Commercial Performer
Program Announcement
DARPA-PA-17-01
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Defense Advanced Research Projects Agency

Microsystems Technology Office

Commercial Performer Program Announcement

The Defense Advanced Research Projects Agency (DARPA) Microsystems Technology Office (MTO) is seeking to support innovative ideas relevant both to the commercial sector and to Department of Defense (DoD) applications. This solicitation specifically invites commercial entities with non-incremental ideas to apply. Any non-government entity that has had less than $50M in contracts with the DoD in the last year is eligible for funding under this announcement. All other entities may offer ideas via MTO's Office-wide solicitation (HR0011-16-S-0001), which can be found at http://www.darpa.mil/work-with-us/opportunities.

Closing Date:

- Closing date: **October 4, 2017**
  - Ideas submitted before the final closing date will be reviewed on a rolling basis.

How to Submit:

- Email your idea to **MTOProgramAnnouncement@darpa.mil**
  - The title of the email should include "MTO Program Announcement Idea"
  - Only unclassified ideas may be submitted to this announcement

Award Type: Other Transactions (OTs)[1]

Questions? Email MTOProgramAnnouncement@darpa.mil

[1]To understand the flexibility and options associated with OTs, consult the "Doing Business with DARPA" section below. Applicants who commonly work with the Federal Government or are seeking alternate award types (fixed price contracts, cost-reimbursable procurement contracts, cooperative agreements, or grants) should respond to MTO's traditional Office-wide solicitation (HR0011-16-S-0001), which can be found at http://www.darpa.mil/work-with-us/opportunities.

MTO's Mission and Approach

DARPA's Microsystems Technology Office (MTO) has made seminal investments in several of the breakthrough technologies that enable our electronics-filled world, from flash memory to microelectromechanical systems (MEMS). MTO has consistently partnered with the commercial sector to foster these revolutionary advances, setting extremely challenging technical goals and offering innovators the support needed to pursue pioneering, high-risk ideas. The resulting technologies benefit both national security and DARPA's commercial partners, with successful innovators often capitalizing on their advances to create commercial success. For decades, these partnerships have helped the United States maintain technological superiority and allowed DARPA and MTO to accomplish their missions of creating and preventing technological surprise and addressing complex national security threats.

The DoD and commercial sector share common goals in many overlapping areas. In particular, MTO is asking performers to address the following kinds of questions:

1) The Internet of Things (IoT) is growing in the commercial world, even as the Defense Department's need for advanced distributed sensor networks continues to increase. How can commercially developed IoT sensor technologies help defense-related applications and what advances are possible in local data processing and cybersecurity for distributed networks?

2) Wireless connectivity has become critical in both the private sector and government operations, for applications ranging from telephone and broadband communications to radar and situational awareness. What technologies could help ensure optimal and secure use of the increasingly congested electromagnetic spectrum?

3) Electronics underpin critical applications in all sectors, from banking to aeronautics to defense. What capabilities can be leveraged to guarantee authentic, assured electronics that reliably operate as desired and as expected, both in hardware and in software?

The answers to these questions are likely to be found through research into the broad areas described in Table 1.

As MTO moves to tackle these and other challenges, it remains committed to spurring and leveraging private-sector creativity and to supporting revolutionary (rather than incremental) technology advances. This model has proved successful in the past, having helped small and large companies create impactful technologies such as exceptionally high-speed data converters, profoundly small RF transmission lines for telecommunication, and on-chip communication techniques used in machine learning applications. The ongoing collaboration between MTO and the commercial sector will further provide new advances for the U.S. military and for the nation's innovative industrial base.

Table 1. Broad MTO priorities and potential technology solutions

Area	Technology
Question 1 – Tactical Information Extraction	• *Computational architectures for next-generation machine learning* • *Computational algorithms for next-generation machine learning* • *Energy-efficient computing* • *Hardware for advanced signal processing* • *Low-power hardware for embedded learning and computation* • *Quantum devices* • *Signal processing to reduce hardware requirements*
Question 2 – Electromagnetic (EM) Spectrum & Physics Interfaces	• *Advanced imaging architectures and systems* • *Chip-scale sensors* • *Electro-optical/infrared (EO/IR) technologies* • *Enabling component technology for cold-atom microsystems* • *Emerging MEMS technologies* • *Low-power electronics* • *Low-footprint sensors* • *Microsystems for positioning, navigation, and timing* • *Microsystems for RF/optical transceivers* • *Non-silicon electronics* • *Novel photonic devices* • *Photonic and electronic interconnects* • *Processing techniques for imaging and spectral recognition* • *Thermal management*
Question 3 – Globalization	• *Hardware assurance, reliability, and validation techniques* • *Heterogeneous integration* • *Low-volume microsystems manufacturing* • *Microsystem design and computer-aided design (CAD)*
Other	• *Other microsystems technologies*

Additional information on MTO can be found at: https://www.darpa.mil/about-us/offices/mto.

Doing Business with DARPA

When working with certain commercial partners, DARPA may use statutory authorities that differ from the traditional Government contracting processes. These authorities allow commercial companies to keep using their own internal business processes when working with DARPA and, ultimately, to do exciting work that they may not have been able to do otherwise. The authorities also grant DARPA flexibility in negotiating most of the terms and conditions of an agreement with certain commercial entities. For those companies that have never really considered working with the Government as an option, DARPA welcomes you. For companies that are used to working with traditional Government contracting processes, MTO's Office-wide BAA (HR0011-16-S-0001) would be more appropriate for you. The Office-wide BAA can be found at http://www.darpa.mil/work-with-us/opportunities.

What would DARPA's alternative contracting authorities really mean for your company? Here are some examples of what DARPA can do under these authorities:

- Federal law does not dictate the terms and conditions in agreements negotiated under DARPA's alternative authority. Everything is negotiable. DARPA does have a sample agreement that it will use as a starting point for negotiation, but the sample can and will be tailored to address the needs of the particular research partner and effort. If you wish to see a sample agreement, send an email to MTOProgramAnnouncement@darpa.mil. The sample we provide may vary depending on the type of partner organization and nature of the contract (i.e., fixed or expenditure-based).

- The award process can and should be much faster than the traditional Government contracting process and more akin to a commercial contract award timeline. Once the selections are made, the negotiation time will vary from contractor to contractor. It can be as slow or as fast as you choose to make it.

- Contractors are not required to follow Government accounting rules or modify their accounting systems to follow some Government model. As long as your accounting system follows Generally Accepted Accounting Principles, it will usually be acceptable.

- Intellectual property (IP) terms and conditions are fully open for negotiation. IP is a major concern for most contractors and for the Government, which may seek the right to use DARPA-funded IP in its systems. However, DARPA understands that IP represents a huge investment for your company and will work to ensure that negotiated agreements benefit both you and the Government without impinging on your commercial success.

There are different kinds of contracting mechanisms that provide these flexibilities. Two of the most common are Technology Investment Agreements (TIAs), which use the Other Transactions authority for research projects, and OTs for Prototypes, which use the OT authority

for prototype projects.[2] Depending on the focus and approach of your research solution, one of these should work for you.

TIAs are typically used for situations where the primary goal of the agreement is to perform a research effort, even if items are required to be created to test the credibility of the research. TIAs can be awarded to a single contractor or a team of contractors but there must be at least one for-profit entity involved in either the research or as a commercial transition partner. One consideration with this type of agreement is that the statute does require you or your team to cost share 50% of the project costs to the maximum extent practicable. This cost share percentage and requirement is not absolute and can be negotiated, although it is anticipated due to the desired leveraging of commercial outcomes. If your idea will result in benefits only for the Government, please respond to MTO's traditional Office-wide solicitation (HR0011-16-S-0001), which can be found at http://www.darpa.mil/work-with-us/opportunities.

OTs for Prototypes, on the other hand, are typically used when the main focus of the agreement is to create a prototype that the Government may acquire, even if significant research is necessary to create the prototype. DARPA has wide latitude to use this authority but it does come with a key statutory requirement. To use this authority without providing cost share, your team needs to have at least one non-traditional participant. This is defined as someone who has not had $50M or more in contracts with the DoD in the last year. Absent a non-traditional participant, your team will need to cost share one-third (1/3) of the program costs. Because this solicitation is looking for commercial contractors, who are more likely to be non-traditional participants, it is unlikely that you will need to cost share, although offers of cost share are always considered and encouraged where there is a potential commercial application.

DARPA welcomes your interest and participation and is willing and able to work with you to come up with a contracting arrangement that benefits everyone.

[2] For those of you who are interested, or have lawyers, the statutory authority for TIAs can be found at 10 U.S.C. 2371 and the statutory authority for OTs for Prototypes is at 10 U.S.C. 2371b.

Submission and Evaluation of Ideas

Closing Date:

- Closing date: **October 4, 2017**
  - Ideas submitted before the closing date will be reviewed on a rolling basis.

How to Submit:

- Email your idea to **MTOProgramAnnouncement@darpa.mil**
  - The title of the email should include "MTO Program Announcement Idea"
  - *Only unclassified ideas may be submitted to this email address*. If applicable, please send an *unclassified* email to the inbox requesting instructions for submitting a classified idea.

Evaluation and Selection Procedures

Ideas will not be evaluated against each other since they are not being submitted in accordance with a common work statement. Award(s) will be made to proposers whose ideas are determined to be the most advantageous to the Government, all factors considered, including the availability of funding for the effort. Ideas will be evaluated in the following areas:

- **Overall Scientific and Technical Merit**
  - The proposed technical approach is feasible, achievable, complete, and supported by a proposed technical team that has the expertise and experience to accomplish the proposed tasks.
- **Potential Contribution/Relevance to the MTO Mission**
  - The potential contributions of the proposed effort are relevant to and will further MTO's mission.
- **Financial Assessment**
  - The level of financing is realistic for the technical and management approach, consistent with the proposer's Statement of Work, and reflects a sufficient understanding of the expenses and level of effort needed to successfully accomplish the proposed technical approach.

Selection Notices

As soon as the evaluation of your idea is complete, DARPA will notify you that:

- Your idea has been selected for funding, pending agreement negotiations.
- Your idea has not been selected for funding.

Proprietary Information:

For your own protection, your proposal must clearly identify any proprietary information by marking the first page and each additional page containing such information with a label such as "Proprietary" or "Company Proprietary." Note: "Confidential" is a classification marking used to control the dissemination of U.S. Government National Security Information as dictated in Executive Order 13526 and should not be used to identify proprietary business information.

Idea Guidelines

General
Each idea submission should contain no more than 10 pages of technical discussion (See "Technical areas to discuss" below) and should focus on the goals and impact of the effort. There is no page limit on the financial information submitted.

Administrative items to include:

- Administrative and technical points of contact (name, address, email, affiliation)
- Lead organization and subcontractors/teaming arrangements, if applicable
- Title of proposed effort
- Technical area
- Place and period of performance
- Data Universal Numbering System (DUNS) number (see the Administrative Items section below for more information)

Technical areas to discuss:

- **Approach and Impact**
  - What are the goals and objectives of this effort and what technical approach will you use to reach them?
  - How is this done today and what are the limitations? What is innovative in your approach? Are there any key technical challenges that you anticipate and how do you plan to overcome them?
  - Describe the impact if the work is successful. How does this effort align with the commercial interests of your company? What impact will this effort have on national security?
  - Describe the expected results and/or transferable technology from this effort.
  - Define the work activities (i.e., tasks and subtasks), milestones, deliverables, and timeline that must be executed to successfully achieve the goals of the proposed project.

Financial Information:
In providing financial details to support your proposed idea, keep in mind that DARPA needs to understand how the program expenses were developed. Expenses can be stated in a number of ways, such as labor hours by task with various overheads attached, but remember that DARPA needs to accurately assess the level of financing to be provided to each selected commercial company, including subcontractors. DARPA requests that the financial information include a payment schedule. Due diligence on DARPA's part is necessary, particularly given that we need to maximize limited Federal funding. Mere submission of a price will not be good enough. DARPA needs to understand how expenses went into that price to determine that it's making a sound investment. DARPA would ask that you submit your financial information in an Excel spreadsheet format for ease of review.

Administrative Items

Intellectual Property

You should provide a good faith representation that you and all members of your team either own or possess appropriate licensing rights to all intellectual property that will be utilized under your idea for the DARPA program. Please identify any potential and/or desired restrictions to the Government's use of any intellectual property developed under the resulting award.

System for Award Management (SAM) Registration and Universal Identifier Requirements

You must be registered in the System for Award Management (SAM) and have a valid Data Universal Numbering System (DUNS) number prior to award of an OT agreement from this solicitation. You must maintain an active registration in SAM with current information at all times during which you have an active Federal award or idea under consideration by DARPA. Information on SAM registration is available at www.sam.gov. This is a very quick process and you must be registered in order to be paid under any resultant agreement. If registration presents an issue for you, send an email to MTOProgramAnnouncement@darpa.mil before submitting your idea and you will be contacted to discuss the problem.

Wide Area Work Flow (WAWF)

You will be required to submit invoices for payment directly via https://wawf.eb.mil/. Registration in WAWF will be required prior to any award under this solicitation. If invoicing through WAWF presents an issue for you, send an email to MTOProgramAnnouncement@darpa.mil before submitting your idea and you will be contacted to discuss the problem.

Total Announcement

This solicitation contains all information required to submit an idea. No additional information will be provided by DARPA.