; civil recovery of award funds; suspension and/or debarment from all Federal procurement and non-procurement transactions, FAR Part 9.4 or 2 CFR Part 180; and other administrative remedies including termination of active SBIR/STTR awards.”
2. Name of Firm
3. Proposal Number
4. Name of Signatory
5. Position of Signatory
6. Date of Signing
7. Signature

Once this has been completed, upload the modified final slide to Volume 6 of the DoD SBIR Web site (<https://www.dodsbirsttr.mil/submissions/>). When the training has been completed and certified, the DoD Submission Website will indicate this in the proposal which will complete the Volume 6 requirement. If the training has not been completed, you will receive an error message. Your proposal cannot be submitted until this training has been completed. Your complete proposal **must** be submitted via the submissions site on or before the **8:00 pm ET, 12 February 2020 deadline**. A hardcopy **will not** be accepted.

## 5.4 Phase I Proposal Checklist

The Offeror’s proposal shall be in accordance with Section 5.0. It is mandatory that the complete proposal submission consist of:

0. Registration
  - 0.1. DUNS Number
  - 0.2. System for Award Management (SAM) (CAGE Code)
  - 0.3. Small Business Association ID
  - 0.4. DoD SBIR/STTR ID
1. Volume 1: Proposal Cover Sheet
  - 1.1. Basic Information (CAGE, DUNS)
  - 1.2. Certification Questions
  - 1.3. Business Information
  - 1.4. Proposal Information
  - 1.5. Contact Information
2. Volume 2: Technical Volume
  - 2.1. Up to 5 Page White Paper (required template at <https://www.afwerx.af.mil/resources/AF201-001-Phase-1-Proposal-TEMPLATE.docx>)
    - 2.1.1. Identification of Problem or Opportunity
    - 2.1.2. Phase I Technical Objectives
    - 2.1.3. Phase I Work Plan Outline (including sub-contractors)
    - 2.1.4. Related Work

- 2.1.5. Relationship with Future R&D
- 2.1.6. Commercialization Strategy
- 2.1.7. Key Personnel (listed)
- 2.1.8. Facilities/Equipment
- 3. Volume 3: Cost Volume
  - 3.1. Direct Labor Costs
  - 3.2. Direct Material Costs
  - 3.3. Other Direct Costs
- 4. Volume 4: Company Commercialization Report
- 5. Volume 5: Supporting Documents
  - 5.1. 15 Page Slide Deck (recommended template at <https://www.afwerx.af.mil/resources/20.1-Open-Topic-Example-Slide-Deck.pdf>)
  - 5.2. Coversheet Supplement
  - 5.3. Supplemental Cost Information
  - 5.4. Resumes of Key Personnel
  - 5.5. Non-Proprietary Work Plan
  - 5.6. Technical Data Assertions
  - 5.7. Stand-Alone Section K (Signed)
  - 5.8. DoD Funding Agreement Certification (Signed)
- 6. Volume 6: Fraud, Waste and Abuse Training

Those responding to this CSO should note the proposal preparation tips listed below:

- a. Read and follow all instructions contained in this CSO.
- b. Register the firm on the secure, password-protected DoD Submission Web site at <https://www.dodsbirsttr.mil/submissions/> and, as instructed on the Web site, prepare the firm's submission. The Air Force will accept only those proposals submitted electronically via the DoD Submission web site.
- a. Register in the System for Award Management (SAM), <https://www.sam.gov/>. If you are not registered in SAM, you will not be eligible for award. Additionally, verify that you are registered to receive contracts (not just grants) and that your address matches between your proposal and SAM. **Begin this process early, as it can sometimes take more than 30 days to be issued.**
- b. Register the firm with SBA's Company Registry at [www.sbir.gov](http://www.sbir.gov) and provide the SBA SBC Identification Number on each proposal Cover Sheet submitted in response to this CSO.
- c. Check that the cost adheres to paragraph 5.3 d of this CSO and the cost on the Cover Sheets matches the cost in the Cost Volume.
- d. Check that the Project Abstract and other content provided on the Cover Sheets contain NO proprietary information.
- e. Mark proprietary information within the Technical Volume as instructed in Section 5.3.
- f. The content in the Technical Volume includes the items in Section 5.3.c.
- g. That the header on each page of the technical volume should contain the company name, topic number, and proposal number. (The header may be included in the one-inch margins.)
- h. The Company Commercialization Report is submitted online in accordance with Section 5.4.e. This report is required even if the firm has not received prior SBIR/STTR funding.

- i. Limit your Technical Volume to five (5) pages.
- j. A Phase I Template to assist in preparing your Technical Volume is available on the SBIR/STTR Submission Web site at <https://www.afwerx.af.mil/resources/AF201-001-Phase-1-Proposal-TEMPLATE.docx>

The AF recommends that you complete your submission early, as computer traffic gets heavy near the announcement closing and could slow down the system. **Do not wait until the last minute.** The AF will not be responsible for proposals being denied due to servers being “down” or inaccessible. Please assure that your e-mail address listed in your proposal is current and accurate. The AF is not responsible for ensuring notifications are received by firms changing mailing address/e-mail address/company points of contact after proposal submission without proper notification to the AF. Changes of this nature that occur after proposal submission or award (if selected) for Phase I and II shall be sent to the Air Force SBIR/STTR site address, [afsbirsttr-info@us.af.mil](mailto:afsbirsttr-info@us.af.mil).

## 6.0 PHASE I EVALUATION CRITERIA

### 6.1 Proposal Evaluation

Proposals will be evaluated based on the criteria outlined below. Selections will be based on best value to the Government considering the following factors which are listed in descending order of importance:

- a. The soundness, technical merit, and innovation of the proposed approach and its incremental progress toward topic or subtopic solution.
- b. The qualifications of the proposed principal/key investigators, supporting staff, and consultants. Qualifications include not only the ability to perform the research and development but also the ability to commercialize the results.
- c. The potential for commercial (Government or private sector) application and the benefits expected to accrue from this commercialization.

*Note: The Company Commercialization Report (Volume 4) will not be available for AF SBIR CSO X20.1.*

Cost reasonableness and realism shall also be considered to the extent appropriate.

Technical reviewers will base their conclusions only on information contained in the proposal. It cannot be assumed that reviewers are acquainted with the firm or key individuals or any referenced experiments.

**NOTE:** Please note that each firm may only have one active ‘Open Topic’ Phase I award at a time. If a company submits multiple technically acceptable proposals to the F201-CSO1 Phase I ‘Open Topic’, only the proposal with the highest evaluation will be awarded. If multiple proposals are evaluated to be equal, the government will decide which proposal to award based upon the needs of the Air Force.

## 7.0 PHASE II PROPOSAL

**The AF reserves the right to modify the Phase II submission requirements. Should the requirements change, all Phase I awardees will be notified. The AF also reserves the right to change any administrative procedures at any time that will improve management of the AF SBIR Program.**

### 7.1 Introduction

Phase II is the demonstration of the technology that was found feasible in Phase I. Only Phase I awardees are eligible to submit a Phase II proposal (exception is a Direct to Phase II Proposal, see Volume 9.0 for instructions). All Phase I awardees will be sent a notification with the Phase II proposal submittal date and a link to detailed Phase II proposal preparation instructions, located here: <http://www.afsbirsttr.af.mil/Program/Phase-I-and-II/>.

### 7.2 Proposal Provisions

**IMPORTANT** -- While it is permissible, with proper notification, to submit identical proposals or proposals containing a significant amount of essentially equivalent work for consideration under numerous Federal program solicitations, it is unlawful to enter into contracts or grants requiring essentially equivalent effort. If there is any question concerning this, it must be disclosed to the soliciting agency or agencies as early as possible. If a proposal submitted for a Phase II effort is substantially the same as another proposal that was funded, is now being funded, or is pending with another Federal Agency, or another or the same DoD Component, you must reveal this on the Cover Sheet and provide the information required in Section 5.4.c(11).

Due to specific limitations on the amount of funding and number of awards that may be awarded to a particular firm per topic using SBIR/STTR program funds, Head of Agency Determinations are now required before a different agency may make an award using another agency's topic. This limitation does not apply to Phase III funding. Please contact your original sponsoring agency before submitting a Phase II proposal to an agency other than the one who sponsored the original topic.

Section 4(b)(1)(i) of the SBIR and the STTR Policy Directives provide that, at the agency's discretion, projects awarded a Phase I under a solicitation for SBIR may transition in Phase II to STTR and vice versa. A firm wishing to transfer from one program to another must contact their designated technical monitor to discuss the reasons for the request and the agency's ability to support the request. The transition may be proposed prior to award or during the performance of the Phase II effort. Agency disapproval of a request to change programs shall not be grounds for granting relief from any contractual performance requirement. All approved transitions between programs must be noted in the Phase II award or award modification signed by the contracting officer that indicates the removal or addition of the research institution and the revised percentage of work requirements

### 7.3 How to Submit

Each Phase II proposal must be submitted through the DoD SBIR/STTR Submission Web site. Each proposal submission must contain a Proposal Cover Sheet, Technical Volume, Cost Volume, Company Commercialization Report, Supporting Documents and Fraud, Waste and Abuse Training. The preferred format for submission of proposals is Portable Document Format (.pdf). Graphics must be distinguishable in black and white. Please virus-check your submissions.

### 7.4 Commercialization Strategy

At a minimum, your commercialization strategy must address the following five questions:

- (1) What is the first product that this technology will go into?
- (2) Who will be the customers, and what is the estimated market size? How much money will be needed to bring the technology to market, and how will that money be raised?

- (3) Does the company contain marketing expertise and, if not, how will that expertise be brought into the company?
- (4) Who are the proposing firm's competitors, and what is the price and/or quality advantage over those competitors?

The commercialization strategy must also include a schedule showing the anticipated quantitative commercialization results from the Phase II project at one year after the start of Phase II, at the completion of Phase II, and after the completion of Phase II (i.e., amount of additional investment, sales revenue, etc.). After Phase II award, the company is required to report actual sales and investment data in its Company Commercialization Report (see Section 5.3.e) at least annually.

## **8.0 PHASE II EVALUATION CRITERIA**

### **8.1 Proposal Evaluation.**

Proposals will be evaluated based on the criteria outlined below. Selections will be based on best value to the Government considering the following factors which are listed in descending order of importance:

Phase II proposals will be evaluated based on the criteria outlined below. Selections will be based on best value to the Government considering the following factors which are listed in descending order of importance:

- a. The soundness, technical merit, and innovation of the proposed approach and its incremental progress toward topic or subtopic solution.
- b. The potential for commercial (Government or private sector) application and the benefits expected to accrue from this commercialization.
- c. The qualifications of the proposed principal/key investigators, supporting staff, and consultants. Qualifications include not only the ability to perform the research and development but also the ability to commercialize the results.

Cost reasonableness and realism shall also be considered to the extent appropriate.

Technical reviewers will base their conclusions only on information contained in the proposal. It cannot be assumed that reviewers are acquainted with the firm or key individuals or any referenced experiments.



## 9.0 DIRECT TO PHASE II PROPOSAL

### Air Force Topic AF201-DCSO1

*The following instructions apply to the AF201-DCSO1 Direct to Phase II "Special Topic" and do not apply to other topics or Phases.*

#### 9.1 Introduction

15 U.S.C. §638 (cc), as amended by NDAA FY2012, Sec. 5106, and further amended by NDAA FY2019, Sec. 854, PILOT TO ALLOW PHASE FLEXIBILITY, allows the Department of Defense to make an award to a small business concern under Phase II of the SBIR program with respect to a project, without regard to whether the small business concern was provided an award under Phase I of an SBIR program with respect to such project. The Air Force is conducting a "Direct to Phase II" implementation of this authority for this CSO and does not guarantee Direct to Phase II opportunities will be offered in future announcements. Each eligible topic requires documentation to determine that Phase I feasibility described in the Phase I section of the topic has been met.

#### 9.2 Proposal Provisions

Offerors must provide documentation that satisfies the Phase I feasibility requirement\* that will be included as an Appendix to the Phase II proposal. Offerors must demonstrate that they have completed research and development through means other than solely the SBIR/STTR program to establish the feasibility of the proposed Phase II effort based on the criteria outlined in the topic description. Phase II proposals require a comprehensive, detailed effort description. Proposals should demonstrate sufficient promise in Phase I technical progress or results in solving an important problem to warrant more extensive research/research and development (R/R&D). Developing technology commercial and military potential is extremely important. Particularly, proposals emphasizing technologies' dual-use applications and commercial exploitation are sought.

\* NOTE: Offerors are required to provide information demonstrating that the scientific and technical merit and feasibility has been established. The Air Force will not evaluate the offeror's related Phase II proposal if it determines that the offeror has failed to demonstrate that technical merit and feasibility has been established or the offeror has failed to demonstrate that work submitted in the feasibility documentation was substantially performed by the offeror and/or the principal investigator (PI). Refer to the Phase I description (within the topic) to review the minimum requirements that need to be demonstrated in the feasibility documentation. **Feasibility documentation MUST NOT be solely based on work performed under prior or ongoing Federally funded SBIR or STTR work.**

#### 9.3 Direct to Phase II Open Topic

The Direct to Phase II 'Open Topic' is offered for the 20.1 SBIR cycle. In general only the very best proposals will be selected for award for the Direct to Phase II. For most companies, going through the 20.1-CSO1 Phase I and then applying for a regular Phase II is a more appropriate route. Applicants for the Direct to Phase II are expected to have completed the full feasibility study, normally completed in a Phase I, before applying to the Direct to Phase II. (See Section 9.3).

If a first-rate product-market fit is successfully accomplished, a direct path is to pursue a Phase III, contracting directly with the motivated and empowered customer. This path is strongly recommend for companies with a current non-defense commercial product.

Companies who are currently executing an 'Open Topic' Phase II are ineligible for this topic. Proposals submitted by companies who are currently executing a 'Special Topic Phase II' will not be evaluated. The open topics include 18.2-005, 18.3-005, 18.3-006, 19.1-004, 19.1-005, 19.2-D001, 19.3-001, 19.3-D001. Companies in this situation are encouraged to go pursue a Phase III from a Phase I or existing Phase II.

Companies may only apply to AF201-DCSO1 Direct to Phase II if they have secured commitments for matching funding according to the RAPID Phase II Instructions below and Section 13.0 of this CSO. Proposals that do not include commitments for matching funding as outlined in this CSO will not be considered.

**RAPID Phase II** (*See Section 13.0 of this CSO*): Proposed efforts may be up to \$1,500,000 SBIR funding, with a 27-month maximum period of performance. This includes 24 months technical performance and three months for reporting. Companies having gained significant market traction with Government or private sector customers may apply for a ‘RAPID’ Phase II. This process allows companies to apply for Phase II funding up to \$1,500,000 assuming third party investment is secured. Third party investor match to SBIR funding is a minimum of 1:1, e.g., \$1,500,000 private funding + \$1,500,000 SBIR funding. For all Government matching, the match ratio is 0.50 Government (non-SBIR) funding for every \$1 SBIR funding, e.g., \$750,000 Government (non-SBIR) funding + \$1,500,000 SBIR funding. For Governmental cost match, funds must be received by the awarding organization within 30 days of CSO closing. For private investment, the company must provide evidence of funds receipt within 90 calendar days of Phase II award. RAPID Phase II efforts with private cost match will be awarded via Other Transactions for Prototype, structured with a 90-day base effort and one option. See Section 9.5 for more details.

## 9.4 Proposal Submission

Each Direct to Phase II proposal must be electronically submitted through the DoD SBIR/STTR Submission Web site, <https://www.dodsbirsttr.mil/submissions/> no later than **8:00 p.m. ET, 12 February 2020**. Proposals will not be evaluated if submitted after the deadline. No exceptions will be made. ***CLASSIFIED PROPOSALS WILL NOT BE ACCEPTED; PROPOSALS SHOULD NOT CONTAIN ANY CLASSIFIED INFORMATION OR DATA. Proposals submitted to the wrong topic will not be evaluated.*** In order for a Phase II proposal to be submitted, click “Start New Phase II Proposal” from the “My Portal Page”. After uploading your full proposal, you will need to click “Submit.” This action will notify the agency your proposal submission is complete and ready for evaluation. Once submitted, no further changes may be made to the proposal. \*\*Note: If the proposal is not properly submitted in this manner by the solicitation close date/time identified above, it will receive no further consideration for evaluation/award.\*\* The complete proposal **must** be submitted via the electronic submission site on or before the **8:00 pm ET, 12 February 2020 deadline**. A hardcopy **will not** be accepted.

Each proposal submission must contain a Proposal Cover Sheet, Technical Volume, Cost Volume, and a Company Commercialization Report, Supporting Documents and Fraud, Waste and Abuse Training (see Section 9.7). The preferred format for submission of proposals is Portable Document Format (.pdf). NOTE – when combining PDF documents, ensure digital signatures are not stripped. Graphics must be distinguishable in black and white. Please virus-check your submissions.

NOTIFICATION: The Phase II firm must qualify as a small business concern as defined in this CSO at the time of Phase II award. NOTE: The Government is not obligated to make any awards under Direct to Phase II, nor is it responsible for expenditures by the offeror prior to award of a contract. All awards are subject to availability of funds and successful negotiations.

The Air Force (AF) SBIR/STTR Program Office has instituted training and certification requirements to combat fraud in the SBIR/STTR program. As a result, SBCs are required to complete Fraud, Waste and Abuse Training as part of the Phase II proposal submission process. The training is available at <https://www.dodsbirsttr.mil/submissions/>. When training is complete and certified, the DoD Submission Website will indicate so in the proposal, completing the Volume 6 requirement. If training is not completed, the submitter will receive an error message and cannot complete submission.

Phase II proposals require a comprehensive, detailed effort description. Proposals should demonstrate sufficient promise in Phase I technical progress or results in solving an important problem to warrant more extensive research/research and development (R/R&D). Developing technology commercial and military potential is extremely important. Particularly, proposals emphasizing technologies’ dual-use applications and commercial exploitation are sought.

All Phase II R/R&D must be performed by the small business and its team members in the United States, as defined in this CSO, Section 4.2, “Offeror Eligibility and Performance Requirements”, under which the initial effort was awarded.

The Phase II principal investigator's primary employment must be with the small business concern at the time of award and during the entire proposed effort. Primary employment is defined as more than one-half of the principal investigator's time spent working for the small business. This precludes full-time employment with another organization.

Knowingly and willfully making false, fictitious, or fraudulent statements or representations may be a felony under the Federal Criminal Statute Act, 18 U.S.C. Section 1001, punishable by a fine up to \$10,000, up to five years in prison, or both.

These instructions take precedence over conflicting information in other SBIR or CSO instructions.

## **9.5 RAPID Phase II Overview**

At any time after the solicitation opens for receipt of proposals on 08 January 2020, a company may submit a RAPID Phase II proposal to the DoD Submission Website at <https://www.dodsbirsttr.mil/submissions/>. The application must be submitted no later than the 201-D001 RAPID Phase II submission deadline, **8:00 p.m. ET, 12 February 2020**. The maximum value of the Phase II RAPID Proposal is \$1,500,000 SBIR funding. Matching funds must be secured from qualified third-party private investors or from non-SBIR Government funds.

Examples include:

- \$1,500,000 SBIR funding and \$1,500,000 matching private investor funding
- \$750,000 Government funding and \$1,500,000 SBIR funding
- \$50,000 Government funding and \$100,000 SBIR funding

**NOTE: Even when third party funding is secured from non-AF Government customers, the Phase II proposal shall be focused on a solution implementation with an AF end-user customer.**

The AF will notify RAPID offerors of selection/non-selection for Phase II award. For non-SBIR Government cost match, funding must be received by the Government awarding organization no later than 30 calendar days after CSO closing. For private investment, the company and investor must certify all matching funds have been transferred to the RAPID award recipient within 90 calendar days after award.

RAPID Phase II proposals including private investment shall include a 90 day base effort valued at no more than \$250,000 of the total program value and supported with 100% SBIR funds, and one option for the remaining effort valued at the remaining program cost and include cost match-funded effort. The base effort must be constructed so that, should matching funds not materialize, the AF will still recognize value from the 90 day project. The base effort's milestones/deliverables will be limited to no more than three, two of which shall be the refined Work Statement (30 calendar days after award) and a Final Technical Report (90 calendar days after contract award). The third milestone's product and delivery date are at the offerors' discretion. If non-SBIR Government cost match is not received within 30 calendar days of CSO closing, the proposal cannot be considered for review or award. If private investor cost match is not received within 90 calendar days after award, the option will not be exercised. If funding is received and the option exercised, the Final Technical Report will become a periodic Status Report.

**RAPID Phase II proposals shall include all information contained in a typical Phase II proposal, along with a completed RAPID application form as described in Section 9.7, Volume 5 content.**

**Additional RAPID Reporting Requirement:** The final RAPID Phase II progress report shall include a brief description (in company format) regarding expenditure of investor funds supporting the project. This report should be submitted by the deadline specified in the contract.

## **9.6 Phase II Proposal Preparation Instructions**

**Proposal Requirements.** A Phase II proposal should provide sufficient information to persuade the AF the proposed effort represents an innovative problem solution worthy of support under the stated criteria. All sections below count toward the page limitation, unless otherwise specified.

**Proprietary Information.** Information constituting a trade secret, commercial or financial information, confidential personal information, or data affecting national security must be clearly marked. It shall be treated in confidence to the extent permitted by law. Awards for selected proposals will likely incorporate the Work Plan, in whole or part, by reference or as an attachment; therefore, **please ensure the Work Plan is marked as Non-Proprietary.** (See Sections 3.9 and 5.2 of this CSO).

**Layout:** Number all pages of your proposal consecutively (*no type 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 the DoD SBIR/STTR Submission Web site when the Cover Sheet was created. The header may be included in the one-inch margin. Most proposals will be printed in black and white so make sure all graphics are distinguishable in black and white. Offerors are discouraged from including promotional and non-programmatic items, except when directed, e.g., in the '1-pager' and the '100-second video.' To verify your proposal has been received click on the "Check Upload" icon to view your proposal. Typically, your uploaded file will be virus checked and converted to a .pdf document within the hour. If your proposal does not appear after an hour, please contact the DoD SBIR/STTR Help Desk via email at [DoDSBIRSupport@reisystems.com](mailto:DoDSBIRSupport@reisystems.com) (9:00 am to 5:00 pm ET Monday through Friday). Confirm all digital signatures contained in your proposal, if applicable, are still present after upload.

## **9.7 A complete proposal consists of:**

### **0 Registration**

- DUNS Number
- System for Award Management (SAM) (CAGE Code)
- Small Business Association ID
- DoD SBIR/STTR ID

### **1. Volume 1: Proposal Cover Sheet**

- Basic Information (CAGE, DUNS)
- Certification Questions
- Business Information
- Proposal Information
- Contact Information
- Technical Abstract
- Anticipated Benefits/Potential Commercial Applications of the Research or Development
- List of Maximum eight (8) key words or phrases
- Prior Current, Pending support of similar proposals or awards

### **2. Volume 2: Technical Volume**

- 15 Page White Paper
- Table of Contents
- Glossary
- Technical Summary
  - Identification/Significance of Problem/Opportunity
  - Phase I Feasibility Study Results
  - Phase II Technical Objectives/Key Results
- Phase II Work Plan
  - Scope
  - Task Outline
  - Milestone Schedule
  - Deliverables
  - Required Reports
  - Safety Related Deliverables
- Commercialization Strategy
  - Commercialization Plan
  - Military Applications/DoD Customers
  - Non-Defense Commercial Customers

Key Personnel  
Non-U.S. Citizens  
Investors/Partners  
Related Work

**3. Volume 3: Cost Volume**

Direct Labor Costs  
Direct Material Costs  
Other Direct Costs

**3. Volume 4: Company Commercialization Report**

**4. Volume 5: Supporting Documents**

Signed Customer Memorandum (found at [https://www.afwerx.af.mil/resources/19.2P2-20.1D2P2-SBIR-Open-Topic-Customer-Memorandum\\_9.10.19.docx](https://www.afwerx.af.mil/resources/19.2P2-20.1D2P2-SBIR-Open-Topic-Customer-Memorandum_9.10.19.docx))  
15 Page Slide Deck  
Coversheet Supplement  
Supplemental Cost Information  
Resumes of Key Personnel  
Non-Proprietary Work Plan  
Technical Data Assertions  
Stand-Alone Section K (Signed)  
DoD Funding Agreement Certification (Signed)  
SBIR/STTR Environment, Safety and Occupational Health (ESOH)  
Prior, Current, or Pending Support of Similar Proposals or Awards  
1-Page ‘Sales Pitch’ Summary  
100 Second Video  
Solution ‘Pitch’ Video Call  
RAPID Phase II Documentation  
RAPID Form (found at [https://www.afwerx.af.mil/resources/AF192P2\\_201D2P2-RAPID-Phase-2-RAPIDFORM-TEMPLATE.docx](https://www.afwerx.af.mil/resources/AF192P2_201D2P2-RAPID-Phase-2-RAPIDFORM-TEMPLATE.docx))  
Letters from Private Investors (if private investment)

**6. Volume 6: Fraud, Waste and Abuse Training**

**Volume 1: Proposal Coversheet**

On the DoD Submission Web site, <https://sbir.defensebusiness.org/>, prepare the Proposal Cover Sheet. The Cover Sheet must include a brief technical abstract of no more than 200 words describing the proposed R&D project, including discussion of anticipated benefits and potential commercial applications. **Do not include proprietary information in the Proposal Cover Sheet.** If the proposal is selected for award, the technical abstract and discussion of anticipated benefits may be publicly released. Once the Cover Sheet is saved, the system will assign a proposal number. The cover sheet may be modified as often as necessary until the solicitation period closes.

**Technical Abstract:** The technical abstract should include a brief description of the program objective(s) and the effort. Technical abstracts will be submitted to the Office of the Secretary of Defense (OSD) for publication; therefore, they shall not contain proprietary information. The term “Component” on the coversheet refers to the Air Force organization requesting the Phase II proposal.

**Anticipated Benefits/Potential Commercial Applications of the Research or Development:**

The **first line** of the ‘Anticipated Benefits’ section should follow the following format: *We solved [AF problem] by providing [advantage], to help [AF End-user] accomplish [AF End-User’s goal]. We will recognize profit by charging [non-defense commercial customers] to get [non-defense commercial benefit].* Be very explicit regarding the proposed AF end user, the proposed AF customer (if different, which is likely), and potential sources of non-SBIR funding after successful Phase II completion. This list should also include non-proprietary, non-defense commercial customers. Do not include specific AF names or non-defense customers, as this section will be publicly released.

List of maximum 8 Key Words or phrases, separated by commas, describing the project:

*This section will be used to categorize the application.* These keywords may also be used to identify additional Phase III transition partners within the Government; therefore, consider more than technical key words. A potentially useful analogy to this section is Search Engine Optimization (SEO) Keywords.

Prior, Current, or Pending Support of Similar Proposals or Awards:

***WARNING:*** *While permissible, with proper notification, to submit identical proposals or proposals containing a significant amount of essentially equivalent work under more than one Federal announcement, it is unlawful to enter into contracts requiring essentially equivalent effort.* Potential for this situation must be disclosed to the AF before award. Proposals substantially the same as another submission previously, currently, or in process of being funded by another Federal agency/AF or the same AF must be identified. On the proposal coversheet, answer ‘Yes’ to the following (or similar) question, “Has a proposal for essentially equivalent work been submitted to other US government agencies or AFs?”

## **Volume 2: Technical Volume**

The technical volume shall be no longer than 15 pages. Pages beyond 15 will not be reviewed. Include page numbers in the technical volume.

**Table of Contents:** Include a table of contents immediately following the cover sheet.

**Glossary:** Include a glossary of acronyms and abbreviations used in the proposal.

**Technical Summary:**

***Identification and Significance of the Problem or Opportunity:*** Briefly describe the specific problem/opportunity addressed your feasibility study and its relationship to Phase II.

- **Non-Defense Commercial Solution:** Describe the non-defense commercial solution, including its use by non-defense commercial customers. Describe its technical specifications as well as the qualitative and quantitative Value it brings to users of the solution(s). Additionally, please answer the following questions:
  - Is the proposed item “of a type”, i.e., similar to a commercial item, customarily used by the public or by nongovernmental entities for nongovernmental purposes?
  - Has proposed item been (i) sold, leased, or licensed to the public; OR (ii) offered for sale, lease, or license to the public?
  - Include, where applicable, revenue, unit sales, user adoption, pre-sales, and investment. Broad adoption and commercial success are indicators of commercial potential and reduced technical risk.
- **Proposed Adaptation of Non-Defense Commercial Solution:** Describe the proposed adaptations of the non-defense commercial solution to meet a US Government end-user need. In this section, please answer the following questions:
  - How similar is the modified item to others sold in the commercial marketplace to non-US Government customers?
  - Does the supplier perform similar modifications for non-US Government customers?
  - Do the DoD unique modifications change the essential use and purpose of the product?
  - Are there differences in the production/manufacturing/delivery processes used to perform the modification for Federal Government versus non-Government customers?
  - What are the quantitative benefits expected for identified Air Force End-Users?



**Phase I ‘Feasibility Study’ Results:** The proposal shall detail the solution’s ability to meet Air Force End-Users’ and Air Force Customers’ needs. These results shall be framed in the context of Air Force End User and Customer Exploration performed previously for the effort.

- Breadth of Air Force/US Government End-User/Customer Exploration: Include specific numbers on outreach such as:
  - Total Federal Government contacts attempted
  - Total Federal Government contacts reached
  - Successful contacts over e-mail
  - Successful contacts over phone
  - Successful contacts in person
  - Number of Federal Government organizations contacted
  - Number of Federal Government organizations reached
  - Number of USAF organizations contacted
  - Number of Federal Government organizations reached
- AF End-User and Customer Exploration Methods: Describe methods, both successful and unsuccessful, used to perform feasibility analysis and AF Customer Exploration and AF End-User Exploration for adapting the non-defense commercial solution to a specific AF end-user’s needs. This should include detailed reports of at least one in-depth interview with an AF End-User and one in-depth interview with an AF Customer.
- Empowered and Committed AF End-Users: List and describe specific Air Force End-Users (e.g. Operators) willing to trial the proposed solution in a Phase II. Specifically explain how the proposed solution meets the need(s). You should describe in as much detail as possible your understanding of the AF End-Users problem or benefit area.
- Empowered and Committed AF Customers: List and describe the specific Air Force customer (i.e. acquisitions professional such as a program manager at a System program Office) willing to work to transition the proposed solution during a Phase II and into a Phase III.
- Empowered and Committed US non-AF Government End-Users: Commitments from US non-AF Government End-Users will also be considered, but there MUST be at least one AF End-User and Customer.
- **NOTE:** There is also a mandatory requirement to include a signed MOU (Memorandum of Understanding), a template can be found at <https://www.afwerx.af.mil>. This MOU formally captures interest from the Empowered and Committed AF End-Users and Customers described above. Proposals that do not include the signed MOU will not be considered. MOUs must be uploaded to the ‘Letters of Support’ section in Volume 5, Supporting Documents.

Relevant supporting data such as journal articles, literature, Government publications, etc., should be contained or referenced in the proposal and will count toward the page limit.

**Phase II Technical Objectives and Key Results:** Describe clearly three to five Phase II trial objectives. These objectives should be tied to specific tasks proposed for the Phase II trial. These objectives shall be qualitative, but specific to the participating AF end-users. The objectives shall be tied to specific time periods, tangible, and unambiguous about anticipated results. These objectives shall describe end-state outcomes (what will be done) rather than processes or activities (how it will be done). Each objective shall be accompanied by three to five specific ‘key results’ measurable throughout Phase II performance. These key results will likely be quantitative in nature, e.g., deliver X widgets to AF end user; non-quantitative key results shall be clearly measurable.

- **Required Stakeholders Needed to Accomplish Phase II:** List anticipated interactions with Stakeholders necessary to accomplish a Phase II trial. Such Stakeholders may include lawyers, test range officials, information assurance officials, system program office engineers, etc. Clearly describe requirements for Phase II trial completion not within the offeror’s immediate control and plans to work within those constraints.

**NOTE: This includes clearances (i.e. DD254) and Authorities to Operate (ATO) on DoD networks. This is an important component of the application not to be overlooked.**

**Phase II Work Plan:** For this Phase II topic, a Work Plan, **not** a Statement of Work, is required. For RAPID Phase II proposals including private investment cost match, the Work Plan should be divided into base effort and option tasks. The intent is to award *what* will be done, rather than *how* the work will be done. As such, the Work Plan should be structured around the effort’s purpose and requirements set forth in clear, specific, and objective terms with measurable outcomes. The work plan has two mandatory features: (1) Work stated in terms of outcomes or results, rather than performance methods; and (2) measurable performance standards, including assessment methods for these standards. The plan should include the planned location and mechanics for accomplishing the proposed approach. Phase II efforts shall attempt to demonstrate the Phase I effort’s technical feasibility, including transition results to the private sector or Government customer.

- **Scope:** List the major requirements and specifications for the effort.
- **Task Outline:** Provide an outline of work to be accomplished throughout the effort.
- **Milestone Schedule:** The maximum period of performance for a Phase II contract under this topic will be 27 months. Include a concise program schedule with all key milestones identified. Propose a suggested start date, usually ~2 months after Phase II submission deadline. Again, RAPID Phase II proposals including private investment cost match must include a base effort valued at no more than \$250,000, supported with 100% SBIR funds, with a maximum 90-day performance period. It should also include an option for the remaining effort, valued at the balance of the estimated contract value and including the private investment supported effort. The option should have a maximum 24-month performance period, including technical reporting. With each milestone, include:
  - An expected delivery date, represented in number of months after contract award, e.g., widget delivered at contract award (CA) + 6 months.
  - A specific deliverable of value to be provided to the AF end-user.
  - Clear acceptance criteria for all parties to determine milestone achievement.
  - Proposals shall not include more than 15 milestones/deliverables, including a refined Work Plan (30 calendar days) and a Final Technical Report.

NOTE: Upload suggested payment amounts/references to rationale/supporting information in “Additional Cost Information,” Volume 5, Supporting Documents.

**NOTE: If proposing to work with multiple AF end-users, MOUs must be consolidated into a single, coherent, mutually agreed upon Schedule of Milestones meeting all proposed AF end-users approval.**

Chart 2 is a notional chart for constructing the Schedule of Milestones. Each milestone marks the completion of a required deliverable, e.g., baseline execution plan, prototype component, test plan, prototype production, final report submission, etc.). Status reports cannot be milestones. Describe how the milestones will be identified as



completed. Milestone payments shall reflect justifiable costs to achieve milestone completion. Supporting rationale, e.g., invoices from non-defense commercial customers, will be included in Volume 5, Supporting Documents. NOTE: Pricing information from non-defense commercial customers is likely proprietary and should be marked as such. See the Section 3.9 of this CSO the definition of Proprietary Information, and Section 5.3 for Proprietary Information marking guidance.

**Chart 2: Contraction of Milestones—Notional**

<b><u>TASK/MILESTONE</u></b>	<b><u>EXPECTED DELIVERY (MONTHS AFTER CONTRACT AWARD)</u></b>	<b><u>DELIVERABLE</u></b>	<b><u>ACCEPTANCE CRITERIA</u></b>	<b><u>PAYMENT AMOUNT</u></b>
<b>EXAMPLE: 01 -</b> Finalize customer requirements for adaptation	Award +1 month	Complete set of specifications for adapted commercial solution as well as quantitative goals for the test of the widgets in the AF operational environment.	AF end-users and AF customers agree that the specifications will meet their needs.	\$50,000 (EVIDENCE: invoice from pilot program with non-defense customer A.)
<b>EXAMPLE: 02 -</b> Deliver 3 adapted commercial widgets	Award + 4 months	Three adapted widgets will be delivered to the AF end-user meeting specifications described in task 01.	The AF end-user will physically accept the adapted widgets	\$250,000 (EVIDENCE: 2018 sales of non-defense commercial widget)
<b>EXAMPLE: 03 -</b> Training for using widgets	Award + 4 months	The solution provider will train 3 AF end-users to use the adapted solution in their operational environment.	The 3 AF end-users verify training is sufficient to use the adapted widget.	\$75,000 (EVIDENCE: invoice from pilot program with non-defense customer A)
<b>EXAMPLE: 04 -</b> Test support for widgets	Award + 12 months	The solution provider will support the test, producing a report regarding success of adapted widget' performance to solve the AF users' needs as described in task 01.	The test report will be endorsed by the AF end-users, confirming test results.	\$100,000 (EVIDENCE: invoice from pilot program with non-defense customer B)

<b>EXAMPLE: 05 -</b> Warranty for widgets	Award +15 months	The adapted widgets shall remain in a workable condition throughout the contract	The AF end-users verify widgets worked during entire contract's performance.	\$100,000 (EVIDENCE: invoice from pilot program with non-defense customer C)
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In addition to milestone/delivery information in the technical volume, offerors shall submit a final milestone/delivery Excel document. The template, which shall be used as the document's basis, is available at [https://www.afwerx.af.mil/resources/PhaseII\\_Milestone\\_template\\_August2019.xlsx](https://www.afwerx.af.mil/resources/PhaseII_Milestone_template_August2019.xlsx). The submitted document shall be entitled "[*Proposal Number*], 201-D001P2, [*Company Name*]". Proposal numbers are formatted as F2-12345 (*example only*). The completed document will be provided to AFWERX at [SBIR@AFWERX.AF.MIL](mailto:SBIR@AFWERX.AF.MIL). Documents shall be titled "AF201-DCSO1 Phase II MILESTONE EXCEL FILE, [*Proposal Number*]". Offerors' submissions must be received no later than **12 February 2020 at 8:00 p.m. ET.**

- **Deliverables:** Include a section clearly describing the specific sample/prototype hardware/software to be delivered, as well as data deliverables, schedules, and quantities. Unique item identification IAW DFARS 252.211-7003, Item Identification and Valuation, may be required. For hardware, more information may be found at <https://www.acq.osd.mil/dpap/dars/dfars/html/current/252211.htm#252.211-7003>.
- **Required Reports:** At a minimum, the following reports are required deliverables for ALL Phase II contracts and must be included in the Work Plan. All are considered to be scientific and technical reports.
  - **Final Report:** The draft is due 30 calendar days after completion of the Phase II technical effort. The first page of the final report will be a single-page project summary, identifying the purpose of the work, providing a brief description of the effort accomplished, and listing potential results applications. The summary may be published by DoD; therefore, it shall not contain proprietary information. It shall also contain project objectives met, work completed, results obtained, and technical feasibility estimates. For RAPID Phase II efforts including private investment, if cost match is received within the first 90 calendar days after award, the base effort's Final Technical Report will convert to a Status Report.
  - **Status Reports:** Status reports are due quarterly at a minimum. These shall be concise documents describing progress in meeting the selected AF end-user's needs. Each status report shall not be longer than 15 slides. The status reports shall include progress toward Phase II objectives and key results, as well as a quantitative measure between 0 and 1 of progress toward each.
  - **Phase II Summary Report:** The Phase II summary report is due at technical effort completion. It shall be submitted via email to the cognizant AF Contracting Officer. Reports shall not exceed 700 words and shall include a description of the technology and anticipated applications/benefits for Government and/or private sector use.
  - **Additional Reporting:** The AF end-user or customer may require additional reporting or documentation including:
    - Software documentation and user manuals;
    - Engineering drawings;
    - Operation and Maintenance documentation;

- Safety hazard analysis when the project will result in partial or total development/delivery of hardware; and
  - Updated commercialization results.
- [For RAPID efforts ONLY] Additional RAPID Reporting Requirement: The final Phase II status report must include a brief accounting, in company format, regarding investor funds' expenditures to support the project.
- **Safety Related Deliverables:** Safety requirements shall be followed in design and performance of the proposed project. The Work Plan must contain separate sections specifically addressing the following:
  - [Hardware Only] Preliminary Hazard Analysis (Report): If hardware is to be developed, the contract shall include at least a preliminary hazard analysis included in the deliverables.
  - 2.4.6.2 [Hazardous Materials Only] Hazardous Material Report: If use of is anticipated, the following are required:
    - Materials identification;
    - Materials purpose; and
    - Possible alternative/procedures/safeguards to minimize risk.

### Commercialization Strategy:

- **Commercialization Plan:** The DoD requires a commercialization plan be submitted with the Phase II proposal. The commercialization plan should briefly describe the commercialization potential for the proposed project's anticipated results, as well as plans to exploit it in both the defense and non-defense markets. Specifically address the following questions:
  - What is the first product planned to incorporate the proposed technology?
  - Who are the probable customers, and what is the estimated market size?
  - How much money is needed to bring this technology to market and how will it be raised?
  - Does the firm have the necessary marketing expertise and, if not, how will the firm compensate?
  - Who are the probable competitors, and what price/quality advantage is anticipated by the firm?
  - Are there private sector or non-SBIR/STTR funding sources demonstrating commitment to Phase II efforts/results? This includes outside private investment such as venture capital. Please delineate past and potential future investments, e.g., currently raising a round, have signed term sheets. Also note if commitments are conditional on receiving a Phase II award.
  - More information regarding qualified third-party investors may be found at <https://www.acq.osd.mil/osbp/sbir/sb/investment-qualification.shtml>.
  - Are there Phase III (Government or commercial) follow-on commitments for the proposed technology?
  - What is the last 12 months' total revenue from sales of the non-defense commercial solution proposed for adaptation to meet an AF need(s)?
  - State the proposed Phase II's anticipated end results, specifically plans for transfer to Phase III with a potential Government customer.
  - Discuss the Phase II effort's significance in providing basis for a Phase III effort.
  - NOTE: Phase II awardees are required to periodically update Phase II project commercialization results at <https://sbir.defensebusiness.org/>. These updates will be required one (1) year after Phase II start, at Phase II completion, and a new SBIR/STTR proposal is submitted to DoD. Firms not submitting new proposals to DoD will be requested to provide annual updates after Phase II completion.

- **Military Applications/DoD Customers:** Briefly describe the proposed solution's existing/potential military requirement and potential. Identify the DoD agency/ organization most likely to become the solution's customer. In many cases the potential DoD customer will be different than the end user. For example, the user may be in an operational flying unit and the customer in a System Program Office for the related aircraft. State if any DoD agency has expressed interest in, or commitment to, a non-SBIR, Federally-funded Phase III effort or a Phase II Enhancement with matching SBIR funds. If so, please include relevant details regarding funding availability, i.e., fiscal year, for solution transition, and other relevant funding details, such as funding type, i.e., RDT&E, Operations and Maintenance, etc. Include agency point of contact names, e- mail addresses, and telephone numbers.

Fund Types: <https://www.dau.mil/acquipedia/Pages/ArticleDetails.aspx?aid=9f96cbe4-ed8f-4d20-94c9-b89130c0eb70>

- **Non-Defense Commercial Customers**
  - Past revenue from commercial customers of the proposed non-defense commercial solution: Clearly list non-defense, commercial customers, including revenue received as a result of the proposed solution's sales. This should not include other solutions the company may offer.
  - Potential revenue-generating projects directly related to the proposed non-defense, commercial solution or adaptation thereof. Separately list potential revenue-generating projects with defense or non-defense customers directly related to the proposed solution(s). NOTE: On-going or completed projects/sales, such as those in section 2.5.1, are strongly preferred to potential projects.

**Key Personnel:** Identify key personnel involved in the project, including subcontractors and consultants. Include information regarding education, experience, and citizenship. A technical resume for the Principal Investigator, including publications, if any, shall be included.

- **Non-U.S. Citizens:** Identify all non-U.S. citizens expected to be involved in the project as direct employees, subcontractors, or consultants. For these individuals, in addition to technical resumes, please provide countries of origin, type of visas or work permits under which they are performing, and explanation of their anticipated level of involvement in the project. When the topic area is subject to export control, these individuals, if permitted to participate, are limited to work in the public domain. Further, tasks assigned must not be capable of assimilation into an understanding of the project's overall objectives. This prevents foreign citizens from acting in key positions such as Principal Investigator, Senior Engineer, etc. Additional information may be requested during negotiations to verify foreign citizens' eligibility.

Proposals including the involvement of foreign nationals should include this table:

Full Name	Foreign National (Yes or No)	Country of Origin	Type of Visa or Work Permit	Description of Involvement (specific task(s) in the work plan)
(LIST)	(LIST)	(LIST)	(LIST)	(LIST)

- **Investors and Partners:** Identify company investors, shareholders or strategic advisors making significant contributions to support the Phase II effort. Explain how their past experiences or track record will support the technical or commercialization efforts. This could include leveraging other entities in company investors' portfolios or accessing other capital sources.
- **Related Work:** Describe significant activities directly related to the proposed effort, including previous programs conducted by the Principal Investigator, proposing firm, consultants, or others, and their application to the proposed project. List reviewers providing comments regarding the offeror's knowledge of the state-of-the-art in the specific approach proposed. Specify related Government efforts, SBIR or otherwise, awarded, previously proposed, or intended for proposal

### **Volume 3, Cost Volume**

Complete the Cost Volume in the format shown in the Cost Breakdown Guidance by using the on-line cost volume form on the DoD Submission Web site. Some items in the Cost Breakdown Guidance may not apply to the proposed project. If that is the case, there is no need to provide information on each and every item. What matters is that enough information be provided to allow us to understand how you plan to use the requested funds if a contract is awarded. The Cost Volume must be adequate to enable AF personnel to determine the purpose, necessity and reasonability of each cost element. The cost volume will cover up to 24 months of technical effort and 3 months of reporting. Provide sufficient detail (1-10 below) on how funds will be used if the contract is awarded. The on-line Cost Volume and Itemized Cost Volume Information will not count against the 15 -page limit/15 slide limit. The itemized listing may be placed in the "Explanatory Material" section of the on-line Cost Volume (if enough room), or may be submitted in Volume 5, Supporting Documents, under the "Other" dropdown options. (Note: Only one file can be uploaded to the DoD Submission Site). Ensure that this file includes your complete Technical Volume and the information below.

The maximum cost of a RAPID Phase II contract is \$1,500,000. Firm Fixed Price payments shall be tied to measurable milestones, as agreed to with the Government. For RAPID Phase II efforts including private investment cost match, the cost proposal should clearly delineate base effort from option costs. Base effort costs shall not exceed \$250,000 and be supported by SBIR funds ONLY.

For known costs such as the price of the non-defense, commercial solution, it may be possible to include them as 'Direct Costs' in the on-line Cost Volume. If included as direct costs, include substantiating evidence the price and costs are reasonable and realistic, (e.g., invoices to non-defense commercial customers). This same logic could apply to non-defense commercial solution adaptations, (warranties, training, reporting, or other) when substantiating evidence price is reasonable and costs are realistic, (e.g., invoices to non-defense commercial customers for commercial solution adaptations, warranties, or training). Costs without substantiating justification, (e.g., invoices from the commercial market), should be detailed through the cost estimating process. All substantiating evidence should be included in the 'Additional Cost Information' section of the Supporting Documents Volume (Volume 5). If selected for award, further documentation may be required by the AF Contracting Officer to substantiate costs, (e.g., cost estimates for equipment, materials, consultants, subcontractors, etc.).

Information included in the on-line Cost Volume form includes but is not limited to:

- **Direct Labor Costs:** Identify key personnel by name if possible or by labor category if specific names are not available. The number of hours, labor overhead and/or fringe benefits and actual hourly rates for each individual are also necessary.
- **Direct Material Costs:** Justify cost for materials, parts, and supplies with an itemized list containing types, quantities, and price and where appropriate, purpose. If proposing direct material costs, justification information (to include vendor quotes, historical costs, etc.) can be included as "Supplemental Cost Information" in Volume 5, Other Supporting Documents.

- Other Direct Costs: This category of costs includes specialized services such as machining or milling special testing or analysis, cost incurred in obtaining temporary use of specialized equipment. Proposals, which include leased hardware, must provide an adequate lease vs. purchase justification or rational. If proposing other direct costs, additional information can be included as “Supplemental Cost Information” in Volume 5, Other Supporting Documents.
  - Travel: Include travel costs in “Other Direct Costs.” Travel costs must relate to the needs of the project. Break out travel cost by trip, with the number of travelers, airfare, per diem, lodging, etc. The number of trips required, as well as the destination and purpose of each trip should be reflected. Recommend budgeting at least one (1) trip to the Air Force location managing the contract. For the special topic, greater travel expectations will be required as noted topic statements and corresponding SITIS Q&A. Estimation of travel costs need not be an overly onerous exercise, and your actual travel cost may differ from your proposed travel; however, this information allows the Contracting Officer to ensure the costs of travel are not excessive.
  - Subcontracts: Include subcontract/consultant costs in “Other Direct Costs.” Involvement of university or other consultants in the planning and/or research stages of the project may be appropriate. If the offeror intends such involvement, describe in detail and include information in the Cost Volume. The proposed total of all consultant fees, facility leases or usage fees, and other subcontract or purchase agreements may not exceed one-third of the total contract price or cost, unless otherwise approved in writing by the Contracting Officer. Support subcontract costs with copies of the subcontract agreements. The supporting agreement documents must adequately describe the work to be performed. At a minimum, an offeror must include a Statement of Work (SOW) with a corresponding detailed Cost Volume for each planned subcontract.
    - Consultants: Provide a separate agreement letter for each consultant. The letter should briefly state what service or assistance will be provided, the number of hours required and hourly rate.
- Special Tooling and Test Equipment and Material: The inclusion of equipment and materials will be carefully reviewed relative to need and appropriateness of the work proposed. The purchase of special tooling and test equipment must, in the opinion of the Contracting Officer, be advantageous to the Government and relate directly to the specific effort. They may include such items as innovative instrumentation and/or automatic test equipment. Title to property furnished by the Government or acquired with Government funds will be vested with the AF, unless it is determined that transfer of title to the contractor would be more cost effective than recovery of the equipment by the AF.

NOTE: If no exceptions are taken to an offeror’s proposal, the Government may award a contract without discussions (except clarifications as described in FAR 15.306(a)). Therefore, the offeror’s initial proposal should contain the offeror’s best terms from a cost or price and technical standpoint. The Government reserves the right to award a contract or an Other Transaction Agreement for a Direct to Phase II SBIR. If there are questions regarding the award document, contact Contracting Officer listed on the selection notification. The Government reserves the right to conduct discussions if the Contracting Officer later determines them to be necessary.

- DD Form 2345: For proposals submitted under export-controlled topics (either International Traffic in Arms (ITAR) or Export Administration Regulations (EAR)), a copy of the certified DD Form 2345, Militarily Critical Technical Data Agreement, or evidence of application submission must be included. The form, instructions, and FAQs may be found at the United States/Canada Joint Certification Program website, <http://www.dla.mil/HQ/InformationOperations/Offers/Products/LogisticsApplications/JCP/DD2345Instructions.aspx>. Approval of the DD Form 2345 will be verified if proposal is chosen for award. If applicable, the DD Form 2345 should be included in Volume 5, Supporting Documents, and does not count towards page limit.
- The AF does not participate in the Discretionary Technical and Business Program. Contractors should not submit



proposals that include Discretionary Technical and Business Assistance.

## **VOLUME 4: Company Commercialization Report (CCR)**

This volume will not be available or required for AF SBIR CSO X20.1

## **VOLUME 5: Supporting Documents**

Volume 5, Supporting Documents, is NOT optional and allows small businesses to submit additional supporting documentation for the Technical and Cost Volumes (Volumes 2 and 3). Documents acceptable for inclusion in Volume 5 are:

- Signed Customer Memorandum (found at [https://www.afwerx.af.mil/resources/19.2P2-20.1D2P2-SBIR-Open-Topic-Customer-Memorandum\\_9.10.19.docx](https://www.afwerx.af.mil/resources/19.2P2-20.1D2P2-SBIR-Open-Topic-Customer-Memorandum_9.10.19.docx))
- Letters of Support
- Additional Cost Information
- Funding Agreement Certification (signed)
- Technical Data Rights (Assertions)
- Lifecycle Certification
- Allocation of Rights
- Other
  - SBIR/STTR Environment, Safety and Occupational Health (ESOH)
  - Prior, Current, or Pending Support of Similar Proposals or Awards
  - 15-Page Slide Deck
  - 1-Page ‘Sales Pitch’ Summary
  - 100 Second Video
  - Solution ‘Pitch’ Video Call
  - [RAPID proposals ONLY] RAPID Phase II Documentation
    - RAPID Form (found at [https://www.afwerx.af.mil/resources/AF192P2\\_201D2P2-RAPID-Phase-2-RAPIDFORM-TEMPLATE.docx](https://www.afwerx.af.mil/resources/AF192P2_201D2P2-RAPID-Phase-2-RAPIDFORM-TEMPLATE.docx))
    - Letters from Private Investors (if private investment)

Letters of Support: Letters of support are intended to demonstrate the proposed innovation, if developed, would solve a valid market need. More generally, letters of support help validate commercial impact claims made in the proposal; therefore, letters from potential technology end users, (i.e., customers, and corporate partners/collaborators) are appropriate, as well as letters from actual or potential investors. Include Customer Memorandums from DoD end-users/customers. All letters should be uploaded in a single PDF file and organized logically, e.g., AF Customer Memorandums in one section, non-AF US Government Customer Memorandums in another, letters from non-defense commercial customers in another, etc. NOTE – when combining PDF documents, ensure digital signatures are not stripped.

**NOTE: If proposing to work with more than one AF end-user, all Customer Memorandums must be consolidated into a single, coherent Customer Memorandum reflecting the consolidated work plan milestones and signed by the lead Air Force Phase II point of contact.**

Signed Customer Memorandum: To be considered, proposals must include at least one signed memorandum from a specific, empowered end-user and customer (the end-user and customer may not be the same person) in the USAF who is ready and willing to participate in the trial of the proposed prototype solution. This should include specific objectives and measurable (quantitative) key results that the proposed solution can achieve to meet the needs of the AF end-user and customer. The required memorandum template can be found at <https://www.afwerx.af.mil/sbir.html>. Other Federal Agencies may provide memorandums as well, but there must be at least one signed memorandum from a USAF end-user and customer.

**Additional Cost Information:** A detailed cost proposal must be submitted and uploaded as Additional Cost Information in Volume 5. Cost proposal information will be treated as proprietary. Include detailed cost information to support Cost Volume (Volume 3) inputs in this section (i.e., direct cost substantiating information based upon price analysis, e.g., similar sale invoices to non-defense commercial customers). For RAPID Phase II efforts including private investment cost match, the cost proposal should clearly delineate base effort from option costs. Base effort costs shall not exceed \$250,000.

Proposed costs must be provided by individual cost element and contractor fiscal year (FY) in sufficient detail to support estimates' bases, as well as the purpose, necessity, and reasonableness of each. This information will expedite contract award if selected for award.

- **Supplemental Cost Information:**
  - **Direct Labor:** May include additional information not identified in Volume 3, Cost Volume.
  - **Direct Materials:** May include additional supporting documentation to support justification for materials, parts, and supplies costs.
  - **Other Direct Costs:** May include additional supporting documentation to justify specialized services or temporary use/lease of specialized facilities/equipment.
    - **Facilities/Equipment:** Describe instrumentation and/or physical and digital facilities necessary and available to carry out the Phase II effort. Justify equipment to be purchased and include in 'Additional Cost Information,' as necessary. State whether proposed performance locations meet Federal, state, and local Governments environmental laws and regulations of for, but not limited to, airborne emissions, waterborne effluents, external radiation levels, outdoor noise, solid/bulk waste disposal practices, and toxic/hazardous material handling/storage.
- Subcontracts: May include additional supporting documentation to justify subcontractor/consultant costs. Some proposing firms choose to work with subcontractors or consultants that help proposing firms determine the feasibility of their solutions for a specific DoD customer through customer discovery assistance. If the proposing firm is working with a customer discovery firm like this for any Special Topic, the associated agreement is required to be included with the proposal.
  - **Travel:** May include additional supporting documentation that justifies travel costs that are necessary for performance of the proposed effort.
- **Indirect Costs:** Indicate the basis for proposed rates (e.g., budgeted/actual rates per FY, etc.). The proposal should identify the specific rates used and allocation bases to which they are applied. Provide proposed rates and applications per FY throughout the anticipated performance period. Do not propose composite rates.
- **DD Form 2345:** For proposals submitted under export-controlled topics (either International Traffic in Arms (ITAR) and Export Administration Regulations (EAR)), a copy of the certified DD Form 2345, Militarily Critical Technical Data Agreement, or evidence of application submission must be included. The form, instructions, and FAQs may be found at the United States/Canada Joint Certification Program website, <http://www.dla.mil/HQ/InformationOperations/Offers/Products/LogisticsApplications/JCP/DD2345Instructions.aspx>. DD Form 2345 approval will be verified if the proposal is selected for award.

**NOTE:** This topic is not subject to export-control considerations. Therefore, a DD Form 2345 is not required at proposal submission. If, as the technology advances, export-control considerations must be applied, a DD Form 2345 will be required at that time.

**Funding Agreement Certification (signed):** Small businesses selected for award must complete this certificate at the time of proposal submission and include in Volume 5. This certification can be found at: <https://www.afsbirsttr.af.mil/Program/Phase-I-and-II/> under "Phase I and II Certification – Funding Agreement."

**Technical Data Rights (Assertions):** Rights in technical data, including software, developed under the terms of any contract resulting from this solicitation generally rest with the contractor. The Government obtains a royalty-free license to use such technical data only for Government purposes beginning with contract award and ending twenty (20) years



after submission of the contract's last deliverable. This data should be marked with the restrictive legend specified in DFARS 252.227-7018, Rights in Noncommercial Technical Data and Computer Software – Small Business Innovation Research (SBIR) Program. Upon expiration of the twenty-year restrictive license, the Government has unlimited rights in the SBIR data. During the license period, the Government may not release or disclose SBIR data to any person other than its support services contractors except (1) for evaluation purposes; (2) as expressly permitted by the contractor; or (3) a use, release, or disclosure is necessary for emergency repair or overhaul of Government-operated items. Proposing firms that wish to assert data rights should include the following table in the proposal:

Technical Data or Computer Software to be Furnished With Restrictions	Basis for Assertion <ul style="list-style-type: none"> <li>• None,</li> <li>• Developed exclusively at private expense,</li> <li>• Developed partially at private expense</li> </ul>	Asserted Rights Category <ul style="list-style-type: none"> <li>• None,</li> <li>• Government Purpose Rights</li> <li>• Limited Rights (Technical Data)</li> <li>• Restricted Rights (Software)</li> <li>• Specifically Negotiated License</li> <li>• Rights in SBIR Data</li> </ul>	Name of Person Asserting Restrictions
(LIST)	(LIST)	(LIST)	(LIST)

If a proposer plans to submit assertions in accordance with DFARS 252.227-7017, Identification and Assertion of Use, Release, or Disclosure Restrictions, those assertions must be identified. Further, assertion of use, release, or disclosure restriction **MUST** be included in this section of the proposal submission. A contract cannot be awarded until assertions have been approved.

**Lifecycle Certification:** All SBIR/STTR Phase I and II awardees must complete a certification document at the following times: Phase I awardees, prior to receipt of final payment, and Phase II awardees, prior to receipt of more than half the total contract award amount AND before receipt of final payment. All questions must be answered and an authorized officer of the company must sign and date prior to submission. Although not required in the Phase II proposal, be aware completion is part of Phase II performance requirements. The certification document can be found at <https://www.afsbirsttr.af.mil/Portals/60/Pages/Phase%20I-II/SBIR-STTR-Phase-I-II-Life%20Cycle%20Certifications.pdf>. For RAPID Phase II efforts with private investment cost match, if cost match funds are not received within 90 calendar days after award, certification will be required at award and prior to final payment receipt.

**Allocation of Rights:** If partnering with a research institution or other organization, the firm may wish to complete an allocation of rights agreement. Before STTR award, the small business concern and research institution must sign an intellectual property agreement identifying data rights sharing. This is not required for SBIR topics but may be used at the company's discretion. An example may be found at <https://www.afsbirsttr.af.mil/Portals/60/Pages/Phase%20I-II/Model%20agreement%20for%20the%20allocation%20of%20rights.pdf>.

**Other:** Combine all documents into a single PDF and upload to the Other section of Volume 5: Supporting Documents.

- **SBIR/STTR Environment, Safety and Occupational Health (ESOH) Questionnaire:** Include a completed SBIR/STTR Environment, Safety and Occupational Health (ESOH) Questionnaire in Volume 5, Supporting Documents "Other" section. This questionnaire can be found here: [https://www.afsbirsttr.af.mil/Portals/60/Pages/Phase%20I-II/SBIR\\_Ph\\_II\\_ESOH\\_Questionnaire.pdf](https://www.afsbirsttr.af.mil/Portals/60/Pages/Phase%20I-II/SBIR_Ph_II_ESOH_Questionnaire.pdf)
- **Prior, Current, or Pending Support of Similar Proposals or Awards:** Identify proposals for essentially equivalent work submitted to other US Government agencies or DoD components as described in Section 9.7, Volume 1, Proposal Cover Sheet above by providing in the Volume 5, Supporting Documents:

Name of Federal Agency to which the Proposal was submitted	Date of Proposal Submission	Title of Proposal and (if SBIR/STTR) Proposal Number	Name of Principal Investigator	Was awarded? If so, include contract number.
(LIST)	(LIST)	(LIST)	(LIST)	(LIST)

NOTE: If this does NOT apply, include a single-page document stating, “No prior, current, or pending US Government support for proposed work.”

NOTE: The identification of similar proposals or awards is particularly important for the special topics, as they are broader in nature than many of the traditional SBIR topics. **Failure to disclose similar proposals or awards will result in your proposal being disqualified.** Additionally, re-using parts or whole proposals from previously awarded proposals will likely result in your proposal being deemed essentially equivalent. For example, if you submit a 100-second video with a Phase II proposal and it is awarded, then you use the same (or substantially similar) video for another proposal, your proposal would likely be deemed essentially equivalent and therefore likely disqualified..

- **15-Page Slide Deck:** Include a 15-page slide deck concisely summarizing the proposal’s main points. This slide deck should be clear and easy to understand with the intent being for use as a starting point to understanding the proposal. Other volumes will provide the bulk of information.
  - **Slide 1 Summary:** Include an easy-to-understand overview of the product-market fit, proposed trial, proposed customer, and objectives and key metrics.
  - **Slide 2 Technical Merit Summary:** Summarize the best points about the commercial non-defense solution and how it will be adapted to meet AF needs.
  - **Slide 3 Team’s Ability to Accomplish Work Summary:** Summarize the best points about the team to meet the AF end-user’s and the associated required stakeholders’ needs to complete the trial.
  - **Slide 4 Commercialization Potential:** Summarize the best points about the potential AF customer’s, which will likely be different than the end-user’s, plans for Phase IIIs or non-defense commercialization.
  - **Slide 5 Financial Sustainability:** How are your product and company both financially sustainable? Include sales/revenue numbers of the specific non-defense commercial solution. (Note: This information will NOT be shared outside the acquisition team.)
  - **Slide 6 Team Commercialization Overview:** Include partners and investors and past efforts and successes from the team. This slide should include commercialization strengths of the team, not just scientific strengths.
  - **Slide 7 Pricing:** The pricing of the effort should be linked to the price of the non-defense commercial solution. Include references to invoices for the non-defense commercial solution.
  - **Slide 8 Non-Defense Commercial Solution:** Clearly describe the non-defense commercial solution, including relevant customers/sales.
  - **Slide 9 Adaptations of Commercial Solution:** Describe changes to the non-defense commercial solution needed to meet the needs of the AF end-user/ customer.
  - **Slide 10 AF End-User:** Describe in detail the AF end-user and how the solution addresses their needs. Note any MOUs received.
  - **Slide 11 Key stakeholders:** Describe stakeholders, e.g., safety, range officials, cybersecurity, and information assurance, within and outside the Government key to executing the product’s trial with the AF Customer and how their buy-in will be secured. This could be as simple as a signature on an official document.
  - **Slide 12 Objectives and Key Metrics:** Describe how success/failure will be measured during the solution’s trial.
  - **Slide 13 Milestone Schedule:** Include highlights of the milestone schedule with timing, acceptance criteria, and proposed costs.

- **Slide 14 Results of Feasibility Study:** Include feasibility study highlights of metrics and methods for AF end-user and customer discovery that would have normally been done during the Phase I.
- **Slide 15.** Include any additional points the firm wishes to include.
- **1-Page ‘Sales Pitch’ Summary:** Include a visually appealing, 1-page company ‘sales pitch’ and proposed non-defense commercial solution adaptation as intended to meet a US Government need. This portion of the document may be circulated publicly and should contain no proprietary, confidential or Personally Identifiable Information, (e.g., names, contact information, etc., for US Government employees).
- **100 Second Video:** *Include as single page with a working link to a public-facing video describing the company and proposed non-defense commercial solution adaptation intended to meet a US Government need.* This portion of the document may be circulated publicly and should contain no proprietary, confidential or Personally Identifiable Information (e.g., names, contact information, etc., for US Government employees. It should include the product and value proposition to the DoD (e.g., similar to a Kickstarter or Amazon.com product video). If the link is broken, the video is not present, or the video is longer than 100 seconds, the proposal will not be reviewed.
- **Solution ‘Pitch’ Video Call:** Each award will require a short pitch comprised of a five minute pitch and five minute Q&A to be completed via video call. If invited to present the pitch, the call will be between the evaluation team members and the offeror. It is likely not all offerors will be invited to pitch.

If the offeror’s proposal identifies a motivated, empowered Defense End User and/or Defense Customer, the offeror is strongly encouraged to invite the relevant stakeholders to participate on the call. If the Defense stakeholders participate, the offeror’s five minute pitch will be presented first, followed by a five minute Q&A between the evaluation team and the offeror. During the five minute pitch, the Defense stakeholder will not be permitted to speak or ask questions. Following the five minute pitch and five minute Q&A, the offeror will be removed from the call and the evaluation team will speak directly with the defense end-user and stakeholder.

After the solicitation closes, the offeror’s identified Principal Investigator will be invited via email to pitch and provide a list of available time slots. The offeror may pick only one time slot per proposal. The pitch time slots will be assigned on a first-come, first-serve basis. The pitch invitation will also include an offer for a technical dry-run session to test the offeror’s ability to enter the video-call and familiarize him or herself with the video calling environment. Companies missing the selected pitch slot will be ineligible for award, even if due to IT issues. Companies are strongly encouraged to attend the technical dry run and arrange for IT back-up plans if there are significant equipment issues.

**[RAPID proposals ONLY] RAPID Phase II Documentation:** If applying for a RAPID Phase II, include a RAPID Application Package in Volume 5, Supporting Documents, “Other” section. **A RAPID Application Package consists of:**

- A completed RAPID application form. The Form can be found at [https://www.afwerx.af.mil/resources/AF192P2\\_201D2P2-RAPID-Phase-2-RAPIDFORM-TEMPLATE.docx](https://www.afwerx.af.mil/resources/AF192P2_201D2P2-RAPID-Phase-2-RAPIDFORM-TEMPLATE.docx)  
The company and investor must:
  - State the outside investor will match the entirety of Phase II funding in cash, contingent on proposal selection. The RAPID qualifying matching rates are as follows:
    - For all companies, the minimum matching rate is \$1.00 private funding for every SBIR dollar, (e.g. \$1,500,000 Phase II SBIR funding must be matched with at least \$1,500,000 private-investor funding).
    - For all companies, the minimum matching rate is \$0.50 Government (non-SBIR) funding for every SBIR dollar (e.g. \$1,500,000 Phase II SBIR funding must be matched with at least \$750,000 Government (non-SBIR) funding).\*
      - Certify proposed outside funding qualifies as RAPID investment and the funding source as an outside investor. (See Section 13.0 of this CSO)
- A letter from the private investor to the company, submitted electronically on the DoD Submission site in Volume 5, Supporting Documents, “Other” Section. The letter should contain:

- A commitment to match the entirety of the Phase II funding in cash, contingent on proposal selection for award.
- A brief (less than one page) statement describing the investor's (i) experience with evaluating companies' ability to successfully commercialize technology; and (ii) assessment of the market for this particular technology and the company's ability to bring this technology to market.

## **VOLUME 6: FRAUD, WASTE, AND ABUSE CERTIFICATION**

The AF SBIR/STTR Program Office has instituted training and certification requirements to combat fraud in the SBIR/STTR Programs. As a result, each offeror is required to complete Fraud, Waste, and Abuse Training as part of the Phase II proposal submission process. The training is available at <https://training.defensebusiness.org/fwa>. When the training is complete and certified, the DoD Submission site will indicate so in the proposal, thereby completing Volume 6. If the training is not completed, the offeror will receive an error message. Proposals cannot be submitted until this training is completed.

## 10.0 DIRECT TO PHASE II EVALUATION CRITERIA

Proposals will be evaluated based on the criteria outlined below. Selections will be based on best value to the Government considering the following factors which are listed in descending order of importance:

**Direct to Phase II Evaluation Criteria.** Proposals will be evaluated based on the criteria outlined below. Selections will be based on best value to the Government considering the following factors which are listed in descending order of importance:

- Technical Merit – The soundness, technical merit, and innovation of the proposed approach and its incremental progress toward topic or subtopic solution.
- Potential for Commercial Application– The potential, *given matching funding secured from outside investor(s), for commercialization, Government or private sector*, and the benefits expected to accrue from this commercialization. The proposer's record of commercializing its prior SBIR and STTR projects, as shown in its Company Commercialization Report, will be used as a portion of the Commercialization Plan evaluation. If the "Commercialization Achievement Index (CAI)", shown on the first page of the report, is at the 20th percentile or below, the proposer will receive no more than half of the evaluation points available under this evaluation criterion. **Please Note: The Company Commercialization Report (Volume 4), typically employed to evaluate a firm's commercialization potential, will not be available or required for AF SBIR CSO X20.1.**
- Qualifications of the Principal Investigator (and Team)–The qualifications of the proposed principal/key investigators, supporting staff, and consultants. Qualifications include not only the ability to perform the research and development but also the ability to commercialize the results.

Cost reasonableness and realism shall also be considered to the extent appropriate.

Technical reviewers will base their conclusions only on information contained in the proposal. It cannot be assumed that reviewers are acquainted with the firm or key individuals or any referenced experiments.

Relevant supporting data such as journal articles, literature, including Government publications, etc., should be contained or referenced in the proposal and will count toward the page limit.

**IMPORTANT:** Proposals submitted to the AF are received and evaluated by different offices within the Air Force and handled on a Topic-by-Topic basis. Each office operates within their own schedule for proposal evaluation and selection. Updates and notification timeframes will vary by office and Topic. If your company is contacted regarding a proposal submission, it is not necessary to contact the AF to inquire about additional submissions. Additional notifications regarding your other submissions will be forthcoming.

### Proposal Status and Feedback

The Principal Investigator (PI) and Corporate Official (CO) indicated on the Proposal Cover Sheet will be notified by e-mail regarding proposal selection or non-selection. The company and investor must, within 30 days after the solicitation closes, certify the entire amount of matching funds from the outside investor has been transferred to the company. If the funding is not received, the contract will not be awarded. Small Businesses will receive a notification for each proposal submitted. Please read each notification carefully and note the Proposal Number and Topic Number referenced. **If changes occur to the company mail or email address(es) or company points of contact after proposal submission, the information should be provided to the AF at [afsbirsttr-info@us.af.mil](mailto:afsbirsttr-info@us.af.mil).**

Requests for feedback must be submitted in writing, received within 30 calendar days after receipt of notification of non-selection. Written requests for feedback must be submitted via [www.afsbirsttr.af.mil](http://www.afsbirsttr.af.mil) through the SBIR system. Requests for feedback should include the company name and the telephone number/e-mail address for a specific point of contact, as well as an alternate. Also include the topic number under which the proposal(s) was submitted, and the proposal number(s). Feedback requests received more than 30 calendar days after receipt of notification of non-selection will be fulfilled at the Contracting Officers' discretion. Unsuccessful offerors are entitled to no more than one feedback response for each proposal.



## **11.0 COMMERCIALIZATION READINESS PROGRAM (CRP)**

The SBIR/STTR Reauthorization Act of 2011 establishes the Commercialization Pilot Program (CPP) as a long-term program titled the Commercialization Readiness Program (CRP).

The AF has established a Commercialization Readiness Program. Additionally, the AF has developed criteria and processes to identify projects with the potential for rapid transition to Phase III and that are expected to meet high priority needs of the AF. A project's inclusion in the CRP is by invitation and at the discretion of the AF.

CRP participants may receive a variety of assistance services and/or opportunities to facilitate the transition of their projects. Participation in the CRP may also include modifications to existing Phase II contracts with additional non-SBIR funding, as well as additional SBIR funding beyond the normal SBIR funding guidelines, to enhance ongoing projects with expanded research, development, test, or evaluation to accelerate transition and commercialization. Additional reporting on CRP participants and results achieved is required.

## 12.0 CONTRACTUAL REQUIREMENTS

### 12.1 Other Contractual Requirements

Upon award of a contract, the contractor will be required to make certain legal commitments through acceptance of Government contract clauses in the Phase I contract. The outline that follows is illustrative of the types of provisions required by the Federal Acquisition Regulation that will be included in the Phase I contract. This is not a complete list of provisions to be included in Phase I contracts, nor does it contain specific wording of these clauses. While a Phase II contract may include some or all of the provisions below, additional provisions will be required. Copies of complete general provisions will be made available prior to award.

- a. **Standards of Work.** Work performed under the contract must conform to high professional standards.
- b. **Inspection.** Work performed under the contract is subject to Government inspection and evaluation at all reasonable times.
- c. **Examination of Records.** The Comptroller General (or a fully authorized representative) shall have the right to examine any directly pertinent records of the contractor involving transactions related to this contract.
- d. **Default.** The Government may terminate the contract if the contractor fails to perform the work contracted.
- e. **Termination for Convenience.** The contract may be terminated at any time by the Government if it deems termination to be in its best interest, in which case the contractor will be compensated for work performed and for reasonable termination costs.
- f. **Disputes.** Any dispute concerning the contract which cannot be resolved by agreement shall be decided by the contracting officer with right of appeal.
- g. **Contract Work Hours.** The contractor may not require an employee to work more than eight hours a day or forty hours a week unless the employee is compensated accordingly (that is, receives overtime pay).
- h. **Equal Opportunity.** The contractor will not discriminate against any employee or applicant for employment because of race, color, religion, sex, or national origin.
- i. **Affirmative Action for Veterans.** The contractor will not discriminate against any employee or applicant for employment because he or she is a disabled veteran.
- j. **Affirmative Action for Handicapped.** The contractor will not discriminate against any employee or applicant for employment because he or she is physically or mentally handicapped.
- k. **Officials Not to Benefit.** No member of or delegate to Congress shall benefit from the contract.
- l. **Covenant Against Contingent Fees.** No person or agency has been employed to solicit or secure the contract upon an understanding for compensation except bona fide employees or commercial agencies maintained by the contractor for the purpose of securing business.
- m. **Gratuities.** The contract may be terminated by the Government if any gratuities have been offered to any representative of the Government to secure the contract.
- n. **Patent Infringement.** The contractor shall report each notice or claim of patent infringement based on the performance of the contract.
- o. **Military Security Requirements.** The contractor shall safeguard any classified information associated with the contracted work in accordance with applicable regulations.
- p. **American Made Equipment and Products.** When purchasing equipment or a product under the SBIR funding agreement, purchase only American-made items whenever possible.
- q. **Unique Identification (UID).** If your proposal identifies hardware that will be delivered to the government be aware of the possible requirement for unique item identification in accordance with DFARS 252.211-7003.



- r. **Publication Approval.** Government review and approval will be required prior to any dissemination or publication, except within and between the Contractor and any subcontractors, of classified and non-fundamental information developed under this contract or contained in the reports to be furnished pursuant to this contract.
- s. **Animal Welfare.** Contracts involving research, development, test, evaluation, or training on vertebrate animals will incorporate DFARS clause 252.235-7002.
- t. **Protection of Human Subjects.** Effective 29 July 2009, contracts that include or may include research involving human subjects in accordance with 32 CFR Part 219, DoD Directive 3216.02 and 10 U.S.C. 980, including research that meets exemption criteria under 32 CFR 219.101(b), will incorporate DFARS clause 252.235-7004.
- u. **E-Verify.** Contracts exceeding the simplified acquisition threshold may include the FAR clause 52.222-54 "Employment Eligibility Verification" unless exempted by the conditions listed at FAR 22.1803.
- v. **ITAR.** In accordance with DFARS 225.7901-4, Export Control Contract Clauses, the clause found at DFARS 252.225-7048, Export-Controlled Items (June 2013), must be included in all solicitations and contracts; therefore, all awards resulting from this CSO will include DFARS 252.225-7048. Full text of the clause may be found at [http://farsite.hill.af.mil/reghtml/Regs/far2afmcfars/fardfars/Dfars/Dfars252\\_220.htm?zoom\\_highlight=dfars+252%2E225-7048#P4543\\_324418](http://farsite.hill.af.mil/reghtml/Regs/far2afmcfars/fardfars/Dfars/Dfars252_220.htm?zoom_highlight=dfars+252%2E225-7048#P4543_324418).
- w. **Cybersecurity.** Any Small Business Concern receiving an SBIR award is required to provide adequate security on all covered contractor information systems. Specific security requirements are listed in DFARS 252.204.7012, and compliance is mandatory.

## 12.2 Commercialization Updates in Phase II

If, after completion of Phase I, the contractor is awarded a Phase II contract, the contractor shall be required to periodically update the following commercialization results of the Phase II project through the Web site at <https://sbir.defensebusiness.org/>:

- a. Sales revenue from new products and non-R&D services resulting from the Phase II technology;
- b. Additional investment from sources other than the Federal SBIR/STTR Program in activities that further the development and/or commercialization of the Phase II technology;
- c. Whether the Phase II technology has been used in a fielded DoD system or acquisition program and, if so, which system or program;
- d. The number of patents resulting from the contractor's participation in the SBIR/STTR Program;
- e. Growth in number of firm employees; and
- f. Whether the firm has completed an initial public offering of stock (IPO) resulting, in part, from the Phase II project.

These updates on the project will be required one year after the start of Phase II, at the completion of Phase II, and subsequently when the contractor submits a new SBIR or STTR proposal to DoD. Firms that do not submit a new proposal to DoD will be asked to provide updates on an annual basis after the completion of Phase II.

## 12.3 Copyrights

With prior written permission of the Contracting Officer, the awardee may copyright (consistent with appropriate national security considerations, if any) material developed with DoD support. DoD receives a royalty-free license for the Federal Government and requires that each publication contain an appropriate acknowledgment and disclaimer statement.

## 12.4 Patents

Small business firms normally may retain the principal worldwide patent rights to any invention developed with Government support. The Government receives a royalty-free license for its use, reserves the right to require the patent holder to license others in certain limited circumstances, and requires that anyone

exclusively licensed to sell the invention in the United States must normally manufacture it domestically. To the extent authorized by 35 USC 205, the Government will not make public any information disclosing a Government-supported invention for a period of five years to allow the awardee to pursue a patent. See also Invention Reporting in Section 13.6.

## 12.5 Technical Data Rights

Rights in technical data, including software, developed under the terms of any contract resulting from proposals submitted in response to this CSO generally remain with the contractor, except that the Government obtains a royalty-free license to use such technical data only for Government purposes during the period commencing with contract award and ending twenty (20) years after completion of the project under which the data were generated. This data should be marked with the restrictive legend specified in DFARS 252.227-7018. Upon expiration of the twenty-year restrictive license, the Government has unlimited rights in the SBIR data. During the license period, the Government may not release or disclose SBIR data to any person other than its support services contractors except: (1) For evaluation purposes; (2) As expressly permitted by the contractor; or (3) A use, release, or disclosure that is necessary for emergency repair or overhaul of items operated by the Government. See [DFARS clause 252.227-7018](#), "Rights in Noncommercial Technical Data and Computer Software – Small Business Innovation Research (SBIR) Program."

If a proposer plans to submit assertions in accordance with DFARS 252.227-7017, those assertions must be identified and assertion of use, release, or disclosure restriction **MUST** be included with your proposal submission. The contract cannot be awarded until assertions have been approved.

## 12.6 Invention Reporting

SBIR awardees must report inventions to the Component within two months of the inventor's report to the awardee. The reporting of inventions may be accomplished by submitting paper documentation, including fax, or through the Edison Invention Reporting System at [www.iEdison.gov](http://www.iEdison.gov) for those agencies participating in iEdison.

## 12.7 Final Technical Reports – Phase I through Phase III

- a. **Content:** A final report is required for each project phase. The reports must contain in detail the project objectives, work performed, results obtained, and estimates of technical feasibility. A completed SF 298, "Report Documentation Page," will be used as the first page of the report. (The Report Documentation Page may be prepared and printed from the DoD Submission Web site at <https://sbir.defensebusiness.org/>, or use DTIC (Defense Technical Information Center) submission resources at [http://www.dtic.mil/dtic/submit/guidance\\_on\\_submitting\\_docs\\_to\\_dtic.html](http://www.dtic.mil/dtic/submit/guidance_on_submitting_docs_to_dtic.html). In addition, monthly status and progress reports may be required by the DoD Component.

### b. SF 298 Form "Report Documentation Page" Preparation:

- (1) If desirable, language used by the company in its Phase II proposal to report Phase I progress may also be used in the final report.
- (2) For each unclassified report, the company submitting the report should fill in Block 12 (Distribution/Availability Statement) of the SF 298, "Report Documentation Page," with the following statement: "Distribution authorized to U.S. Government only; Proprietary Information, (Date of Determination). Other requests for this document shall be referred to the Component SBIR Program Office." *Note: Data developed under a SBIR/STTR contract is subject to SBIR/STTR Data Rights which allow for protection under DFARS 252.227-7018 (see Section 11.5, Technical Data Rights). The sponsoring DoD activity, after reviewing the company's entry in Block 12, has final responsibility for assigning a distribution statement.*

For additional information on distribution statements see the following Defense Technical Information Center (DTIC) Web site:

[http://www.dtic.mil/dtic/pdf/distribution statements and reasons.pdf](http://www.dtic.mil/dtic/pdf/distribution%20statements%20and%20reasons.pdf)

- (3) Block 14 (Abstract) of the SF 298, "Report Documentation Page" must include as the first sentence, "Report developed under SBIR/STTR contract for topic [insert topic number]. [Follow with the topic title, if possible.]" The abstract must identify the purpose of the work and briefly describe the work conducted, the findings or results and the potential applications of the effort. Since the abstract will be published by the DoD, **it must not contain any proprietary or classified data and type "UU" in Block 17.**
- (4) Block 15 (Subject Terms) of the SF 298 must include the term "SBIR Report".

**c. Submission:**

**All Final Reports will be submitted to the awarding AF organization in accordance with the Contract. Companies will NOT submit Final Reports directly to the Defense Technical Information Center (DTIC).**

Delivery will normally be within 30 calendar days after completion of the Phase I technical effort.

Other requirements regarding submission of reports and/or other deliverables will be defined in the Contract Data Requirements List (CDRL) of each contract.

Special instructions for the submission of CLASSIFIED reports will be defined in the delivery schedule of the contract.

DO NOT E-MAIL Classified or controlled unclassified reports, or reports containing SBIR/STTR Data Rights protected under DFARS 252.227-7018.'

## 13.0 RAPID PHASE II MATCHING FUNDS GUIDANCE

This information provides guidance regarding relationships between a small company and outside investors that qualify as investment under the SBIR/ STTR RAPID Program (“RAPID private investment”). For questions regarding specific situations’ qualification, please contact the cognizant Government Program Manager, Contracting Officer, or the Air Force special topics team at [sbir@afwerx.af.mil](mailto:sbir@afwerx.af.mil).

### 13.1 What Qualifies As "RAPID Investment" (general):

- Shall be an **outside** investor, which includes other companies, venture capital firms, individual “angel” investors, non-SBIR/non-STTR government programs, or any combination thereof. Does not include the owners of the small business, their family members, and/or “affiliates” of the small business, as defined in Title 13 of the *Code of Federal Regulations* (C.F.R.), Section 121.103, as highlighted below:

- ▶ Concerns are affiliates of each other when one concern controls or has the power to control the other, or a third party or parties controls or has the power to control both.
- ▶ [We] consider factors such as ownership, management, previous relationships with or ties to another concern, and contractual relationships, in determining whether affiliation exists.
- ▶ Individuals or firms that have identical or substantially identical business or economic interests, such as family members, persons with common investments, or firms that are economically dependent through contractual or other relationships, may be treated as one party with such interests aggregated. Although USAF is guided by this definition of affiliation in the Code of Federal Regulations, we also exercise our own discretion whether a particular entity qualifies as an "outside investor."

- The **investment** must be an arrangement by which the outside party provides cash to the small company in return for such items as equity; a share of royalties; rights in the technology; a percentage of profit; an advance purchase order for products resulting from the technology; or any combination thereof.

The Air Force SBIR/STTR Office reserves the right to adjust these guidelines at any time. Any changes to these guidelines will be sent to the eligible Phase I companies and posted online at <https://www.afwerx.af.mil/sbir.html>.

### 13.2 Qualifying RAPID Investments:

#### 13.21 Qualifying as a “Private” Investor”

##### *(1) Can a small company contribute its own internal funds to qualify for the RAPID Program?*

No. USAF is seeking outside validation of the company’s technology commercialization potential, and therefore requires funds be provided by an outside investor. Additionally, outside investor funding is more readily verifiable in the small business’s financial records.

*(2) Company A spins off Company B; Company B receives a Phase I SBIR award. Company A then wants to contribute matching funds to qualify Company B for the RAPID Program. Can A be considered an outside investor for purposes of the RAPID?* In this example A and B would be considered "affiliates". Company A would therefore not be an outside investor for purposes of the RAPID Program. The presumption could be rebutted by showing, e.g., the spin-off occurred several years ago, Companies A and B do not exercise control over the other, do not have common ownership or management, pursue different business interests, etc.

*(3) Small company S wins a Phase I award. The president of S is a major shareholder in company Y. Company Y wants to contribute matching funds to qualify S for the RAPID Program. Can Y be considered an outside investor?*

The presumption is Y would not be considered an outside investor. This determination is based on whether the president's stake in Company Y is large enough for S and Y to be considered "affiliates" IAW 13 CFR Section 121.103. Subsection c specifically discusses affiliation based on stock ownership:

A person is an affiliate of a concern if the person owns or controls, or has the power to control 50 percent or more of its voting stock, or a block of stock which affords control because it is large compared to other outstanding blocks of stock. 2. If two or more persons each own, control, or have power to control < 50% of a concern's voting stock, with minority holdings  $\simeq$  equal in size, but the aggregate of which is large as compared with other stock holdings, each such person is presumed to be the concern's affiliate. If S and Y are determined to be affiliates, Y cannot be an outside investor.

***(4) Does the outside investor have to be a single entity, e.g., a single venture capital firm, or can it be more than one entity e.g., two angel investors and a venture capital firm?*** The outside investor can be comprised of more than one entity.

***(5) Small Company A contributes matching funds to Small Company B to qualify B for the RAPID Program. At the same time, Small Company B contributes matching funds to Small Company A to qualify A for the RAPID Program. Do Small Companies A and B qualify as outside investors under the RAPID Program?*** No. A and B's investment in the other would not provide outside validation of the commercial potential of their respective SBIR projects. They would therefore not be considered outside investors for purposes of the RAPID Program.

***(6) Can the brother of an employee of Small Company S contribute funds to qualify Small Company S for the RAPID Program?*** Probably not. Again, the decision would be guided by the definition of "affiliates" in 13 CFR Section 121.103. The brother would likely be considered an affiliate of Small Company S and not an outside investor.

***(7) Venture Capital Firm V currently is a 22% shareholder in Small Company S. Can V invest additional funds in S to qualify S for the RAPID Program?*** The presumption is yes. The determination would be based on whether V and S are "affiliates," as defined in 13 C.F.R. Sec. 121.103. Section 121.103 provides (in subsection (b)(5)) that a venture capital firm is not affiliated with a company if the venture capital firm does not control the company, i.e., by owning more than 50 percent of the stock of a small company (prior to its investment under the RAPID Program), as described in 13 C.F.R. 107.865.

***(8) Large Company L makes a cash investment in Small Company S, then serves as a subcontractor to S on an SBIR project. Can L's investment in S count as a matching contribution for purposes of the RAPID Program?*** Only L's net cash investment qualifies as matching funds for purposes of the RAPID Program. For example, if L invests \$750,000 in S, then subcontracts with S for \$250,000, only L's net contribution of \$500,000 (\$750,000 - \$250,000) qualifies as matching funds for the RAPID Program.

***(9) Company Y makes a cash investment in Small Company S under the RAPID Program. Y then enters into a separate contract with S to provide certain goods/services for \$500,000. Can Y's cash investment in S count as a matching contribution under the RAPID Program?***

As in the previous example, only Y's net cash investment of the \$500,000 it receives from S qualifies as matching funds under the RAPID Program. However, if the separate contract between Y and S precedes S's Phase I SBIR proposal submission, Y's entire cash investment can count as matching funds.

***(10) A group of investors wishes to provide funding to Small Company S to qualify S for the RAPID Program. One of the investors is the mother of S's president, and wants to contribute \$50,000 toward the effort. Can the group's investment in S count as a matching contribution to qualify S for the RAPID?*** The mother's \$50,000 is not considered a matching contribution, because she is not an outside investor (see item (6) above). Other investors' contributions can count provided they meet the other conditions for the RAPID Program, e.g., each must be an outside investor.

## **13.22 Examples of Qualified "Investment"**

***(1) Can a loan from an outside party qualify as investment under the RAPID Program?*** No. The basis of the RAPID Program is for an outside party to invest in the company's success in bringing the technology to market, not solely its ability to repay a loan.

**(2) Do loans convertible to equity qualify?** A loan convertible to equity at the company's discretion would qualify as an investment provided the loan: (1) if from a public entity, e.g., a state agency, or (2) is from a private entity with rights allowing the SBIR company to convert the loan to equity. At a minimum, the loan must include an automatic conversion clause within five (5) years of loan receipt.

Notes similar to the Simple Agreement for Future Equity (SAFE) are generally NOT considered loans, and therefore qualify as an "Investment".

**(3) Do in-kind contributions from outside investors qualify as matching funds under the RAPID Program?** No. Matching contribution must be cash. A cash contribution is a stronger indicator of the outside investor's interest in the technology, and can be readily verified.

**(4) Would a purchase order from an outside investor qualify as a matching contribution under the RAPID Program?** An advance purchase order for new products resulting from the SBIR project can count as a matching contribution under the RAPID Program, assuming the other RAPID conditions are met.

**(5) Would funds raised through an initial public offering (IPO) qualify as matching funds for purposes of the RAPID Program?** Yes, as long as the offering memo indicates a portion of the IPO funds will pay for work, e.g., R&D, marketing, etc., related to the SBIR project.

**(6) If Large Company L pays Small Company S for work related to S's SBIR project and expects a deliverable, i.e., goods or services, from S in return, would that qualify as an "investment"?** No, for the same reason a loan does not count. Specifically, the large company is not betting on the small company's success in bringing the technology to market, but merely on its ability to provide the deliverable.

### **13.23 RAPID Program Investment Timing/Logistics**

**(1) Can Entity E's investment in Small Company S during the first month of S's Phase I SBIR performance qualify as a matching contribution to qualify S for the RAPID Program?** Yes, provided E is an outside investor and the other RAPID Program conditions are met. The investment can occur at any time after the start of Phase I performance.

**(2) Small Company A, which won a Phase I award, spins off Small Company B to commercialize the SBIR technology. A then convinces Angel Investor I to invest funds in B. Is I's investment in B considered a matching contribution to qualify A for the RAPID Program?**

For Angel Investor I's investment in Small Company B to qualify Small Company A for the RAPID Program, USAF must determine A and B are substantially the same entity as evidenced, for example, by their meeting the "affiliates" definition " in 13 C.F.R. Sec.121.103. If USAF determines A and B are substantially the same entity, I's investment in B could qualify A for the RAPID Program. Of course, the parties must also meet the other conditions for the RAPID Program, e.g., I must be an outside investor.

**(3) Small Company S is collaborating with a university on an STTR Phase I (?) project. Investor I wishes to provide funds to the university to qualify Small Company S for the STTR RAPID Program. Is I's investment in the university a matching contribution to qualify S for the RAPID Program?** In order to qualify S for the STTR RAPID Program, I's investment must be in Small Company S, not in the university. S can then subcontract to the university. The rationale is a cash investment in the small company is a strong indication of commercial potential, whereas an investment in the university is less so.

**(4) Can Entity E's investment in Small Company S before the submission of S's Direct to Phase II SBIR proposal qualify as a matching contribution to qualify S for the RAPID Program?** Yes, provided E is an outside investor and the other RAPID Program conditions are met. The investment can occur at any time after the **pre-release date** of Direct-to-Phase II proposal instructions, and no later than 90 calendar days after award.

## 14.0 AFWERX TOPICS

**14.1 J201-CS01** TITLE: *Phase I Open Call for Innovative Defense-Related Dual-Purpose Technologies/Solutions with a Clear AF Stakeholder Need*

TECHNOLOGY AREA(S): Materials/Processes

**OBJECTIVE:** This is an AF Special Topic in partnership with AFWERX, please see the above AF Special Topic instructions for further details. A Phase I award will be completed over 3 months with a maximum award of \$50K. Phase II efforts may be awarded for a maximum period of 27 months at a value up to \$1,500,000. The objective of this topic is to explore Innovative Defense-Related Dual-Purpose Technologies that may not be covered by any other specific SBIR topic and thus to explore options for solutions that may fall outside the Air Force's current fields of focus but that may be useful to the AF. An additional objective of this topic is to grow the industrial base of the AF. This topic will reach companies that can complete a feasibility study and prototype validated concepts in accelerated Phase I and II schedules. This topic is specifically aimed at later stage development rather than earlier stage basic science and research.

**DESCRIPTION:** The Air Force is a large and complex organization consisting of many functions with similar counterparts in the commercial sector. We are interested in exploring innovative technology domains that have demonstrated clear commercial value in the non-defense sector (i.e., through existing products/solutions) in order to see if they have similar Air Force applications (i.e., Dual-Purpose Technologies/Solutions). We recognize that it is impossible to cover every technological area with the SBIR topics, thus this topic is intended to be a call for open ideas and technologies that cover topics that may not be currently listed (i.e. the unknown-unknown). It is important that any potential solutions have a high probability of keeping pace with the technological change and thus should be closely tied to commercial technologies and solutions that will help support the development of the solution. This topic is meant for innovative non-defense commercial solutions to be adapted in innovative ways to meet DoD stakeholders' needs in a short timeframe and at a low cost. Solutions for this topic should be focused on the three areas listed below and should try to meet as many of these as possible.

1. Technical feasibility – There should be minimal technical risk to the overall solution. The best solutions will have demonstrated technical feasibility by showing the solution being used broadly by other customers, especially in the non-defense space. If the solution has not demonstrated technical feasibility in the non-defense space, the offeror(s) may provide alternative evidence to indicate technical feasibility such as initial lab tests, use of the product with defense customers and other forms of evidence.
2. Financial Sustainability – The offeror(s) should demonstrate financial sustainability of the solution and the offeror(s). The best solutions will demonstrate this by sales of the solution to non-defense clients and other sources of private investment. If the solution has not demonstrated financial sustainability by non-defense sales or private investment, the offeror(s) may provide other evidence of financial sustainability such as other governmental aid, sales to defense customers, and other forms of evidence that help explain the financial sustainability.
3. Defense Need – The offeror(s) should demonstrate that they have an understanding of the fit between their solution and defense stakeholders. The offeror(s) may provide an indication of a defense 'need' by evidence of preliminary discussions with USAF stakeholders, a clear description (including contact name, rank, unit and contact information) of a specific, potential USAF stakeholder that may need to use the solution or other forms of evidence to help explain a clear defense need. In summary - proposals for this topic should demonstrate a high probability to quickly find product-market fit between an Air Force end user and the proposed solution through



adaptation of a non-defense commercial solution. This can be done through a proposal with a mature non-defense technical solution and a starting point to find an Air Force customer.

#### BROAD FOCUS AREAS AND SPECIFIC USER NEEDS FOR 20.1 OPEN TOPIC

Though the topic is truly ‘Open’ (agnostic of industry, technology, and problem area), to facilitate streamlined customer discovery for companies in Phase I, we have identified certain problem areas for which potential Air Force Customers and/or funding have already been identified. These areas, which we break out into broad ‘Focus Areas’ and specific ‘User Needs’, are described below.

Focus Areas – for a broad ‘Focus Area’ to be included in this topic (the list of Focus Areas can be viewed at <https://www.afwerx.af.mil/sbir.html>), we require it either have a significant number of Air Force customers seeking solutions in that area OR a specific Air Force Customer that has set aside funding to address that area by way of SBIR fund-matching. Thus, if your solution can help address one of these Focus Areas, there is likely to be a good number of Air Force End-Users and customers that you can interact with in your phase I feasibility study and an increased likelihood for matching funding.

User Needs – for a specific ‘User Need’ to be included in this topic (the list of User Needs can be viewed at <https://www.afwerx.af.mil/sbir.html>), we required that an Air Force end-user or customer clearly articulate a specific problem affecting their mission for which they are actively seeking solutions from SBIR companies. Thus, if your solution can help address one of these User Needs, then there is \*at least\* one Air Force end-user that you can readily interact with in your phase I feasibility study. If you believe your solution can help address one of the ‘Focus Areas or ‘User Needs’, please note this on the first slide of your application slide deck AND include the Focus Area ID # or User Need ID # in your ‘Keywords’ in the online SBIR application (Example: FA-001, or UN-1034).

The alignment between a proposal and a ‘Focus Area’ or ‘User Need’ can strengthen an application. Note that this does not change the requirement to demonstrate the defense need as listed above, but may complement it. This also does not preclude companies who are looking to solve other problems that are not listed in the ‘Focus Areas’ or ‘User Needs’ to submit to this topic; it is simply intended to give indications of areas of special focus for the Air Force at this particular point in time.

PHASE I: Validate the product-market fit between the proposed solution and a potential USAF stakeholder and define a clear and immediately actionable plan for running a trial with the proposed solution and the proposed AF customer. This feasibility study should directly address:

1. Clearly identify who the prime potential AF end user(s) and AF transition customer (the user and customer will likely be two different people) and articulate how they would use your solution(s) (i.e., the one who is most likely to be an early adopter, first user, and initial transition partner).
2. Deeply explore the problem or benefit area(s) which are to be addressed by the solution(s) - specifically focusing on how this solution will impact the end user of the solution.
3. Define clear objectives and measurable key results for a potential trial of the proposed solution with the identified Air Force end user(s).
4. Clearly identify any additional specific stakeholders beyond the end user(s) who will be critical to the success of any potential trial. This includes, but is not limited to, program offices, contracting offices, finance offices, information security offices and environmental protection offices.



5. Describe how the solution differs from the non-defense commercial offering to solve the Air Force need - (i.e. how has it been modified)
6. Describe the cost and feasibility of integration with current mission-specific products.
7. Describe if and how the demonstration can be used by other DoD or governmental customers

The funds obligated on the resulting Phase I SBIR contracts are to be used for the sole purpose of conducting a thorough feasibility study. Prototypes may be developed with SBIR funds during Phase I studies to better address the risks and potential payoffs in innovative technologies.

PHASE II: Develop, install, integrate and demonstrate a prototype system determined to be the most feasible solution during the Phase I feasibility study. This demonstration should focus specifically on:

1. Evaluating the proposed solution against the objectives and measurable key results as defined in the phase I feasibility study.
2. Describing in detail how the solution differs from the non-defense commercial offering to solve the Air Force need and how it can be scaled to be adopted widely (i.e. how can it be modified for scale)
3. A clear transition path for the proposed solution that takes into account input from all affected stakeholders including but not limited to: end users, engineering, sustainment, contracting, finance, legal, and cyber security.
4. Specific details about how the solution can integrate with other current and potential future solutions.
5. How the solution can be sustainable (i.e. supportability)
6. Clearly identify other specific DoD or governmental customers who want to use the solution

PHASE III DUAL USE APPLICATIONS: This is the main goal of this topic, we intend for many of the solutions to go straight from Phase I to Phase III as soon as the product-market fit has been verified. The contractor will transition the adapted non-defense commercial solution to provide expanded mission capability to a broad range of potential government and civilian users and alternate mission applications.

#### NOTES:

- a. Due to the large amount of expected interest in this topic, we will not be answering individual questions through e-mail, except through [sbir@afwerx.af.mil](mailto:sbir@afwerx.af.mil). Instead we will be holding a teleconference to address all questions in an efficient manner. This topic will be updated with the final call-in details as soon as the date is finalized. In the meantime, feel free to use the SITIS Q&A system.
- b. This SBIR is NOT awarding grants, and is awarding contracts, when registering in SAM.gov, be sure to select 'YES' to the question 'Do you wish to bid on contracts?' in order to be able to compete for this SBIR topic. If you are only registered to compete for grants, you will be ineligible for this topic. For more information please visit <https://www.afwerx.af.mil/sbir.html>
- c. We are working to move fast, please register in SAMs and if already registered please double check your CAGE codes, company name, address information, DUNS numbers, etc. If they are not correct at time of submission, you will be ineligible for this topic. In order to ensure this, please include, in your 15-slide deck, a screenshot from SAM.gov as validation of your correct CAGE code, DUNS number and current business address along with the verification that you are registered to compete for All Contracts. It is the responsibility of the contractor to ensure that the data in the proposal and the data in SAM.gov are aligned. For more information please visit <https://www.afwerx.af.mil/sbir.html>
- d. In order to keep pace with the fast timeline, if the purchase orders are not signed and returned to the contracting office within 5 business days of receipt, a Phase I award will not be issued.
- e. Please note that each company may only have one active 'Open Topic' Phase I award at a time. If a company submits multiple technically acceptable proposals to the J20.1-001 'Open Topic,' only the proposal with the highest evaluation will be awarded. If multiple proposals are evaluated to be equal, the government will decide which proposal to award based upon the needs of the Air Force. If the company applies for both the **Direct to Phase II 'Open Topic' (AF201-DCSO1)** and the Phase I 'Open Topic' (J201-CSO1) topic, and the company is selected for award for both topics, **only the Direct to Phase II (AF201-DCSO1)** proposal will be awarded. All awards are subject to the availability of funds and contracting negotiations.

f. The ‘DoD SBIR/STTR Programs Funding Agreement Certification’ form must be completed and signed at the time of \*Proposal Submission\* and can be found at:

<https://www.afsbirsttr.af.mil/Portals/60/Pages/Phase%20I-II/SBIR-STTR-Phase-I-II-Funding%20Agreement%20Certification.pdf>.

g. It is the responsibility of the contractor to answer the questions in the SBIR Cover Sheet and on the ‘DoD SBIR/STTR Programs Funding Agreement Certification’ accurately.

h. While these are firm fixed price contracts, it is important for the companies to include the cost volume in the SBIR online application with reasonable fidelity in order to determine the reasonableness of the proposed effort.

\*\*\*\*\*Proposals submitted under this topic may relate to technologies restricted under the International Traffic in Arms Regulation (ITAR) which controls defense-related materials/services import/export, or the Export Administration Regulation (EAR) which controls dual use items. Foreign National is defined in 22 CFR 120.16 as a natural person who is neither a lawful permanent resident (8 U.S.C. § 1101(a) (20)), nor a protected individual (8 U.S.C. § 1324b (a) (3)). It also includes foreign corporations, business associations, partnerships, trusts, societies,

other entities/groups not incorporated/organized to do business in the United States, international organizations, foreign governments, and their agencies/subdivisions.

Offerors must identify Foreign National team members, countries of origin, visa/work permits possessed, and Work Plan tasks assigned. Additional information may be required during negotiations to verify eligibility.

Even if eligible, participation may be restricted due to U.S. Export Control Laws.

NOTE: Export control compliance statements are not all-inclusive and do not remove submitters’ liability to 1) comply with applicable ITAR/EAR export control restrictions or 2) inform the Government of potential export restrictions as efforts proceed.\*\*\*\*\*

Lockheed Martin is interested in a possible transition of this technology. Awardees of a Phase I should contact the AF SBIR/STTR Program office at [afsbirsttr-info@us.af.mil](mailto:afsbirsttr-info@us.af.mil) to obtain the Lockheed Martin Point of Contact for this topic.

#### REFERENCES:

1. FitzGerald, B., Sander, A., & Parziale, J. (2016). Future Foundry: A New Strategic Approach to Military-Technical Advantage. Retrieved June 12, 2018, from <https://www.cnas.org/publications/reports/future-foundry>
2. Blank, S. (2016). The Mission Model Canvas – An Adapted Business Model Canvas for Mission-Driven Organizations. Retrieved June 12, 2018, from <https://steveblank.com/2016/02/23/the-mission-model-canvas-an-adapted-business-model-canvas-for-mission-driven>
3. US Department of Defense. (2018). 2018 National Defense Strategy of the United States Summary, 11. Retrieved from <https://www.defense.gov/Portals/1/Documents/pubs/2018-National-Defense-Strategy-Summary.pdf>
4. J201-CSO1 SBIR ‘Open Topic’ Focus Areas – Retrieved from <https://www.afwerx.af.mil/sbir.html>
5. J201-CSO1 SBIR ‘Open Topic’ User Needs – Retrieved from <https://www.afwerx.af.mil/sbir.html>

KEYWORDS: Open, Other, Disruptive, Radical, Dual-Use, Commercial

***14.3 AF201-DCSO1 TITLE: Direct to Phase II Open Call for Innovative Defense-Related Dual-Purpose Technologies/Solutions with a Clear Air Force Stakeholder Need***

***TECHNOLOGY AREA(S): Materials/Processes***

**OBJECTIVE:** This is an AF Special Topic in partnership with AFWERX, please see the above AF Special Topic instructions for further details. A Phase II may be awarded for a maximum period of 27 months and \$1,500,000. The objective of this topic is to explore Innovative Defense-Related Dual-Purpose Technologies that may not be covered by any other specific SBIR topic and thus to explore options for solutions that may fall outside the Air Force's current fields of focus but that may be useful to the US Air Force. This topic will reach companies that can complete a feasibility study and prototype validated concepts in an accelerated II schedule. This topic is specifically aimed at later stage development rather than earlier stage basic science and research.

**DESCRIPTION:** The Air Force is a large and complex organizations that consists of many functions that have similar counterparts in the commercial sector. We are interested in exploring innovative technology domains that have demonstrated clear commercial value in the non-defense sector (i.e., through existing products/solutions) in order to see if they have similar Air Force applications (i.e. Dual-Purpose Technologies/Solutions). We recognize that it is impossible to cover every technological area with the SBIR topics, thus this topic is intended to be a call for open ideas and technologies that cover topics that may not be currently listed (i.e. the unknown-unknown). It is important that any potential solutions have a high probability of keeping pace with the technological change and thus should be closely tied to commercial technologies and solutions that will help support the development of the solution. This topic is meant for innovative non-defense commercial solutions to be adapted in innovative ways to meet DoD stakeholders' needs in a short timeframe and at a low cost.

Solutions for this topic should be focused on the three areas listed below and should try to meet as many of these as possible.

1. Technical feasibility – There should be minimal technical risk to the overall solution. The best solutions will have demonstrated technical feasibility by showing the solution being used broadly by other customers, especially in the non-defense space.
2. Financial Sustainability – The offeror(s) should demonstrate financial sustainability of the solution and the offerer(s). The best solutions will demonstrate this by sales of the solution to non-defense clients and other sources of private investment.
3. Defense Need – The offerer(s) should demonstrate that they have an understanding of the fit between their solution and defense stakeholders. To be considered, proposals must include at least one signed Customer Memorandum from a specific, empowered end-user and customer (the end-user and customer may not be the same person) in the USAF who is ready and willing to participate in the trial of the proposed prototype solution. This should include specific objectives and measurable (quantitative) key results that the proposed solution can achieve to meet the needs of the AF end-user and customer. The required memorandum template can be found at <https://www.afwerx.af.mil/sbir.html>. Other Federal Agencies may provide signed memorandums as well to further validate the Defense Need, but there must be at least one signed memorandum from a USAF end-user and customer.

In summary - proposals for this topic should demonstrate a product-market fit between an Air Force end-user and the proposed adaptation of an existing non-defense commercial solution. This can be done through a proposal with a mature non-defense technical solution with a clear understanding of how it can be adapted to meet the specific needs of an Air Force Customer along with documentation from a specific motivated and empowered AF end-user and customer who is ready and willing to participate in the trial of the proposed prototype solution.

For companies wishing to apply to the ‘direct to phase II’ topic, they must have satisfactorily completed the following feasibility study.

**FEASIBILITY STUDY:** Validate the product-market fit between the proposed solution and a potential USAF stakeholder and define a clear and immediately actionable plan for running a trial with the proposed solution and the proposed AF customer. This feasibility study should directly address:

1. Clearly identify who the prime potential AF end user(s) and AF transition customer (the user and customer will likely be two different people) and articulate how they would use your solution(s) (i.e., the one who is most likely to be an early adopter, first user, and initial transition partner).
2. Deeply explore the problem or benefit area(s) which are to be addressed by the solution(s) - specifically focusing on how this solution will impact the end user of the solution.
3. Define clear objectives and measurable key results for a potential trial of the proposed solution with the identified Air Force end user(s).
4. Clearly identify any additional specific stakeholders beyond the end user(s) who will be critical to the success of any potential trial. This includes, but is not limited to, program offices, contracting offices, finance offices, information security offices and environmental protection offices.
5. Describe how the solution differs from the non-defense commercial offering to solve the Air Force need - (i.e. how has it been modified)
6. Describe the cost and feasibility of integration with current mission-specific products.
7. Describe if and how the demonstration can be used by other DoD or governmental customers. The funds obligated on the resulting Phase I SBIR contracts are to be used for the sole purpose of conducting a thorough feasibility study using scientific experiments, laboratory studies, commercial research and interviews. Prototypes may be developed with SBIR funds during Phase I studies to better address the risks and potential payoffs in innovative technologies.

**DIRECT TO PHASE II:** Develop, install, integrate and demonstrate the proposed solution prototype system. This demonstration should focus specifically on:

1. Evaluating the proposed solution against the proposed objectives and measurable key results.
2. Describing in detail how the installed solution differs from the non-defense commercial offering to solve the Air Force need and how it can be scaled to be adopted widely (i.e. how can it be modified for scale)
3. A clear transition path for the proposed solution that takes into account input from all affected stakeholders including but not limited to: end users, engineering, sustainment, contracting, finance, legal, and cyber security.
4. Specific details about how the solution can integrate with other current and potential future solutions.
5. How the solution can be sustainable (i.e. supportability)
6. Clearly identify other specific DoD or governmental customers who want to use the solution

**PHASE III DUAL USE APPLICATIONS:** This is the main goal of this topic, we intend for many of the solutions to go straight from Phase II to Phase III as soon as the product-market fit has been verified. The contractor will transition the adapted non-defense commercial solution to provide expanded mission capability to a broad range of potential government and civilian users and alternate mission applications.

**NOTES:**

- a. Due to the large amount of expected interest in this topic, we will not be answering individual questions through e-mail, except via [sbir@afwerx.af.mil](mailto:sbir@afwerx.af.mil). Instead we will be holding a teleconference to

address all questions in an efficient manner. This topic will be updated with the final call-in details as soon as the date is finalized. In the meantime, feel free to use the SITIS Q&A system.

b. This SBIR is NOT awarding grants, and is awarding contracts, when registering in SAM.gov, be sure to select 'YES' to the question 'Do you wish to bid on contracts?' in order to be able to compete for this SBIR topic. If you are only registered to compete for grants, you will be ineligible for this topic. For more information please visit <http://afwerxdc.org/sbir/>

c. We are working to move fast, please double check your CAGE codes and DUNS numbers to be sure they line up, if they are not correct at time of submission, you may be disqualified. In order to ensure this, please include, in your 15-slide deck, a screenshot from SAM.gov as validation of your correct CAGE code, DUNS number and current business address along with the verification that you are registered to compete for All Contracts. For more information please visit <https://www.afwerx.af.mil/sbir.html>

d. In order to keep pace with the fast timeline, if the purchase orders are not signed and returned to the contracting office within 5 business days of receipt, a Phase I award will not be issued.

1. FitzGerald, B., Sander, A., & Parziale, J. (2016). Future Foundry: A New Strategic Approach to Military-Technical Advantage. Retrieved June 12, 2018, from <https://www.cnas.org/publications/reports/future-foundry>

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**4. AF201-CSO1 SBIR 'Open Topic' Focus Areas** – Retrieved from <https://www.afwerx.af.mil/sbir.html>

**5. AF201-CSO1 SBIR 'Open Topic' User Needs** – Retrieved from <https://www.afwerx.af.mil/sbir.html>

**6. Memorandum of Understanding Template** - Retrieved from [https://www.afwerx.af.mil/resources/19.2P2-20.1D2P2-SBIR-Open-Topic-Customer-Memorandum\\_9.10.19.docx](https://www.afwerx.af.mil/resources/19.2P2-20.1D2P2-SBIR-Open-Topic-Customer-Memorandum_9.10.19.docx)

**KEYWORDS:** Open, Other, Disruptive, Radical, Dual-Use, Commercial