

**Small Business Technology Transfer (STTR)  
Opportunity Announcement  
HR001121S0007-06  
R&D Automated Profit Incentive Determination (RAPID)**

**Which program will fund this topic?**

STTR

**What type of proposals will be accepted?**

Phase I Only

**Technology Area(s):** Information Systems

**I. INTRODUCTION**

The Defense Advanced Research Projects Agency (DARPA) Small Business Programs Office (SBPO) is issuing an SBIR/STTR Opportunity (SBO) inviting submissions of innovative research concepts in the technical domain(s) of Information Systems. In particular, DARPA is interested in understanding the feasibility of R&D Automated Profit Incentive Determination (RAPID).

This SBO is issued under the Broad Agency Announcement (BAA) for SBIR/STTR, HR001121S0007. All proposals in response to the technical area(s) described herein will be submitted in accordance with the instructions provided under HR001121S0007, found here: <https://beta.sam.gov/opp/d0cde4fb668d40b1982da8296d5349c0/view>.

**a. Eligibility**

The eligibility requirements for the SBIR/STTR programs are unique and do not correspond to those of other small business programs. Please refer to Section 3.1, Eligible Applicants, of HR001121S0007 for full eligibility requirements.

**b. Anticipated Structure/Award Information**

Please refer to Section 1, Funding Opportunity Description provided in HR001121S0007 for detailed information regarding SBIR/STTR phase structure and flexibility.

For this SBO, DARPA will accept Phase I proposals for cost of up to \$225,000 for a 6-month period of performance. All Phase I awardees will be eligible to submit a Phase II proposal at the appropriate time during the Phase I period of performance. They will be contacted by the DARPA Small Business Programs Office via the SBIR/STTR Information Portal (SSIP) and provided with proposal submission instructions and the submission deadline. Phase II proposals will be evaluated in accordance with the applicable DoD or DARPA SBIR/STTR BAA. Phase II selection(s) are at the sole discretion of the government and are subject to funding availability and Phase I performance.

SBIR Phase II awardees pursuant to this BAA will not be eligible to participate in the DARPA Embedded Entrepreneur Initiative (EEI) during the Phase II Period of

Performance. Refer to Section 2.6, DARPA Embedded Entrepreneur Initiative (EEI), of BAA for detailed information on EEI.

Proposers should refer to Section 4.1. Proposal Preparation Instructions, HR01121S0007 for detailed proposal preparation instructions. Proposals that do not comply with the requirements detailed in HR001121S0007 and the research objectives of this SBO are considered non-conforming and therefore are not evaluated nor considered for award.

Phase I proposals shall not exceed 20 pages. Phase I commercialization strategy shall not exceed 5 pages. This should be the last section of the Technical Volume and will not count against the 20-page limit. Please refer to Appendix A of HR001121S0007 for detailed instructions on Phase I proposal preparation.

**c. Evaluation of Proposals**

Section 5, Evaluation of Proposals, in HR001121S0007 provides detailed information on proposal evaluation and the selection process for this SBO.

**d. Due Date/Time**

Full proposal packages (Proposal Cover Sheet, Technical Volume, Price/Cost Volume inclusive of supporting documentation, and Company Commercialization Report) must be submitted via the DoD SBIR/STTR Proposal Submission website per the instructions outlined in HR001121S0007 no later than **12:00 p.m. ET May 04, 2021**.

**II. TOPIC OVERVIEW**

**a. Objective**

Develop a prototype for an explainable and structured approach to determining a profit or fee pre-negotiation (government) objective that better motivates performance for DoD research and development (R&D) requirements while speeding up negotiation timelines.

Note, per FAR 15.404-4 (b) (1)(i), a “structured approach” shall be used, ensuring all relevant factors are considered, for determining profit or fee pre-negotiation objectives in acquisitions that require cost analysis.

**b. Description**

DoD must negotiate profit that is not only “fair and reasonable” for the taxpayer but also stimulates “efficient contract performance, [and] attract[s] the best capabilities of qualified large and small businesses” (FAR 15.404-4). Negotiating extremely low profit or not considering relevant factors does not motivate superior contractor performance. The last comprehensive study on DoD profit was in 1985, yet the following decades brought major changes to market conditions and the composition of the defense industrial base (Government Accountability Office, GAO-19-406, 1).

The widely accepted “weighted guidelines method” for determining profit objectives does not accommodate the unique factors of R&D requirements, does not apply to DoD’s increased use of Other Transactions, and is not conducive to the growing population of non-traditional contractors interested in performing DoD R&D.

Non-traditional R&D performers may be motivated by factors such as cash flow, potential dual-use considerations (e.g., both DoD and commercial applications), data rights, and access to future DoD or commercial investments. Furthermore, the factors used in the weighted guidelines method are not relevant to today's R&D landscape and defense industrial base. For example, based on research from 1976 known as the Profit '76 study, a contractor's increased investment in facilities allows for an increase in profit or fee to encourage industrial base capital investments (Davis 19-20). However, much of today's R&D does not require investments in land, facilities, and equipment but rather algorithms, software, and other less tangible investments. In addition, many small (or non-traditional) contractors lack the knowledge, ability, or resources to follow the DoD process for accurately representing facilities capital investments, which means the weighted guidelines method "penalizes" their potential profit (Chalfant and Vigo 48). In addition, the use of Other Transactions has driven major changes in the possible ways to incentivize and pay contractors. For example, many Other Transactions do not follow the payment schedules of fixed-price, time & material, or cost-reimbursable contracts. Rather, Other Transactions often include milestone-based payments for meeting defined objectives where amounts and payment schedule can be negotiated. Increasing cash flow through earlier milestone-payments may be a more effective incentive based on contractor financial returns than higher profit rates (McManus, 26-49).

The weighted guidelines method is labor-intensive and requires documentation of volumes of subjective analysis. This legacy approach does not leverage advances in artificial intelligence, robotic process automation (RPA), or readily available data. Manually transferring available data into a structured tool takes time and introduces human error. Similarly, negotiations around ill-defined factors, subjectively interpreted by each party, are often counterproductive and waste precious procurement acquisition lead time.

DoD needs an innovative, user-friendly prototype that considers current, relevant factors for motivating efficient contractor performance in R&D; better defines these input variables; leverages readily available information; and reduces manual inputs. Solutions need to be explainable for purposes of documenting tax payer value, understandable by both industry and government to define common negotiation stance, and simpler to use for faster application.

**c. Phase I**

Research what factors (e.g., cash-flow, dual-use, data rights) currently stimulate efficient contractor performance and attract the best capabilities for the current R&D defense industrial base. At least five factors must be included within the research. Specify how the interdependencies and changing of these factors should derive alternative profit objectives. Demonstrate feasibility through the following: types of technology required (e.g., RPA, advanced analytics, automated decisions aids), approach for explaining output of model, and how combining the factors into a structured approach will be developed into a tool for negotiating and documenting profit objectives.

**Schedule/Milestones/Deliverables** Phase I payable milestones for this SBO should include:

- Month 3: Report on status of selected motivation factors; technical and financial status update.
- Month 6: Phase I Final Report containing factors for motivating behavior and notional system design for prototype.

**d. Phase II**

Develop a proof of concept prototype that automates and explains the profit pre-negotiation objective based on all relevant motivating factors for R&D requirements. Prototypes should allow for motivating factors to be changed to see what alternative negotiation positions derive best results. By the end of Phase II, prototypes will produce explainable pre-negotiation objectives that focus on relevant, differentiating factors to reduce negotiation timelines and motivate contractor performance.

**Schedule/Milestones/Deliverables** Phase II payable milestones for this SBO should include:

- Month 2: Technical and financial status update
- Month 4: Technical and financial status update
- Month 6: Report on status of selected motivation factors; technical and financial status update; initial prototype software delivery
- Month 8: Technical and financial status update
- Month 10: Technical and financial status update
- Month 12: Phase II Final Report on finished prototype system; rationale behind motivating factors; final software delivery

**e. Dual Use Applications (Phase III)**

A Phase III effort will scale the prototype and methods developed in Phase II for use in alternative DoD acquisitions (e.g., higher technology readiness level R&D, systems acquisitions, production acquisitions) or in the commercial market (i.e., determining what factors affect the contractor's future profitability). The developed solutions can be transitioned and used by both the DoD and commercial customers to determine appropriate profit and fee objectives.

**f. References**

[1] Federal Acquisition Regulations, "15.404-4 Profit", Wolters Kluwer, 2020

[2] Government Accountability Office, "Contract Financing—DOD Should Comprehensively Assess How Its Policies Affect the Defense Industry," GAO-19-406, June 2019

[3] Davis, James Patrick; "DoD Profit Policy: Its Effectiveness—The Contractor's View;" Naval Postgraduate School (thesis); December 1995

[4] Chalfant, Daniel and Vigo, Tony, “Does “Small” Business Mean “Small” Profits?”, Contract Management Magazine; March 2017, pp. 43-49 [Attached]

[5] McManus, Phil, “Understanding The Defense Industry”, Defense Acquisition University Striking the Balance: Meeting Warfighters’ Requirements While Achieving Industry Financial Goals, January 2021, <https://www.dau.edu/events/Striking-the-Balance-Industry-January-2021>

**g. Keywords**

*profit, fee, contractor incentives, cash-flow, pre-negotiation, automation*

**III. SUBMISSION OF QUESTIONS**

DARPA intends to use electronic mail for all correspondence regarding this SBO. Questions related to the technical aspect of the research objectives and awards specifically related to this SBO should be emailed to [HR001121S0007@darpa.mil](mailto:HR001121S0007@darpa.mil). Please reference BAA HR001121S0007-06 in the subject line. All questions must be in English and must include the name, email address, and the telephone number of a point of contact.

DARPA will attempt to answer questions in a timely manner; however, questions submitted within seven (7) calendar days of the proposal due date listed herein may not be answered. DARPA will post a consolidated Frequently Asked Questions (FAQ) document. To access the posting please visit: <http://www.darpa.mil/work-with-us/opportunities>. Under the HR001121S0007-06 summary, there will be a link to the FAQ. The FAQ will be updated on an ongoing basis until one week prior to the proposal due date.

In addition to the FAQ specific to this SBO, proposers should also review the SBIR/STTR General FAQ list at: <http://www.darpa.mil/work-with-us/opportunities>. Under the HR001121S0007 summary, there is a link to the general FAQ.

Technical support for the Defense SBIR/STTR Innovation Portal (DSIP) is available Monday through Friday, 9:00 a.m. – 5:00 p.m. ET. Requests for technical support must be emailed to [DoDSBIRSupport@reisystems.com](mailto:DoDSBIRSupport@reisystems.com) with a copy to [HR001121S0007@darpa.mil](mailto:HR001121S0007@darpa.mil).