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**Glossary**

# 2.3 Technical Summary

## 2.3.1 Technical Summary of the Non-Defense Commercial Solution

Discuss the proposed adaptation of non-defense commercial solution. Describe the specific problem/opportunity addressed in Phase I and its relationship to Phase II.

### 2.3.1.1. 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 the solution’s users. Additionally, please address the following:

* Describe the scope and importance of the Technical Problem or Opportunity.
* Is the proposed item “of a type”, i.e., similar to a commercial item customarily used by the public or by non-governmental entities for non-governmental purposes?
* Has the proposed item been (1) sold leased, or licensed to the public; or (2) offered for sale, lease, or license to the public?
* Include, where applicable, revenue, unit sales, user adoption, pre-sales, and investments. Broad adoption and commercial success can be indicators of commercial potential and reduced technical risk but are not mandated.

NOTE: This is a R&D solicitation, not a commercial off-the-shelf (COTS) resale solicitation. See FAR 2.101 for a “commercial items” definition.

### 2.3.2 Commercialization Potential

#### 2.3.2.1 Commercialization Plan

The SBA and DoD require a commercialization plan to be submitted with the Phase II proposal. The plan should briefly describe the award’s anticipated results and potential commercialization, as well as plans to exploit it in both the Defense and non-Defense markets. The plan must include:

* Company information. Focused objectives/core competencies; specialization area(s); products with significant sales; and previous Federal and non-Federal funding history (including foreign investments), regulatory experience, and commercialization.
* Customer and Competition. Clear key technology objective descriptions, current competition advantages compared to competing products or services; description of hurdles to innovation acceptance.
* Market. Milestones, target dates, market size analyses, and estimated market share after first year and five years’ sales; explanation of plan to obtain market share.
* Intellectual Property. Patent status, technology lead, trade secrets, or other demonstration of a plan to achieve sufficient protection to reach the commercialization stage and attain at least a temporal competitive advantage.
* Financing. Plans for securing necessary non-STTR Government funding to move to Phase III.
* Assistance and Mentoring. Plans to obtain needed technical or business assistance through mentoring, partnering, or State assistance programs, Small Business Development Centers, Federally-funded research and development centers, Manufacturing Extension Partnership centers, or other assistance providers.

Specifically address the following questions:

* What is the anticipated first product to incorporate the proposed technology?
* Who are the probable customers, and what is the estimated market size?
* How much money is required to bring the solution to market and how will it be raised?
* Does the firm have 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 both outside private investment such as venture capital, angel investors, State or local government programs, etc. and internal funding sources, e.g., from affiliates. Delineate past and potential future investments, e.g., currently raising a round, signed term sheets, etc. Also state whether commitments are conditioned upon Phase II award receipt.
* Note private investment funds from qualified third-party investors available for potential Phase II enhancements, e.g., matching funds wherein the investor and the SBIR/STTR Program provide additional funding for a Phase IIb or sequential Phase II award
* Note private or Government follow-on commitments available for Phase III.
* Note other indicators of commercial potential.
* Provide the past 12 months’ total revenue from non-Defense commercial sales of the solution proposed for adaptation to meet a DAF need.
* State the proposed Phase II anticipated end results, specifically plans for Phase III transfer to a potential Government customer.
* Discuss the Phase II effort’s significance as the basis for a Phase III effort.

#### 2.3.2.1 Non-Defense Commercial Customer Discovery

* Past revenue from the proposed non-Defense commercial solution’s customers: Clearly list non-Defense, commercial customers, including revenue resulting from 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.

### 2.3.3. Technical Summary of the Proposed Adaptation of Non-Defense Commercial Solution

Describe the specific problem/opportunity addressed inPhase I and its relationship to Phase II.

#### 2.3.3.1. Proposed Adaptation of Non-Defense Commercial Solution

Describe the proposed R/R&D adaptations of the Non-Defense commercial solution to meet an Air Force end-user need. In this section, please answer the following questions:

* What’s the scope and importance of the Technical Problem or Opportunity?
* How similar is the modified item to others sold to Non-Defense customers in the commercial marketplace?
* Does the supplier perform similar modifications for Non-Defense customers?
* Do the DAF-unique modifications change the product’s essential use and purpose?
* Are there differences in the production/manufacturing/delivery process used to perform the Defense modification versus Non-Governmental customers?
* What are the quantitative benefits expected for identified Air Force end-users?

#### 2.3.3.2. Military Applications/ DoD Customers

Briefly describe the proposed solution’s existing/potential military requirement. Identify the DoD agency/organization most likely to become the solution’s customer. It is likely the potential DoD customer and end-user are not the same person/organization. For example, the user may be an operational flying unit and the customer a system program office for the related aircraft.

## 2.4 Phase I Feasibility Study Results

The proposal shall detail the solution’s ability to meet DAF end-user and customer needs through R/R&D. These results shall be framed in the context of DAF end-user and customer exploration previously performed.

### 2.4.1. Scientific or Technical R/R&D Effort

Include research questions, methods, results, and relevant literature.

### 2.4.2. DAF End-User and Customer Exploration Methods

Describe methods, both successful and unsuccessful, used for technical and scientific feasibility analysis, DAF customer and end-user exploration to adapt the non-Defense commercial solution to a specific DAF end-user needs. This should include detailed documentation involving at least one in-depth interview with an DAF end-user AND customer.

### 2.4.3. Empowered and Committed DAF End-Users

List and describe specific DAF end-users, e.g., operators, willing to support further product solution R&D, test, evaluation, or trials in Phase II, e.g., through a signed Customer Memorandum (Attachment 1). Specifically explain how the proposed solution meets the need(s). Describe understanding of the DAF end-user’s problem or benefit area in as much detail as possible.

### 2.4.4. Empowered and Committed AF Customers

List and describe the specific AF customer, e.g., as a Program Manager at a system program office, willing to assist the proposed solution’s transition during Phase II and potentially into Phase III, e.g., through a Customer Memorandum. Specifically explain the proposed solution’s integration with the existing systems.

### 2.4.5. Empowered and Committed US non-AF Government End-Users

List firm commitments, e.g., through a Customer Memorandum, from additional US Government end-users directly related to the proposed solution. Customer Memoranda must be uploaded to the ‘Letters of Support’ section in Volume 5, Supporting Documents.

NOTE:

* Proposals without a Customer Memorandum, created using the mandatory template (Attachment 1) and signed by a DAF Customer AND End-User (if both are the same person, signatory must sign twice) will not be considered for award.
* Offerors may add relevant supporting data such as journal articles, literature, and Government publications to or referenced in the proposal. However, these documents will count toward the page limit.

## 2.5. Phase II Technical Objectives and Key Results

### 2.5.1. Objectives

Describe clearly three to five Phase II R/R&D effort and trial objectives. These objectives shall be tied to specific tasks in the Phase II trial. These objectives shall be qualitative, but specific to the participating DAF end-users. The objectives shall be tied to specific time-periods, tangible, and unambiguous about anticipated results. These objectives shall describe end-state outcomes rather than processes or activities. Each objective shall be accompanied by three to five specific ‘key results’ measurable throughout Phase II performance. These will likely be quantitative in nature, e.g., deliver X widgets to DAF end-user. Non-quantitative key results shall be clearly measurable.

### 2.5.2. Anticipated Stakeholder Interactions

List anticipated interactions with stakeholders necessary to accomplish a Phase II trial. Such stakeholders may include program managers, lawyers, small business professionals, test range officials, information assurance officials, system program office engineers, etc. Clearly describe Phase II trial completion requirements not within the offeror’s control, as well as plans to work within those constraints. NOTE: This includes clearances, e.g., DD Form 254, Contract Security Classification Specification, UAS waiver, etc.

### 2.5.3. Compliance and Regulatory Activities

Please indicate whether or not the proposed effort includes any of the following activities:

* Will there be flight testing? (Indoor/outdoor/manned/unmanned)
* If yes to flight testing please provide (if known) the test facility/range name and/or location of where the flight test will be conducted?
* Will any hardware or software be delivered to the government as part of the contract? Note: The contractor must submit a preliminary hazard list (per Mil-Std-882E requirements) with the delivered item.
* Will any government personnel, facilities, or government owned equipment be used during testing? Note: The contractor must complete a government safety review and provide the documentation to AFWERX via email (send to: p2@afwerx.af.mil) before the GFE is used in testing. After AFWERX receives the safety documentation a safety review process will be initiated (for project planning purposes the review will take approximately 4 weeks to complete).
* Will there be any weapons or munitions testing?
* Does this activity use explosives, propellants, deflagrating materials, or ammunition?
* Does this activity use a directed energy device (including lasers) or radio frequency radiation?
* Does this activity involve hazardous materials?
* Will there be any animal testing?
* Does any testing meet the definition of human subject research per 32 CFR 219?
* Will testing include use of toxins, human derived materials, or recombinant DNA?
* Does this project involve interaction or intervention w/ humans?
* Does this project involve the access to, collection, use, analysis or sharing of human data or human bio specimens?

### 2.5.4. Phase II Work Plan

A Work Plan, not a Statement of Work, is required. The Work Plan shall include work outcomes or results, rather than performance methods, and measurable performance standards, including assessment methods. Phase II efforts shall attempt to demonstrate the Phase I effort’s technical feasibility, including private sector or Government customer transition results. List the major requirements and specifications for the effort to indicate the project’s scope. Work plan should explicitly accommodate the appropriate regulatory and compliance processes necessary to fulfill the desired objectives, detailing submission of documentation, waivers, or other materials as required by the respective process(es).

### 2.5.5. Task Outline

Provide an outline of work to be accomplished throughout the effort. Payments will be based on negotiated milestones with corresponding deliverables and funding.

### 2.5.6. Milestone Progress and Funding Schedule:

The maximum period of performance will be 15 months, including 12 months technical performance

and three months for reporting. Include a concise program schedule with all key milestones identified. For each milestone provide:

* An expected delivery date, represented in number of months after contract award (CA), e.g., widget delivered at CA + 6 months;
* A deliverable of value; and
* Clear acceptance criteria to validate milestone achievement.

Proposals shall not include more than 15 milestones/deliverables, including a final technical report and intervening milestones/deliverables at offerors’ discretion. Upload suggested payment amounts/rationale/supporting information in “Additional Cost Information”, Volume 5, Supporting Information (see Section III.5 for additional details).

NOTE: If proposing to work with multiple DAF end-users, consolidate all Customer Memoranda into a single, coherent, mutually agreed-upon Schedule of Milestones, meeting all proposed DAF end-users’ approval.

Below is a Schedule of Milestones example. Each milestone marks a required deliverable’s completion, e.g., baseline execution plan, prototype component, test plan, prototype production, final report submission, etc. Status reports alone cannot be milestones but shall be included as deliverables. Describe criteria to verify milestones’ completion. Associated milestone payments shall reflect justifiable costs. Include supporting rationale with Supporting Documents.

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NOTE: Non-Defense commercial customers’ pricing data is likely proprietary and should be marked as such. See Section VI.9 of these instructions for the definition of Proprietary Information and Section VIII.5.3 for guidance regarding proprietary markings.

### 2.5.7. Deliverables

Include a section clearly describing the specific sample/prototype/ hardware/software to be delivered, as well as data deliverables, schedules, and quantities.

### 2.5.8. Unique Item Identification

IAW DFARS 252.211-7003, Item Identification and Valuation, may be required. Information regarding hardware may be found at: https://www.acq.osd.mil/dpap/dars/dfars/html/current/252211.htm#252.211-7003

#### 2.5.8.1. Safety Related Deliverables

Safety requirements shall be followed in the proposed program’s design and performance. The Work Plan must contain separate sections specifically addressing:

* Preliminary Hazard Analysis [Hardware Only]: If hardware is developed, include at least a preliminary hazard analysis.
* Preliminary Hazardous Material Report [Hardware Only]: If hazardous materials use is anticipated, provide:

• Materials identification;

• Materials purpose; and

• Possible risk minimizing alternatives/procedures/safeguards.

### 2.5.9. Required Reports

At a minimum, the following reports shall be deliverables under all Phase II contracts and Other Transactions for Prototype and must be included in the Work Plan. All are considered to be scientific and technical reports.

#### 2.5.9.1. Final Report

Draft is due 30 days after Phase II technical effort completion. The final report’s first page will be a single-page summary identifying the work’s purpose, providing a brief description of effort accomplished, and listing potential results applications. The summary may be published by DoD and, therefore, shall not contain proprietary information. It shall also detail project objectives met, work completed, results obtained, and technical feasibility estimates.

#### 2.5.9.2. Status Reports

Due quarterly at a minimum. These concise documents shall describe progress in meeting selected DAF end-users’ needs. Each shall be 15 slides or less. Status reports shall progress toward Phase II objectives and key results, as well as quantitative measure between 0 and 1 of progress toward each.

#### 2.5.9.3. Technical Interchange Meetings

Awardees will be required to conduct technical interchange meetings with Government technical personnel at least quarterly. To limit associated costs, these meetings will held using a virtual app, e.g., Zoom, Microsoft Teams, etc.

#### 2.5.9.4. Phase II Summary Report

Due at technical effort completion, it shall be submitted via email to the government Program Manager. Reports shall not exceed 700 words and must include a technology description and anticipated applications/benefits for the government and/or private sector use.

### 2.5.10. Additional Reporting

The DAF end-user or customer may require, as applicable, other reports or documentation including, but not limited to:

* + Software documentation and user manuals;
  + Engineering drawings;
  + Operation and maintenance documentation;
  + Updated commercialization results;
  + Safety hazard analysis when the project results in partial or total hardware development/delivery

## 2.6. Key Personnel

Identify key project personnel, 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.

### 2.6.1. Investors and Partners

Identify company investors, shareholders, lenders, technology licensors/licensees, or strategic advisors making significant contributions to support the Phase II effort. Describe their past experience or track record as it will support the technical or commercialization effort, e.g., leveraging other entities in company investors’ portfolios or accessing other capital sources.

### 2.6.2. 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. Include reviewers’ comments regarding the offeror’s knowledge of the state-of-the-art in the specific approach proposed. Specify related Government efforts, SBIR/STTR or otherwise, awarded, previously proposed, or intended for the proposal.

### 2.6.3. Non-U.S. Citizens

Identity all proposed non-U.S. citizens and dual citizens as direct employees, subcontractors, funding or resource providers, technology licensees or licensors, or consultants. For these individuals, in addition to technical resumes, provide countries of origin, type of visas or work permits held, and explanation of their anticipated involvement level in the project.

Note: For selected proposals determined subject to export-control, International Traffic in Arms Regulations (ITAR), and/or Export Administration Regulations (EAR), 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. The requested information regarding non-U.S. citizens should be captured in this table or similar:

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## 2.7 Supply Chain Integrity

#### 2.7.1. Involvement in joint ventures, partnerships, joint technology development agreements, teaming arrangements, or technical assistance or collaborative technology agreements, including associated entities or person.

#### 2.7.2. The firm’s main component, software, or other suppliers. Discuss others’ licensed intellectual property used as material inputs for the firm’s products or services.

#### 2.7.3. Entities utilizing the firm’s Intellectual Property.

#### 2.7.4. Significant non-US customer or investment base, including country(ies) and major customers or investors, i.e., >5% of revenue. Also discuss current or prospective foreign sovereign wealth funds or other foreign government instrumentalities as customers or investors.

#### 2.7.5. Foreign interests or persons with power, by contractual arrangements or other, to direct or decide matters affecting company management, intellectual property, or operations. Can be direct or indirect, exercised or not, and exercisable or not through ownership of the US company's securities. If yes, state the firm’s Foreign Ownership, Control, and Influence (FOCI) mitigation measures.

#### 2.7.6. Identify needed classified information, if any, and identify the Federal agency approving the firm’s classified information handling. If the firm does not currently have approval, describe the intended method to obtain it.

#### 2.7.7. Verify the firm’s owners, investors, and principal investigators meet all applicable U.S. citizenship, residency, and operation requirements under 13 CFR § 121.701-705 and the SBA SBIR/STTR Policy Directive.

#### 2.7.8. Verify the firm shall comply with DFARS 252.225-7048, Export-Controlled Items (June 2013), during Phase II performance.

#### 2.7.9. Discuss, if appropriate, the firm’s mandatory or voluntary reviews of the Committee on Foreign Investment in the United States (CFIUS) under the Critical Technology review program IAW 31 CFR Part 801, or other CFIUS review. If not, discuss company’s subject to, or eligible for, CFIUS Critical Technology or other mandatory or voluntary reviews. Detail the firm’s technology manufacture/ production considered to be emerging/foundational, regardless of export control or definition as critical technology under CFIUS. Describe the firm’s consulting, scientific, or engineering services relating to emerging or foundational technology, if any, e.g., quantum information and computing, artificial intelligence, machine learning, advanced sensors and networks, etc.

#### 2.7.10. Verify the firm shall comply with the Bayh-Dole Act US technology commercialization and manufacturing requirements, codified at 35 USC § 204.