

## **Machine-Assisted Analytic Rapid-Repository System (MARS) Broad Agency Announcement**

### **Summary Information**

**Agency Name** – Defense Intelligence Agency

**BAA Issuing Acquisition Office** – Virginia Contracting Activity

**Agreement Issuance/Contract Award Acquisition Office** - U.S. Army Contracting Command-  
Aberdeen Proving Ground, Research Triangle Park (ACCAPG-RTP) Division

**Opportunity Title:** MARS Broad Agency Announcement

**Opportunity Number:** HHM402-18-S-MARS

**Announcement Type:** Initial Announcement

**Questions:** Submit questions on the BAA by email to [diacfo4mars@dodiis.mil](mailto:diacfo4mars@dodiis.mil) no later than November 15, 2018. All questions should include the full name, contact information, and organizational affiliation of the point of contact. Please do not send questions with proprietary content. Any answers provided to questions will be posted to FBO, [www.fbo.gov](http://www.fbo.gov).

**Response Dates:** This BAA is a continuously open announcement valid throughout the period from the date of issuance through November 9, 2019, unless announced otherwise.

- Proposal Due Date for Initial Round of Selections for Technical Capability Areas 1-4:  
December 10, 2018

**Types of Instruments that may be awarded:** Procurement contracts, grants, cooperative agreements, other transactions and technology investment agreements (TIAs). In accordance with FAR 6.102(d)(2), procurement contracts awarded based on responses to this BAA are considered to be the result of full and open competition.

## **I. MARS PROGRAM OVERVIEW**

A key DIA mission is providing foundational intelligence to the military and decision makers. Foundational intelligence is the essential advantage we provide for a comprehensive understanding of foreign military capabilities, infrastructure and materiel in all operational domains - land, air, sea, space and cyber. Since the mid-1990s, this global foundational intelligence dataset has been housed in the Modernized Integrated Database (MIDB). MIDB contains the military and civilian infrastructure supporting those capabilities; characteristics and performance of foreign weapons, platforms, and sensors; and the military operating environment. This intelligence supports every aspect of military planning and operations, as well as the long-term planning and shaping of the joint force.

### **Overarching Statement of Need**

Today, MIDB can no longer meet the scale of information demands of a 21st century military. It is outdated, human-centric, rigid and unsuitable for a data-driven world.

- MIDB's current architecture limits the ability to take advantage of rapidly changing technology, impeding the integration of machine learning, automation and artificial intelligence capabilities needed to keep pace with the demands of a modern military.
- To address these challenges and ensure DIA's analytic efforts capitalize on technological advances, DIA must pursue a new capability that can enhance our ability to provide strategic indications and warning, produce intelligence needed to support operations, inform modern systems testing, enhance military exercises, and support acquisition decisions.

MARS will transform the existing MIDB into a data-centric knowledge repository at a significantly larger scale and with a transactional throughput capability. MARS will:

- Allow analysts and operators to absorb and process large amounts of data to find new relationships, ensuring DIA provides the level of detail necessary to conduct agile, precise and more sophisticated analysis in support of military operations.
- Capture new sources of data that provide deeper understanding of global technological developments, allowing us to better inform the acquisition community (support intelligence mission data development) as they develop, test, operate and sustain systems to ensure continued U.S. military dominance.
- Provide the ability to track both static and mobile military forces, ensuring a holistic understanding of foreign military operational readiness and disposition, and enhancing indications and warning of potential threats to joint force operations.
- Enable an exponential increase of data ingested on military and civilian infrastructure in the operating environment.
- Leverage commercial best practices and industry technological advances to scale, respond and adapt MARS at pace with future mission-driven data demands for the military.

## **II. MARS Technical Capability Areas**

The MARS Technology Demonstrations requested through this BAA are intended to gain detailed insight on advanced technologies dealing with big data. A key goal of MARS is to have

an open system architecture that allows for frequent incorporation of technology advancement through integration, while protecting appropriate intellectual property of the developer. This Technology Demonstration phase will be followed by a System Integration phase that will be a separate competitive acquisition focused on fielding MARS operational capability as it is iteratively developed. In response to this Technology Demonstration phase broad agency announcement (BAA), address how your approach would satisfy one or more of these Technical Capability Areas:

#### **A. Technical Capability Area 1 – Intelligence Information Environment**

Demonstrate a flexible, scalable, and adaptable data centric environment able to manage and support, at a massive level, a variety of diverse and dynamic data with multiple customer use characteristics.

- Provide users/authors with the ability to create information dynamically and collaboratively on a multi-use (tactical, analytical, operational, strategic) environment and support customer-centric views/models of data in formats that best support various customers' intended use and analyses.
- Support different levels of users, authors, and editors across a large multi-network environment. Enable self-service capability for users to combine, correlate and store results of analysis as new relationships or datasets.
- Create a data governance model that provides different levels of authors the ability to prescribe confidence and governance across all forms of information.
- Support replication of information to other networks and offline or stand-alone environments. Demonstrate new pathways to share information without the need for strong technology infrastructure and automated updates.
- Provide a dynamic data management framework that focuses on scalability and flexibility for underlying data. Provide a technical management and administration capability that ensures the integrity of information and quality assurance of all data.
- This environment should be capable of managing and supporting at a massive scale a wide variety of data types.
- Demonstrate quick/responsive querying of the entire information environment.

#### **B. Technical Capability Area 2 – Tracking and Monitoring Moving Objects**

Demonstrate the ability to store, retrieve and visualize current and historical objects through dynamic tracking methods. Specifically, object tracking refers to the activity of using all-source information to determine the location and activity of objects that move outside of their normal locations.

- Demonstrate the ability to track the movement of objects from disparate data sources.
- Enable querying and visualization of diverse and complex information from a multitude of dynamic data sources across time and space.

- Demonstrate an environment that supports the ability of authors and editors to model and simulate the movement of object throughout time and space.
- Demonstrate the ability to make connections between the inter-relationship of moving objects (e.g., objects and corresponding holdings converging on a position). Otherwise stated as, analysts require an ability to make connections between moving objects, time series events, and to correlate them with other object information (static and dynamic).

### **C. Technical Capability Area 3 - Data Ingestion and exploitation**

Demonstrate methods for the ingestion, analysis, and reconciling massive, multimodal, dynamic data that takes the human out of the loop to the maximum extent possible. The methods should use, as much as possible, transparent representations that allow for validation and high confidence in automated results. These methods could include, but are not limited to, advanced Artificial Intelligence (AI) techniques such as deep learning, generative networks, Natural Language Processing (NLP), reasoning engines, etc., as well as capabilities to condition, prepare and expose data for data science, machine learning, or other analytics. Highly desired additional capabilities:

- Demonstrate a dynamic means to represent effects of new information on existing models without the need to retrain the models.
- Demonstrate rapid identification and assessment of relevancy and reliability of emerging or new sources of information.
- Demonstrate dynamic analysis of data usage to estimate data value and automate the provisioning/de-provisioning of data resources and environments to support functional/analytic and performance requirements.

### **D. Technical Capability Area 4 - Data Security and Data Discovery**

Demonstrate effective and efficient methods to secure all data elements within the data environment while enabling data discovery and dissemination across multiple security environments by individuals and nonhuman entities with a digital identity such as authorized devices, software apps, etc. using innovative security techniques. The secure data environment should support a high volume construct with mixed data elements at various security levels as well as the ability to leverage external policy services for authorization decisions at the user level and the system level, while retaining high performance data analytics and low latency data access. The security methodology needs to be able to support the activities described under the Data ingestion and Exploitation Area (Technical Capability Area 3).

- Demonstrate capability for near instantaneous synchronization between multiple globally accessible private and public networks containing appropriate subsets of data for the users who have access to those networks.
- Demonstrate data marking mechanism for allowing data to move automatically between different networks allowed to hold that data.
- Provide the ability to leverage external policy services for authorization decisions at the user and system level.

Additional technical capability areas will likely be added to the MARS BAA at a future date with different proposal deadlines.

### **III. Technology Demonstration Development and Test Options**

The Government will operate and maintain a cloud-based Test Bed that will be used to test selected technologies against real-world data to demonstrate proposed capability. Technology Demonstration Development options that can be considered within the offeror's proposed approach include the following.

Option 1 : Development can occur on vendor provided resources

Option 2: Development can occur on one or more of the below DIA provided unclassified resources:

- Government funded access to all Amazon Web Services (AWS) Commercial Services;
- Access to DIA Enterprise services (DevOpsSec tools: Gitlab, Jenkins, Artifactory, Jira, Confluence, Sonarqube, OWASP)
- Cross-domain transfer of source code and artifacts when appropriate

Option 3: Development can occur in part on the DIA provided unclassified resources identified in Option 2 in conjunction with vendor provided resources and services.

### **IV. Award Information**

Awards in each Technical Capability Area are anticipated subject to the quality of the proposals received and the availability of funds. Under this BAA, a number of different instruments may be awarded – procurement contracts, grants, cooperative agreements, technology investment agreements (TIAs), and/or Other Transactions.

The Government reserves the right to select for negotiation all, some, one, or none of the proposals received in response to this BAA and to make awards without discussions with offerors. The Government also reserves the right to conduct discussions if determined to be necessary. Additionally, the government reserves the right to accept proposals in their entirety or to select only portions of proposals for negotiations for award. In the event that the government desires to award only portions of a proposal, negotiations may be opened with that offeror.

Awards under this BAA shall be made to offerors on the basis of the Evaluation Factors listed below as well as successful completion of negotiations. The Government shall contact offerors whose proposals are selected for negotiations to obtain additional information required for award. The Government may establish a deadline for the close of fact-finding and negotiations that allows a reasonable time for the award of an agreement. Offerors that are not responsive to Government deadlines established and communicated with the request may be removed from award consideration. Offerors may also be removed from award consideration should the parties fail to reach agreement within a reasonable time on terms, conditions, and cost/price.

### **V. Eligibility Information**

### **A. Eligible Applicants**

Eligible applicants under this BAA include institutions of higher education, nonprofit organizations, and for-profit organizations (i.e. other than small businesses and small businesses). Small Businesses, Small Disadvantaged Businesses, Service Disabled Veteran Owned Small Businesses, Women-Owned Small Businesses, Historically Black Colleges and Universities (HBCUs), and HUBZone Small Businesses are encouraged to submit proposals and join others in submitting proposals; however, no portion of this announcement shall be set aside for these organizations' participation.

### **B. OCI clause**

"Organizational conflict of interest" is defined as: because of other activities or relationships with other persons, a person is unable or potentially unable to render impartial assistance or advice to the Government, or the person's objectivity in performing the contract work is or might be otherwise impaired, or a person has an unfair competitive advantage.

If a prospective offeror, or any of its proposed subcontractor teammates, believes that a potential conflict of interest exists or may exist (whether organizational or otherwise), the offeror should promptly raise the issue with the government and submit a notification by e-mail to the Contracting Officer, [ryan.corcoranluhman@dodis.mil](mailto:ryan.corcoranluhman@dodis.mil). All notifications shall be submitted through the prime offeror, regardless of whether the notification addresses a potential OCI for the offeror or one of its subcontractor teammates. A potential conflict of interest includes, but is not limited to, any instance where an offeror, or any of its proposed subcontractor teammates, is providing either scientific, engineering and technical assistance (SETA) or technical consultation to DIA. In all cases, the offeror shall identify the contract under which the SETA or consultant support is being provided. Without a determination by the Contracting Officer, neither an offeror, nor its proposed subcontractor teammates, can simultaneously provide SETA support or technical consultation to the DIA MARS Program and compete or perform under this BAA. All facts relevant to the existence of the potential conflict of interest, real or perceived, should be disclosed in the notification. The request should also include a proposed plan to avoid, neutralize or mitigate such conflict. The offeror, or subcontractor teammate as appropriate, shall certify that all information provided is accurate and complete, and that all potential conflicts, real or perceived, have been disclosed. Offerors may submit the above described notification after release of the BAA, however, the Government may not respond prior to the proposal due date. Submission of a proposal is not dependent on a Government response. If, in the sole opinion of the Government, after full consideration of the circumstances, the conflict situation cannot be resolved or waived, any proposal submitted by the offeror that includes the conflicted entity shall be excluded from consideration for award.

As part of their proposal, offerors who have identified any potential conflicts of interest shall include either an approved waiver signed by the Contracting Officer, a determination letter signed by the Contracting Officer that states no conflict of interest exists, or a copy of their notification. Otherwise, offerors shall include in their proposal a written certification that neither they nor their subcontractors have any potential conflicts of interest, real or perceived. If, at any time during the solicitation or award process, DIA discovers that an offeror has a potential conflict of interest and no notification has been submitted by the offeror, the government reserves the right to immediately withdraw the proposal from further consideration for award.

### **C. U.S. Academic Organizations**

According to Executive Order 12333, as amended, paragraph 2.7, "Elements of the Intelligence Community are authorized to enter into contracts or arrangements for the provision of goods or services with private companies or institutions in the United States and need not reveal the sponsorship of such contracts or arrangements for authorized intelligence purposes. Contracts or arrangements with academic institutions may be undertaken only with the consent of appropriate officials of the institution."

If selected for award, offerors will need to submit a completed and signed Academic Institution Acknowledgement Letter for each U.S. academic institution that is a part of their team, whether the academic institution is serving in the role of a prime, or a subcontractor or a consultant at any tier of their team. It should be noted that an appropriate senior official from the institution (i.e., typically the President, Chancellor, Provost, or other appropriately designated official) shall sign the completed form.

### **D. Multiple Submissions to the MARS BAA**

Organizations may participate in more than one submission to the MARS BAA. However, if multiple submissions to the BAA which include a common team member are selected, the government shall, at contract negotiation, ensure that there is no duplicative costs and funding (i.e., no one entity can be paid twice to perform the exact same task).

## **VI. Proposal Submission Information**

A. Proposals for the initial four technical capability areas under this special notice shall be submitted no later than 30 days after release. The proposals shall be unclassified and submitted via email to [diacfo4mars@dodis.mil](mailto:diacfo4mars@dodis.mil). Applicants shall prepare a Cover Page containing the information detailed in Appendix A and submit it as part of their proposal. The effort proposed shall be for an initial period of performance no longer than 12 months. The Technical Approach proposal shall be no more than 8 pages per Technical Capability Area.

B. 1. The technical approach portion of the proposal shall provide a detailed discussion of the proposed capability or effort to demonstrate technology with supporting information about the applicant's capabilities and resources. A complete discussion stating the background and objectives of the proposed work, the approaches to be considered, and the level of effort to be employed. Include the nature and extent of the anticipated results and how they will contribute to the specific MARS technical capability area and the MARS Statement of Need. Ensure the proposal identifies any uncertainties and describes specific approaches for the resolution or mitigation of the uncertainties. The proposal shall detail intellectual property and data rights considerations for the applicant's proposed approach and any deliverables the applicant plans to deliver under their approach.

2. The Government will operate and maintain an unclassified cloud-based Test Bed that will be used to test selected technologies against real-world data to demonstrate proposed capability. The test bed environment will be partitioned in a way to ensure selected offerors can upload their technology/algorithms/software and it can operate in the test bed environment and be tested

while protecting any designated IP. Ensure your proposal includes a description of how your proposed technology/capability will be provided to the Government for evaluation on a cloud-based test bed using Government data.

3. Data Sources and Types - The offeror shall identify and describe data sources and data types they plan to use in pursuit of the project goals. Offerors proposing to use existing data sets shall provide written verification that all data were obtained in accordance with U.S. laws and, where applicable, are in compliance with End User License Agreements, Copyright Laws, Terms of Service, and laws and policies regarding privacy protection of U.S. Persons. Offerors shall identify any restrictions on the use or transfer of data sets being used, and, if there are any data or license restrictions, the potential cost to the Government to obtain at least Government Purpose Rights (as defined in DFARS 252.227-7013(a)(13) and DFARS 252.227-7014(a)(12)) in such data sets and software licenses.

The data source information provided shall address the format of the data to be utilized, the amount of data, and detail whether the data will be obtained by the offeror, through an open source, or is being requested from the government. Data available through the government test bed will be data such as unclassified MIOB data, infrastructure data in shapefile (.gdb), open source data available through [data.gov](https://data.gov), World Bank Open Data, International Monetary Fund Data, and other data to allow for model development and tests. The offeror shall affirm their ability and intent to preserve government ownership of any data that is government furnished. The Government reserves the right to reject a proposal if it does not appropriately address all data and software license issues.

4. The proposal shall provide details regarding the proposed work plan and resources that include tasks, schedule, milestones, the facilities to be used for the proposed effort, estimated labor categories and number of hours, subcontracts, consultants, materials, equipment, travel, and other direct costs (ODC). The role of team members need to be clearly described and any experts or personnel key to the effort should be identified. The expectations and timing for Government decision and any required government furnished property, equipment, information, or other resources shall be defined. For the initial proposal, costs may be summarized at the direct labor, subcontract, materials, travel, and ODC level. A full cost proposal is not required for the initial proposal.

5. Resource Share. Include the type of support, if any, the offeror might request from the Government, such as facilities, equipment or materials, or any such resources the offeror is willing to provide at no additional cost to the Government to support the research effort. Cost sharing is not required from offerors and is not an evaluation criterion, but is encouraged where there is a reasonable probability of a potential commercial application related to the proposed research and development effort.

## **VII. Proposal Review Information**

### **A. Technical and Funding Availability Evaluation Factors**

The factors to be used to evaluate and select proposals for negotiation for the MARS Broad Agency Announcement are described in the following paragraphs. Because there is no common



statement of work, each proposal shall be evaluated on its own merits and its relevance to the Program needs and goals rather than against other proposals responding to this BAA. The proposals shall be evaluated on the basis of technical and funding availability factors. These are of equal importance. Within the technical evaluation factor, the specific technical criteria are in descending order of importance, as follows: Overall Technical Merit, Effectiveness of Proposed Work Plan, and Resource Realism. Specifics about the evaluation criteria are provided below.

Award(s) shall be made to offerors on the basis of the technical and funding availability factors listed below, and subject to successful negotiations with the Government. Award shall not be made to offeror(s) whose proposal(s) are determined not to be selectable. Offerors are cautioned that failure to follow submission instructions may negatively impact their proposal evaluation or may result in rejection of the proposal for non-compliance.

## **1. Technical Factor**

### **a. Overall Technical Merit**

The submissions will be evaluated based on their contribution to the MARS technical capability areas and the MARS vision, as well as the availability of the data sources and collection platforms required by the proposed approach. The submission will be evaluated based on how well the overall technical merit of the proposal is substantiated, including unique and innovative methods, approaches, and/or concepts. The submission clearly articulates an understanding of the problem to be solved. The technical approach is credible, and includes a clear assessment of primary risks and a means to address them.

The offeror's proposed technical approach, intellectual property and data/license rights are consistent with the Government's goal of having an open system architecture that allows for frequent incorporation of technology advancement through integration, while protecting appropriate intellectual property of the developer. In addition, they are consistent with the government's need to be able to effectively manage the program and evaluate the technical capability, communicate program information across Government organizations, and support transition and further use and development of the program at an acceptable cost.

### **b. Effectiveness of Proposed Work Plan**

The feasibility and likelihood that the proposed approach shall satisfy the offeror-defined quantifiable milestones. The offeror's approach to achieving quantifiable milestones is explicitly described and substantiated. The milestones are clearly defined and logically support decisions by the offeror or the Government. The proposed schedule is realistic and critical paths are identified. The roles and relationships among team members are balanced and transparent, and the time planned for key personnel are sufficient.

The requirement and rationale for and the anticipated use or integration of Government resources, including but not limited to all equipment, facilities, information, etc., is fully described including dates when such Government Furnished Property (GFP), Government

Furnished Equipment (GFE), Government Furnished Information (GFI) or other similar Government-provided resources shall be required.

The offeror's proposed list of data sources is complete, feasible and realistic for the proposed technical approach.

**c. Resource Realism**

The proposed resources demonstrate a clear understanding of the project, a perception of the risks and the ability to organize and perform the work. The labor hours and mix are consistent with the technical approach and are realistic for the work proposed. Material, equipment, software, data collection and management, and travel, are well justified, reasonable, and required for successful execution of the proposed work.

**2. Funding Availability Factor**

**a. Budget Constraints**

The Government will seek to maximize the chance of meeting program objectives within program budget constraints. This may involve awarding none, one, or more agreements per Technical Capability Area.

**b. Program Balance**

The Government will consider MARS program objectives which may include, but are not limited to, the following: broadening the variety of technical approaches to enhance program outcomes, ability to transition and scale the technology, and contribution to/ability to be integrated into an open system architecture.

**B. Evaluation Review and Selection Process**

The evaluation review and award selection process for this BAA has three steps. The first step is a review of proposal submission against its relevance to the MARS technical capability areas and the MARS Overarching Statement of Need. If it is determined that a proposal is not relevant to the MARS technical capability areas and statement of need, the proposal will not be considered further for award. Upon determination that a proposal is relevant to the MARS technical capability areas and statement of need, the proposal will move on to the second step to be evaluated in accordance with the Evaluation Factors detailed in paragraph VII.A above. During this step, the proposal will be evaluated against the technical factor and funding availability factor. The proposals will be reviewed individually and will not be reviewed against each other as they are not submitted in accordance with a common work statement. After evaluation, proposals will be determined selectable, selectable with modification, or not selectable.

After selection, the contracting officer will contact offerors whose proposals were selected or selected with modifications to request a full cost proposal and engage in negotiations, as applicable. Cost proposals will be analyzed for the realism and reasonableness of costs. Proposed agreement costs must be determined fair, reasonable and realistic before the Government can make an award.

## Appendix A

### ***Cover Page***

The cover page must include the following (does not count against page limit):

- (1) BAA number : HHM402-18-S-MARS
- (2) Technical Capability Area
- (3) Lead organization submitting proposal and address
- (4) Type of business under NAICS code 541715, selected from among the following categories: "Large Business", "Small Disadvantaged Business", "Other Small Business", "HBCU", "SDVOSB", "WOSB" "HUBZone", "Academic Institution", or "Nonprofit"
- (5) Contractor's internal reference number (if any)
- (6) Other team members (if applicable), type of business for each, and addresses
- (7) Proposal Title
- (8) Technical point of contact to include: title, first name, last name, street address, city, state, zip code, telephone, e-mail address
- (9) Date of submission
- (10) Date proposal is valid until (recommend at least 6 months)
- (11) Type of agreement or award proposed
- (12) Proposed Amount
- (13) Proposed Duration
- (14) Business/Contracting/Administrative point of contact to include: title, first name, last name, street address, city, state, zip code, telephone, e-mail
- (15) Lead organization's Unique Entity Identifier (formerly DUNS), Commercial and Government Entity (CAGE) Code, and Taxpayer Identification Number (TIN).