



Broad Agency Announcement  
Morphogenic Interfaces (MINT)  
Defense Sciences Office

HR001121S0033

July 1, 2021

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### BAA Attachments:

- Attachment A: ABSTRACT SUMMARY SLIDE TEMPLATE
- Attachment B: ABSTRACT TEMPLATE
- Attachment C: PROPOSAL SUMMARY SLIDE TEMPLATE
- Attachment D: PROPOSAL TEMPLATE VOLUME 1: TECHNICAL & MANAGEMENT
- Attachment E: PROPOSAL TEMPLATE VOLUME 2: COST
- Attachment F: MS Excel™ DARPA COST PROPOSAL SPREADSHEET
- Attachment G: PROPOSAL TEMPLATE VOLUME 3: ADMINISTRATIVE & NATIONAL POLICY REQUIREMENTS

## PART I: OVERVIEW INFORMATION

- **Federal Agency Name:** Defense Advanced Research Projects Agency (DARPA), Defense Sciences Office (DSO)
- **Funding Opportunity Title:** Morphogenic Interfaces (MINT)
- **Announcement Type:** Initial Announcement
- **Funding Opportunity Number:** HR001121S0033
- **Catalog of Federal Domestic Assistance (CFDA) Number(s):** 12.910 Research and Technology Development
- **Dates** (All times listed herein are Eastern Time.)
  - Posting Date: July 1, 2021
  - Proposers Day: July 9, 2021. See Section VIII.A.
  - Abstract Due Date: July 23, 2021, 4:00 p.m.
  - FAQ Submission Deadline: August 23, 2021, 4:00 p.m. See Section VIII.B.
  - Full Proposal Due Date: September 2, 2021, 4:00 p.m.
- **Anticipated Individual Awards:** DARPA anticipates multiple awards in both Focus Areas 1 (FA1) and 2 (FA2)
- **Types of Instruments that May be Awarded:** Procurement contracts, cooperative agreements, or Other Transactions. Award instruments will be limited to procurement contracts and Other Transactions for Proposers whose proposed solution includes Controlled Unclassified Information (CUI).
- **Agency contacts**
  - **Technical POC:** Dr. Vishnu Sundaresan, Program Manager, DARPA/DSO
  - **BAA Email:** [MINT@darpa.mil](mailto:MINT@darpa.mil)
  - **BAA Mailing Address:**

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ATTN: HR001121S0033  
675 North Randolph Street  
Arlington, VA 22203-2114
  - **DARPA/DSO Opportunities Website:** <http://www.darpa.mil/work-with-us/opportunities>
- **Teaming Information:** See Section VIII.C for information on teaming opportunities.
- **Frequently Asked Questions (FAQ):** FAQs for this solicitation may be viewed on the DARPA/DSO Opportunities Website. See Section VIII.B for further information.
- **Security:** MINT is an UNCLASSIFIED program. Proposers are required to assess and describe export-control implications of proposed efforts. Refer to Section IV.B.5 for more information.

## PART II: FULL TEXT OF ANNOUNCEMENT

### I. Funding Opportunity Description

This Broad Agency Announcement (BAA) constitutes a public notice of a competitive funding opportunity as described in Federal Acquisition Regulation (FAR) 6.102(d)(2) and 35.016 as well as 2 C.F.R. § 200.203. Any resultant negotiations and/or awards will follow all laws and regulations applicable to the specific award instrument(s) available under this BAA, e.g., FAR 15.4 for procurement contracts.

#### A. Introduction

The Defense Sciences Office (DSO) at the Defense Advanced Research Projects Agency (DARPA) is soliciting innovative research proposals for the application of morphogenesis to design electrochemical interfaces. The Morphogenic Interfaces (MINT) program seeks to enhance the persistence of high performance electrochemical systems by developing self-regulating interfaces that exploit detrimental local gradients to preserve interface function. To achieve this, MINT approaches should minimize irreversible morphological degradation that occurs at the functional interface<sup>1</sup> between different materials in batteries and surface protection coatings/alloys. Proposed research should (1) develop mathematical models that can precisely predict the evolution of interface morphology informed by novel *in operando* characterization of electrochemical interfaces, (2) design/discover novel interface materials that can self-regulate their morphology and function, and (3) demonstrate the application of these interface materials to realize persistent, high performance electrochemical systems. Specifically excluded is research that primarily results in evolutionary improvements to the existing state of practice.

#### B. Background

Electrochemical interfaces regulate the conversion of electrochemical gradients into ionic currents and, therefore, play a critical role in various applications, such as batteries, anticorrosion coatings, fuel cells, chemical separation, catalysts, etc. They are classified by the phase of materials forming the interface and their charge transport function. For example, solid/solid interfaces are designed to support ion transport in solid-state batteries and other energy storage/conversion devices, while solid/liquid and solid/vapor interfaces are typically designed to minimize dissolution of metals in corrosion resistant coatings in marine, exhaust, and plasma environments; minimize adhesion of spores in antifouling coatings; or regulate chemical kinetics for chemical separation, purification of metals, etc.

Electrochemical interfaces are tailored to either maximize or minimize charge transport (e.g., maximize ion transport for high power, charging/discharging rate in batteries; minimize dissolution for corrosion protection; or minimize adhesion of spores in antifouling coatings). Irrespective of design intent, electrochemical gradients at the interface in all electrochemical

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<sup>1</sup> Interfaces are classified by the materials forming the interface and ion transport function. For example, (1) solid/solid interfaces are designed to maximize ion transport in solid-state batteries and other energy storage/conversion devices and (2) solid/liquid and solid/vapor interfaces are typically designed to (a) control adhesion and/or dissolution reactions for antifouling, corrosion resistant coatings; (b) regulate chemical kinetics as catalysts for chemical separation, purification of metals, etc.; and/or (c) control material dissolution in plasma environments.

systems lead to continuous evolution of interface morphology and accumulation of local energy gradients (stress, electrochemical potential, electrical potential, etc.). In high performance electrochemical systems, these local energy gradients lead to significant morphological changes, accelerating the degradation of materials and charge transport function at the interface. For example, solid/solid charge transfer interfaces develop voids that lead to a dramatic drop in maximum capacity and cycle life (>90% drop within ~50 cycles) in high specific energy solid-state batteries. Similarly, pitting corrosion in structural alloys leads to the formation of cracks that affect fatigue strength (>80% drop) in aggressive corrosive environments.

Persistence is defined as the lifespan (time, number of cycles, etc.) during which hardware maintains its performance at its design specification. For example, persistence of a battery is the number of charge/recharge cycles during which it can operate within a specific tolerance of its initial capacity. Persistence of a corrosion resistant coating/alloy is the number of cycles up to which the structural material retains a specific fatigue stress (e.g., 50%, 70%, etc.) in a corrosive environment as compared to an inert environment. Notwithstanding the improvements in the properties of bulk materials, there is an emerging consensus that challenges in our current understanding of interfaces limit the ability to engineer persistent, high performance electrochemical systems. Interfaces are typically only a few atoms to a few nanometers thick and are often located deep within the material. This has limited the ability to directly or indirectly image 3D morphology, i.e., spatially correlated functional properties (currents, volume flow) and morphological changes (mass loss) with the required spatiotemporal resolution as well as the ability to develop a mathematical framework to model emergent phenomenon at the interface using realistic 3D representations of interfaces.

These limitations further impede the design/discovery of novel interface materials that can continuously restore their morphology for optimal charge transport function. Hence, current design approaches consider the loss of morphology as an incontrovertible reality, and designers employ a number of techniques (increased thickness, pressure, hardness, hydrophobic/hydrophilic coatings, texture, etc.) that trade-off performance to increase persistence.

### **C. Program Description**

The goal of the MINT program is to disrupt the trade-off between performance and persistence in the design of electrochemical systems by developing novel electrochemical interface materials for solid/solid, solid/liquid, and solid/vapor interfaces. The new insights in the MINT program take their inspiration from morphogenesis, which explains the evolution of morphology due to diffusion of and chemical reaction between chemical species in biological systems far from equilibria. This concept, mathematically explained by Alan Turing in “The Chemical Basis of Morphogenesis,”<sup>2</sup> and further extended by mathematical biologists, provides a framework to model the evolution of patterns in reactive systems. Specifically, local gradients that are detrimental to cell function are used as a stimuli to maintain morphological homeostasis.<sup>3</sup> The

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<sup>2</sup> Turing, Alan Mathison. "The chemical basis of morphogenesis." *Bulletin of mathematical biology* 52.1-2 (1952): 153-197.

<sup>3</sup> Nijhout, H. F., & Davidowitz, G. (2003). Developmental perspectives on phenotypic variation, canalization, and fluctuating asymmetry. *Developmental instability: causes and consequences*, 3-13.

MINT program will extend this concept to electrochemical interfaces through the following three technical areas (TAs):

- TA1 - Interface Modeling and Characterization
- TA2 - Morphogenic Interface Materials – Design and Discovery
- TA3 - System Level Demonstration

Approaches in the three TAs should be tailored to address the technical challenges relevant to one of two application-centric focus areas (FAs):

- FA 1 - Focus area 1 (FA1) will be focused on solid/solid charge transfer interfaces to enable solid-state batteries with unprecedented combinations of energy density and cycle life
- FA2 - Solid/liquid and solid/vapor interfaces to enable high performance corrosion resistant coatings and alloys with superior fatigue strength in a corrosive environment

Proposers may propose to both FAs in separate proposals, but each proposal must include all three TAs for the selected FA.

#### D. Program Structure

MINT is a two-phase program with each phase lasting 24 months. Proposals should clearly address how the proposed concept will meet the goals of the selected FA through specific advances in all three TAs over the course of the program. Proposers should structure the proposal with a 24-month Phase 1 as the base period and with a 24-month Phase 2 as an option. Proposals must include a schedule that clearly shows which TAs will be pursued during each month of the program and sufficient detail in the Statement of Work to explain the research tasks to be performed in each phase. All proposers should clearly outline the concept central to their approach to design morphogenic interface materials and identify innovation in each of the TAs towards deliverables that meet or exceed the program metrics, found in Section I.D, Tables 2 and 3.

The organization of the three TAs into FAs in MINT is shown in Table 1.

**Table 1. Focus Areas (FA) and Technical Areas (TA) Overview**

TA	FA1 Solid/solid charge transfer interfaces for solid-state battery	FA2 Solid/liquid and solid/vapor interfaces for corrosion resistant alloys and coatings
TA1 - Interface Modeling and Characterization	Predict evolution of morphology and local gradients in solid/solid charge transfer interfaces	Predict evolution of compositional change and ionic gradients in solid/liquid and solid/vapor interfaces
TA2 - Morphogenic Interface Materials - Design and Discovery	Design/discover novel interfacial materials that maintain stable 3D morphology	Design/discover novel structural materials/coatings that can

	and maximize ionic current via self-regulation	exploit local gradients to minimize corrosion current
TA3 - System Level Demonstration	Demonstrate solid/solid morphogenic interfaces in solid-state battery test samples with combinations of high energy density and long cycle life	Demonstrate solid/liquid and solid/vapor morphogenic interfaces that increase number of alternating loading cycles of structural materials in a corrosive environment

## 1. Technical Areas (TA)

### TA1 - Interface Modeling and Characterization

The objective of TA1 is to develop multiscale mathematical models informed by characterization techniques that can report electrochemical function correlated to morphology and evolution of morphology with sufficient spatiotemporal resolution.

Electrochemical interfaces are driven, open systems that exhibit multiple phases due to time-varying composition, structure, electrochemical potential windows, temperature, and phase stability. The interactions that couple morphology with various forcing functions lead to phase separation and changes in composition that occur in 3D over a range of 10 nanometers to 100 microns. While simulation capabilities have dramatically improved due to advances in high-performance computing hardware, the models for interfaces are still in 1D, which limits our understanding of the evolution of geometry, local gradients, and onset of mechanical defects.

To address these challenges, proposals should outline the approach to developing models that can predict the evolution of interface morphology in 3D, local energy gradients, and onset of phase instability over relevant orders of lengthscale (few nanometers up to microns). It is anticipated that proposers will build upon known morphogenic models (e.g., reaction-diffusion model, Gray-Scott model, etc.), to capture the evolution of morphology. Proposers should explain how these models will be validated from initial morphologies of fabricated prototypes. It is anticipated that proposers will use emerging characterization techniques such as e-beam holography, atom probe tomography, X-ray phase contrast imaging, transmission electron microscopy (TEM), scanning probe microscopies, or X-ray nano and micro tomography to validate the models. Since no single characterization technique spans the entirety of lengthscales, proposals must clearly identify the combination of experimental approaches that will be used for model validation. In addition, proposals should identify how the models will capture (1) origin of spatial inhomogeneities and their rate of propagation, (2) limiting conditions for phase separation, and (3) operating envelope to avoid detrimental changes at the interface.

All proposals should quantify the anticipated TA1 improvements over the state of the art (SOA).

### TA2 - Morphogenic Interface Materials – Design and Discovery

The objective of TA2 is to develop novel interface materials, referred to as morphogenic interface materials, that can maintain optimal charge transport function over their design operational lifetime.

Interfaces in electrochemical systems are formed *in situ* as two reactive materials are brought together and are designed to maintain optimal charge transport. The evolution of interface morphology due to charge transport leads to accumulation of localized energy gradients (stress, electrical, electrochemical, etc.) that accelerate material degradation. In high performance electrochemical systems, the reactivity of materials at the interface leads to rapid material degradation that contemporary materials cannot recover from and results in a dramatic drop in persistence.

To address this limitation, MINT proposals should design/discover morphogenic interface materials that can exploit local and global gradients to self-regulate their morphology or composition and preserve their charge transport function. For example, a morphogenic solid/solid interface material in a solid-state battery should maintain its ionic conductivity independent of the state of charge. Similarly, a morphogenic solid/liquid or solid/vapor interface material should exploit local gradients and minimize dissolution of coatings/alloys into its environment. Since morphogenic interface materials should exploit local gradients to regulate morphology and preserve charge transport function, it is anticipated that morphogenic interface materials will exhibit multi-domain coupling (e.g., thermomechanical, piezoelectric, electrorheological, electrochemical, chemomechanical, etc.). Proposals should identify components of TA1 that will inform the evolution of local gradients to TA2 for design/discovery of morphogenic interface materials. Proposers may choose to perform design and discovery using traditional approaches or leverage recent advances, such as materials informatics, computational screening, and other approaches for materials design/discovery. Irrespective of the approach, proposals should clearly identify the technical merits of the design or discovery and explain the scientific basis for kinetics of morphological regulation. Proposals should discuss the feasibility of fabrication for any proposed morphogenic interfaces. Proposals should also provide a test plan to assess performance against TA2 metrics as described in Section I.D, Tables 2 and 3. It is anticipated that materials design and discovery approaches in TA2 could involve computational approaches to characterize material properties. Proposals should clearly outline a mix of computational approaches and physical experiments to test the material properties. All proposals should justify the appropriateness of their TA2 approach to their proposed FA and outline a test plan to characterize material properties. In addition, all proposals should also address risks inherent in their TA2 approach as well as appropriate mitigation strategies.

### **TA3 – System Level Demonstration**

The objective of TA3 is to demonstrate the application of novel electrochemical interface materials and closed-loop regulation of interface morphology and function in solid-state batteries and corrosion resistant coatings/alloys.

Proposals should clearly identify the relationship between the three TAs by mapping specific activities and use inter-related activities to explain the design considerations for system level demonstration in TA3. Proposals should discuss specific design attributes at a system level that explain how local gradients will be exploited for regulation of morphology. Sufficient detail should also be provided in the proposal to explain spatiotemporal kinetics of morphology regulation and its relation to restoring charge transport function. If more than one local energy gradient dominates the response at a system level, proposals should explain the rationale behind using one, few, or all of the gradients to restore morphology and increase persistence. Additional



guidance on system design considerations for TA3 specific to each focus area is provided in Sections I.D.2 and I.E.

## 2. Focus Area (FA) Descriptions

### **FA1: Solid/solid charge transfer interfaces for solid-state batteries**

The goal of FA1 is to enable the development of novel solid-state charge transfer interfaces and demonstrate an increase in persistence of high-specific energy solid-state batteries. All FA1 proposals should detail technical progress in each of the technical areas that leads to system level demonstration in a laboratory scale test cell.

MINT FA1 proposals can be based on (1) any rechargeable battery chemistry that can meet program metrics and is not restricted to lithium all solid-state batteries (Li-ASSB) and (2) any solid-state battery architecture (anodeless, metal anode). In the case of battery architectures with metal anodes, proposed designs should match the capacity of the anode and the cathode.

MINT FA1 proposals cannot (1) include any external pressurization devices or thermal devices to meet MINT metrics and/or (2) include any gel or liquid electrolyte in the proposed architecture. Proposals that include external pressurization devices, thermal devices, gel, or liquid electrolyte will be non-conforming to the goals of FA1.

The target metrics for FA1 are organized by each TA and are listed in Table 2. The target capacity of the cells in this program is 0.1 to 0.5 Ah for Phase 1 and 2.0 Ah for Phase 2. Hence, FA1 proposals should provide the feasibility to fabricate laboratory scale test pouch cells that can meet program metrics. Proposals should clearly explain these considerations in relation to their proposed choice of solid-state battery chemistry and architecture. Proposals must provide a clear description of anticipated test samples using engineering drawings, schematics, and other relevant details that demonstrate the feasibility of the proposed research products. The target specific energy, C-rate, and persistence of laboratory scale test cells is 300 Wh/kg (at 0.5C rate for 500 cycles) and 400 Wh/kg (at 1C rate for 1000 cycles) measured at room temperature in Phase 1 and Phase 2, respectively. The entire cell including its packaging will be used for estimating the specific energy of the cell. It is anticipated that independent verification and validation (IV&V) tests will start three months before the end of the period of performance in both Phase 1 and Phase 2. Proposals should accommodate this requirement for IV&V in Government labs. Government IV&V labs may also deconstruct the cells to characterize materials composition during various stages of testing and establish degradation mechanisms of the bulk materials and interfaces in the cell. Any additional details on test protocols will be provided by Government IV&V partners during program kick-off.

**Table 2 Metrics for MINT FA1 – Solid/solid charge transfer interfaces for solid-state batteries**

<b>TA</b>	<b>Phase 1</b>	<b>Phase 2</b>
TA1 - Interface Modeling and Characterization	Model interfacial processes over 10nm-100µm with 80% accuracy <sup>†</sup>	Improve models to span 1nm-1000µm with 90% accuracy <sup>†</sup>

TA2 - Morphogenic Interface Materials - Design and discovery	Design/discover morphogenic solid/solid interface materials to maintain ionic conductivity of 5 mS/cm using local gradients	Improve interface materials to maintain ionic conductivity of 10 mS/cm using local gradients
TA3 - System Level Demonstration	Achieve 500 discharge/recharge cycles at 0.5C in a 300 Wh/kg* SSB pouch cell at with 90% retention of initial capacity	Improve to 1000 discharge/recharge cycles at 1C in a 400 Wh/kg* SSB pouch cell with 90% retention of initial capacity
<p>† Accuracy of mathematical models is obtained from comparing model results with appropriate experimental data.</p> <p>* Energy density calculations will include packaging and are calculated from charge/discharge tests performed at room temperature without any external pressurization device.</p>		

### **FA2: Solid/liquid and solid/vapor interfaces for surface protection coatings**

The goal of FA2 is to enable the development of alloys and surface protection coatings with superior corrosion resistant properties. The test samples of novel alloys or base metal with novel corrosion resistant coatings should have mechanical properties comparable to structural materials used in maritime and aerospace applications. All FA2 proposals should detail technical progress in each of the technical areas that lead to fatigue testing.

MINT FA2 proposals can be based on solid/liquid and solid/vapor, where liquid and vapor phase could be 3.5% NaCl or other equivalent environment. Proposers can choose one or more principal element(s) for the alloy, and the proposal should clearly explain the mechanism of self-passivation that exploits the ionic gradients between the metal and liquid/vapor phase in its corrosive environment. The metrics for FA2 listed in Table 3 are for 3.5% NaCl environment at room temperature. FA2 proposals that target a different reducing or oxidizing environment should clearly identify current SOA and equivalent Phase 2 metrics for TA2 (for example, 10x decrease in corrosion current) and TA3 (for example, 50x increase in persistence during fatigue loading in corrosive environment). Proposers should also provide and justify appropriate Phase 1 TA2 and TA3 metrics. One of the potential approaches is to exploit the design envelope offered by entropy stabilized alloys (MPEA, CCA, and HEA) in TA2 to discover novel alloy compositions. However, other approaches to design morphogenic solid/liquid and solid/vapor interfaces will be considered. Hence, proposers should provide a clear description of the alloy composition, anticipated mechanical properties, and outline fabrication methods for samples. Proposals should identify characterization methods to establish that the composition of the alloy resulting from design/discovery matches the fabricated sample.

The description of test samples is outlined in Section I.F. Test samples for IV&V may be required up to 3 months before the end of the period of performance in both Phase 1 and the proposed workplan should accommodate this requirement. For FA1, Government IV&V labs will deconstruct the test prototypes to perform materials characterization. For FA2, Government IV&V labs may characterize materials composition during various stages of testing to establish

degradation mechanisms for the bulk materials and/or coatings in a corrosive environment. Any additional details on test protocols will be provided by Government IV&V labs during program kick-off.

**Table 3 Metrics for MINT FA2 – Solid/liquid and solid/vapor charge transfer interfaces for corrosion resistant surfaces**

TA	Phase 1	Phase 2
TA1 - Interface Modeling and Characterization	Model interfacial processes over 10nm-100µm with 80% accuracy	Improve models to span 1nm-1000µm with 90% accuracy
TA2 - Morphogenic Interface Materials - Design and discovery	Design/discover morphogenic solid/liquid, solid/vapor interface materials that maintain corrosion current <0.1 µA/cm <sup>2</sup> , >0.5V	Improve interface materials to maintain corrosion current <0.01 µA/cm <sup>2</sup> , >1V
TA3 - System Level Demonstration	Achieve 10 <sup>7</sup> cycles at 10 Hz with a retention of 50% fatigue load in a corrosive environment relative to inert environment	Achieve 10 <sup>7</sup> cycles at 10 Hz with a retention of 70% of fatigue load in a corrosive environment relative to inert environment

### 3. Independent Verification and Validation (IV&V)

Government personnel will serve as technical advisors and IV&V partners throughout the program, providing DARPA an assessment of performer capabilities and also validating experimental data and/or system performance. Performers will be expected to work openly and regularly with Government IV&V teams throughout the program. Performers will be required to provide details of their systems, including, but not limited to, engineering drawings, operating methods and instructions, software, datasets, and samples, to DARPA and/or any designated Government IV&V member or organization upon request. Proposals should include a task to reflect interaction with Government teams and delivery of requested information, data hardware, software, and materials. This BAA does not solicit Government IV&V participation.

Government personnel interested in learning more about MINT or potentially participating in IV&V activities should contact [MINT@darpa.mil](mailto:MINT@darpa.mil).

#### E. Schedule/Milestones

Proposers should provide a technical and programmatic strategy that conforms to the entire program schedule and presents an aggressive plan to fully address all program goals, metrics, milestones, and deliverables. The task structure must be consistent across the proposed schedule, Statement of Work, and cost volume. A target start date of March 2022 may be assumed for planning purposes. Schedules will be synchronized across performers, as required, and monitored/revised as necessary throughout the program.

All proposals must include the following meetings and travel in the proposed schedule and costs:

- To continue integration and development between TAs and FAs, foster collaboration

between teams, and disseminate program developments, a two-day Principal Investigator (PI) meeting will be held approximately every six months with locations split between the East and West Coasts of the United States. For budgeting purposes, plan for seven two-day meetings over the course of 48 months: four meetings in the Washington, D.C. area and three meetings in the San Francisco, CA area.

- Regular teleconference meetings will be scheduled with the Government team for progress reporting as well as problem identification and mitigation. Proposers should anticipate at least one site visit per phase by the DARPA Program Manager during which they will have the opportunity to demonstrate progress towards agreed-upon milestones.

**F. Deliverables**

The deliverables from the MINT program corresponding to the three TAs for FA1 and FA2 are summarized in Table 4 and Table 5, respectively. For TA1 in both FAs, the modeling software and code base should be shared with Government partners for IV&V, and proposals should include a separate task that outlines the approach to sharing the developed software. TA2 and TA3 deliverables are specific to the FAs, and proposals should identify a feasible plan to share the outcomes of materials development and standalone characterization.

**Table 4 Deliverables for MINT FA1 organized by TAs**

<b>TA</b>	<b>Phase 1</b>	<b>Phase 2</b>
TA1 - Interface Modeling and Characterization	Validated mathematical models and characterization techniques	
TA2 - Morphogenic Interface Materials - Design and Discovery	Novel materials composition, fabrication methods, test protocols, and samples that demonstrate standalone regulation of morphology and ion transport function	
TA3 - System Level Demonstration	5 pouch cells with a capacity of 0.1 to 0.5 Ah and without any external pressurization device and/or heating source	10 pouch cells with a capacity of 2.0 Ah and without any external pressurization device and/or heating source

FA2, TA3 proposals should include engineering drawings of tensile test samples required to characterize corrosion fatigue. For proposals that consider a different corrosive environment other than 3.5% NaCl, deliverables should include a complete description of the environment.

**Table 5 Deliverables for MINT FA2 organized by TAs**

<b>TA</b>	<b>Phase 1</b>	<b>Phase 2</b>
TA1 - Interface Modeling and Characterization	Validated mathematical models and characterization techniques	

TA2 - Morphogenic Interface Materials - Design and Discovery	3 test samples (alloy or base metal with morphogenic interface coating) measuring at least 1 cm x 1 cm with composition, fabrication methods and test protocol.	10 test samples (alloy or base metal with morphogenic interface coating) measuring at least 5cm x 5cm with composition, fabrication methods and test protocol.
TA3 - System Level Demonstration	3 tensile test specimens (alloy or base metal with morphogenic interface coating) on samples measuring at least 1mm at the narrowest section, meeting phase 1 metrics.	5 tensile test specimens (alloy or base metal with morphogenic interface coating) on samples measuring at least 3mm at the narrowest section, meeting phase 2 metrics.

In addition to deliverables above, performers will be expected to provide the following deliverables:

- Comprehensive quarterly technical reports due within ten days of the end of the given quarter, describing progress made on the specific milestones as laid out in the Statement of Work.
- A phase completion report submitted within 30 days of the end of each phase, summarizing the research done.
- Other negotiated deliverables specific to the objectives of the individual efforts. These may include registered reports; experimental protocols; publications; data management plan; intermediate and final versions of software libraries, code, and APIs, including documentation and user manuals; and/or a comprehensive assemblage of design documents, models, modeling data and results, and model validation data.
- Reporting as outlined in Section VI.C.

**G. Other Program Objectives and Considerations**

**1. Collaboration**

Throughout the course of the program, it is likely to be necessary for all performers to share relevant information regarding their research and development to support the larger program goals. DARPA expects all program performers to work collaboratively with one another to realize the program objectives outlined herein, so proposers should carefully review the goals for the entire program in order to fully understand the context of each program objective, performer category, and TA/FA within the overall program structure. All proposals should provide a management and teaming plan describing the roles and responsibilities of each performer on the proposed team. Proposals that fail to include these plans may be deemed non-conforming and removed from consideration.

**2. Intellectual Property**

Proposers should note that the Government does not own the intellectual property or technical data/computer software developed under Government contracts. The Government acquires the right to use the technical data/computer software. Regardless of the scope of the Government’s rights, awardees may freely use their same data/software for their own commercial purposes (unless restricted by U.S. export control laws or security classification). Therefore, it is desired

that all noncommercial software (including source code), software documentation, hardware designs and documentation, and technical data generated by the program be provided as deliverables to the Government with a minimum of Government Purpose Rights (GPR), as lesser rights may adversely impact the lifecycle costs of affected items, components, or processes.

If proposers desire to use proprietary computer software or technical data or both as the basis of their proposed approach, in whole or in part, they should (1) clearly identify such software/data and its proposed particular use(s), (2) explain how the Government will be able to reach its program goals (including transition) within the proprietary model offered, and (3) provide possible nonproprietary alternatives in any area that might present transition difficulties or increased risk or cost to the Government under the proposed proprietary solution. Proposers expecting to use, but not to deliver, commercial open source tools or other materials in implementing their approach may be required to indemnify the Government against legal liability arising from such use.

All references to "Unlimited Rights" or "Government Purpose Rights" are intended to refer to the definitions of those terms as set forth in the Defense Federal Acquisition Regulation Supplement (DFARS) 227.

## **II. Award Information**

### **A. General Award Information**

DARPA anticipates multiple awards. The level of funding for individual awards made under this BAA will depend on the quality of the proposals received and the availability of funds. Awards will be made to proposers<sup>4</sup> whose proposals are determined to be the most advantageous to the Government, all evaluation factors considered. See Section V for further information.

The Government reserves the right to:

- select for negotiation all, some, one, or none of the proposals received in response to this solicitation;
- make awards without discussions with proposers;
- conduct discussions with proposers if it is later determined to be necessary;
- segregate portions of resulting awards into pre-priced options;
- accept proposals in their entirety or select only portions of proposals for award;
- fund awards in increments with options for continued work at the end of one or more phases;
- request additional documentation once the award instrument has been determined (e.g., representations and certifications); and
- remove proposers from award consideration should the parties fail to reach agreement on award terms within a reasonable time or the proposer fails to provide requested

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<sup>4</sup> As used throughout this BAA, "proposer" refers to the lead organization on a submission to this BAA. The proposer is responsible for ensuring that all information required by a BAA--from all team members--is submitted in accordance with the BAA. "Awardee" refers to anyone who might receive a prime award from the Government, including recipients of procurement contracts, cooperative agreements, or Other Transactions. "Subawardee" refers to anyone who might receive a subaward from a prime awardee (e.g., subawardee, consultant, etc.).

additional information in a timely manner.

Proposals identified for negotiation may result in a procurement contract, cooperative agreement, or Other Transaction (OT), depending upon the nature of the work proposed, the required degree of interaction between parties, and other factors.

Proposers looking for innovative, commercial-like contractual arrangements are encouraged to consider requesting Other Transactions. To understand the flexibility and options associated with Other Transactions, consult <http://www.darpa.mil/work-with-us/contract-management#OtherTransactions>.

In accordance with 10 U.S.C. § 2371b(f), the Government may award a follow-on production contract or Other Transaction (OT) for any OT awarded under this solicitation if: (1) that participant in the OT, or a recognized successor in interest to the OT, successfully completed the entire prototype project provided for in the OT, as modified; and (2) the OT provides for the award of a follow-on production contract or OT to the participant, or a recognized successor in interest to the OT.

In all cases, the Government contracting officer shall have sole discretion to select award instrument type, regardless of instrument type proposed, and to negotiate all instrument terms and conditions with selectees. DARPA will apply publication or other restrictions, as necessary, if it determines that the research resulting from the proposed effort will present a high likelihood of disclosing performance characteristics of military systems or manufacturing technologies that are unique and critical to defense. Any award resulting from such a determination will include a requirement for DARPA permission before publishing any information or results on the program. For more information on publication restrictions, see the section below on Fundamental Research.

## **B. Fundamental Research**

It is DoD policy that the publication of products of fundamental research will remain unrestricted to the maximum extent possible. National Security Decision Directive (NSDD) 189 defines fundamental research as follows:

‘Fundamental research’ means basic and applied research in science and engineering, the results of which ordinarily are published and shared broadly within the scientific community, as distinguished from proprietary research and from industrial development, design, production, and product utilization, the results of which ordinarily are restricted for proprietary or national security reasons.

As of the date of publication of this solicitation, the Government expects that program goals as described herein may be met by proposed efforts for fundamental research and non-fundamental research. Some proposed research may present a high likelihood of disclosing performance characteristics of military systems or manufacturing technologies that are unique and critical to defense. Based on the anticipated type of proposer (e.g., university or industry) and the nature of the solicited work, the Government expects that some awards will include restrictions on the resultant research that will require the awardee to seek DARPA permission before publishing any information or results relative to the program.

Proposers should indicate in their proposal whether they believe the scope of the research included in their proposal is fundamental or not. While proposers should clearly explain the intended results of their research, the Government shall have sole discretion to determine whether the proposed research shall be considered fundamental and to select the award

instrument type. Appropriate language will be included in resultant awards for non-fundamental research to prescribe publication requirements and other restrictions, as appropriate. This language can be found at <http://www.darpa.mil/work-with-us/additional-baa>. For certain research projects, it may be possible that although the research to be performed by a potential awardee is non-fundamental research, its proposed subawardee's effort may be fundamental research. It is also possible that the research performed by a potential awardee is fundamental research while its proposed subawardee's effort may be non-fundamental research. In all cases, it is the potential awardee's responsibility to explain in its proposal which proposed efforts are fundamental research and why the proposed efforts should be considered fundamental research.

### **III. Eligibility Information**

#### **A. Eligible Applicants**

All responsible sources capable of satisfying the Government's needs may submit a proposal for DARPA's consideration.

#### **1. Federally Funded Research and Development Centers (FFRDCs) and Government Entities**

##### **a. FFRDCs**

FFRDCs are subject to applicable direct competition limitations and cannot propose to this solicitation in any capacity unless they meet the following conditions. (1) FFRDCs must clearly demonstrate that the proposed work is not otherwise available from the private sector. (2) FFRDCs must provide a letter, on official letterhead from their sponsoring organization, that (a) cites the specific authority establishing their eligibility to propose to Government solicitations and compete with industry, and (b) certifies the FFRDC's compliance with the associated FFRDC sponsor agreement's terms and conditions. These conditions are a requirement for FFRDCs proposing to be awardees or subawardees.

##### **b. Government Entities**

Government Entities (e.g., Government/National laboratories, military educational institutions, etc.) are subject to applicable direct competition limitations. Government Entities must clearly demonstrate that the work is not otherwise available from the private sector and provide written documentation citing the specific statutory authority and contractual authority, if relevant, establishing their ability to propose to Government solicitations and compete with industry. This information is required for Government Entities proposing to be awardees or subawardees.

##### **c. Authority and Eligibility**

At the present time, DARPA does not consider 15 U.S.C. § 3710a to be sufficient legal authority to show eligibility. While 10 U.S.C. § 2539b may be the appropriate statutory starting point for some entities, specific supporting regulatory guidance, together with evidence of agency approval, will still be required to fully establish eligibility. DARPA will consider FFRDC and Government Entity eligibility submissions on a case-by-case basis; however, the burden to prove eligibility for all team members rests solely with the proposer.

#### **2. Other Applicants**



Non-U.S. organizations and/or individuals may participate to the extent that such participants comply with any necessary nondisclosure agreements, security regulations, export control laws, and other governing statutes applicable under the circumstances.

## **B. Organizational Conflicts of Interest**

### FAR 9.5 Requirements

In accordance with FAR 9.5, proposers are required to identify and disclose all facts relevant to potential OCIs involving the proposer's organization and *any* proposed team member (subawardee, consultant). Under this Section, the proposer is responsible for providing this disclosure with each proposal submitted to the solicitation. The disclosure must include the proposer's, and as applicable, proposed team member's OCI mitigation plan. The OCI mitigation plan must include a description of the actions the proposer has taken, or intends to take, to prevent the existence of conflicting roles that might bias the proposer's judgment and to prevent the proposer from having unfair competitive advantage. The OCI mitigation plan will specifically discuss the disclosed OCI in the context of each of the OCI limitations outlined in FAR 9.505-1 through FAR 9.505-4.

### Agency Supplemental OCI Policy

In addition, DARPA has a supplemental OCI policy that prohibits contractors/performers from concurrently providing Scientific Engineering Technical Assistance (SETA), Advisory and Assistance Services (A&AS) or similar support services and being a technical performer. Therefore, as part of the FAR 9.5 disclosure requirement above, a proposer must affirm whether the proposer or *any* proposed team member (subawardee, consultant) is providing SETA, A&AS, or similar support to any DARPA office(s) under: (a) a current award or subaward; or (b) a past award or subaward that ended within one calendar year prior to the proposal's submission date. If SETA, A&AS, or similar support is being or was provided to any DARPA office(s), the proposal must include:

- The name of the DARPA office receiving the support;
- The prime contract number;
- Identification of proposed team member (subawardee, consultant) providing the support; and
- An OCI mitigation plan in accordance with FAR 9.5.

### Government Procedures

In accordance with FAR 9.503, 9.504 and 9.506, the Government will evaluate OCI mitigation plans to avoid, neutralize or mitigate potential OCI issues before award and to determine whether it is in the Government's interest to grant a waiver. The Government will only evaluate OCI mitigation plans for proposals that are determined selectable under the solicitation evaluation criteria and funding availability.

The Government may require proposers to provide additional information to assist the Government in evaluating the proposer's OCI mitigation plan.

If the Government determines that a proposer failed to fully disclose an OCI; or failed to provide the affirmation of DARPA support as described above; or failed to reasonably provide additional information requested by the Government to assist in evaluating the proposer's OCI mitigation plan, the Government may reject the proposal and withdraw it from consideration for award.

Include any OCIs affirmations and disclosures in Attachment G: VOLUME 3:

ADMINISTRATIVE & NATIONAL POLICY REQUIREMENTS.

## **C. Cost Sharing/Matching**

Cost sharing is not required; however, it will be carefully considered where there is an applicable statutory condition relating to the selected funding instrument (e.g., OTs under the authority of 10 U.S.C. § 2371). Cost sharing is encouraged where there is a reasonable probability of a potential commercial application related to the proposed research and development effort.

For more information on potential cost sharing requirements for Other Transactions for Prototype, see <http://www.darpa.mil/work-with-us/contract-management#OtherTransactions>.

#### **IV. Application and Submission Information**

Prior to submitting a full proposal, proposers are *strongly encouraged* to first submit an abstract as described below. This process allows a proposer to ascertain whether the proposed concept is (1) applicable to the MINT BAA and (2) currently of interest. For the purposes of this BAA, applicability is defined as follows:

- The proposed concept is applicable to the technical areas described herein.
- The proposed concept is important to DSO's current investment portfolio.
- The proposed concept investigates an innovative approach that enables revolutionary advances, i.e., will not primarily result in evolutionary improvements to the existing state of practice.
- The proposed work has not already been completed (i.e., the research element is complete but manufacturing/fabrication funds are required).
- The proposer has not already received funding or a positive funding decision for the proposed concept (whether from DARPA or another Government agency).

Abstracts and full proposals that are not found to be applicable to the MINT BAA as defined above may be deemed non-conforming<sup>5</sup> and removed from consideration. All abstracts and full proposals must provide sufficient information to assess the validity/feasibility of their claims as well as comply with the requirements outlined herein for submission formatting, content and transmission to DARPA. Abstracts and full proposals that fail to do so may be deemed non-conforming and removed from consideration. Proposers will be notified of non-conforming determinations via letter.

##### **A. Address to Request Application Package**

This document contains all information required to submit a response to this solicitation. No additional forms, kits, or other materials are needed except as referenced herein. No request for proposal or additional solicitation regarding this opportunity will be issued, nor is additional information available except as provided at the SAM.gov website (<https://sam.gov/>), the Grants.gov website (<http://www.grants.gov/>), or referenced herein.

##### **B. Content and Form of Application Submission**

###### **1. Abstract Information and Formatting**

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<sup>5</sup> "Conforming" is defined as having been submitted in accordance with the requirements outlined herein

As stated above, proposers are strongly encouraged to submit an abstract in advance of a full proposal to minimize effort and reduce the potential expense of preparing an out of scope proposal. All proposers are required to use Attachment A: ABSTRACT SUMMARY SLIDE TEMPLATE and Attachment B: ABSTRACT TEMPLATE provided with this solicitation on <https://sam.gov/> and <http://www.grants.gov>. Attachment A: ABSTRACT SUMMARY SLIDE TEMPLATE described herein must be in .ppt,.pptx, or .pdf format and should be attached as a separate file to this document.

The abstract provides a synopsis of the proposed project by briefly answering the following questions:

- What is the proposed work attempting to accomplish or do?
- How is the work performed today (what is the state of the art or practice), and what are the limitations?
- Who will care, and what will the impact be if the work is successful?
- How much will it cost, and how long will it take?
- What is new in your approach, and why do you think it will be successful?

DARPA will respond to abstracts with a statement as to whether DARPA is interested in the idea. If DARPA does not recommend the proposer submit a full proposal, DARPA will provide feedback to the proposer regarding the rationale for this decision. Regardless of DARPA's response to an abstract, proposers may submit a full proposal. DARPA will review all conforming full proposals using the published evaluation criteria and without regard to any comments resulting from the review of an abstract.

Proposers should note that a favorable response to an abstract is not a guarantee that a proposal based on the abstract will ultimately be selected for award negotiation.

While it is DARPA policy to attempt to reply to abstracts within thirty calendar days, proposers to this solicitation may anticipate a response within approximately three weeks. These official notifications will be sent via email to the Technical POC and/or Administrative POC identified on the abstract coversheet.

## **2. Full Proposal Information and Formatting**

### **a. Proposal Volumes**

Full proposals must consist of all 3 volumes described below. To assist in proposal development, templates for these volumes are posted as attachments to this solicitation on <https://sam.gov/>. The templates are specific to each volume, as outlined below.

Full proposals requesting a procurement contract or Other Transaction (OT) must use the following attachments in each volume:

- **Volume 1**
  - Attachment C: PROPOSAL SUMMARY SLIDE TEMPLATE
  - Attachment D: PROPOSAL TEMPLATE VOLUME 1: TECHNICAL & MANAGEMENT
- **Volume 2**
  - Attachment E: PROPOSAL TEMPLATE VOLUME 2: COST

- Attachment F: MS Excel™ DARPA COST PROPOSAL SPREADSHEET
- **Volume 3**
  - Attachment G: PROPOSAL TEMPLATE VOLUME 3: ADMINISTRATIVE & NATIONAL POLICY REQUIREMENTS

Full proposals requesting a grant or cooperative agreement must use the following attachments in addition to the Grants.gov application package:

- **Volume 1**
  - Attachment C: PROPOSAL SUMMARY SLIDE TEMPLATE
  - Attachment D: PROPOSAL TEMPLATE VOLUME 1: TECHNICAL & MANAGEMENT
- **Volume 2\***
  - Attachment F: MS Excel™ DARPA COST PROPOSAL SPREADSHEET
- **Volume 3**
  - Attachment G: PROPOSAL TEMPLATE VOLUME 3: ADMINISTRATIVE & NATIONAL POLICY REQUIREMENTS

\* Full proposals requesting a grant or cooperative agreement do not need to include Attachment E. Instead, Budget Justification should be provided as Section L of the SF 424 Research & Related Budget form provided via <http://www.grants.gov> (see section IV.E.1.c for additional details). The Budget Justification should include the following information for the recipient and all subawardees:

- **Direct Labor (sections A and B)** - Detail the total number of persons and their level of commitment for each position listed (as well as which specific tasks (as described in the SOW) they will support.
- **Equipment (section C)** - Provide an explanation for listed requested equipment exceeding \$5,000, properly justifying why it is required to meet the objectives of the program.
- **Travel (section D)** - Provide the purpose of the trip, number of trips, number of days per trip, departure and arrival destinations, number of people, etc.
- **Other Direct Costs (section F)** - Provide a justification for the items requested and an explanation of how the estimates were obtained.
- **Participant/Trainee Support Costs (section E)** - Provide details on Tuition/ Fees/ Health Insurance, Stipends, Travel and Subsistence costs.

The Government requires that proposers use the provided MS Excel™ DARPA Standard Cost Proposal Spreadsheet in the development of their cost proposals. A customized cost proposal spreadsheet may be an attachment to this solicitation. If not, the spreadsheet can be found on the DARPA website at <http://www.darpa.mil/work-with-us/contract-management> (under “Resources” on the right-hand side of the webpage). All tabs and tables in the cost proposal spreadsheet should be developed in an editable format with calculation formulas intact to allow traceability of the cost proposal. This cost proposal spreadsheet should be used by the prime organization and all subcontractors. In addition to using the cost proposal spreadsheet, the cost proposal still must include all other items required in this announcement that are not covered by the editable spreadsheet. Subcontractor cost proposal spreadsheets may be submitted directly to the Government by the proposed subcontractor via e-mail to the address in Part I of this

solicitation. **Using the provided cost proposal spreadsheet will assist the Government in a rapid analysis of your proposed costs and, if your proposal is selected for a potential award, speed up the negotiation and award execution process.**

All proposers are required to use the appropriate templates based on the type of award requested. Templates are provided as attachments to this solicitation on <https://sam.gov/> and <http://www.grants.gov>. Full Proposals that do not include the appropriate attachments as detailed here may be deemed non-conforming and may not be evaluated.

#### **b. DARPA Embedded Entrepreneur Initiative (EEI)**

Awardees pursuant to this solicitation may be eligible to participate in the DARPA Embedded Entrepreneur Initiative (EEI) during the award's period of performance. EEI is a limited scope program offered by DARPA, at DARPA's discretion, to a small subset of awardees. The goal of DARPA's EEI is to increase the likelihood that DARPA-funded technologies take root in the U.S. and provide new capabilities for national defense. EEI supports DARPA's mission "to make pivotal investments in breakthrough technologies and capabilities for national security" by accelerating the transition of innovations out of the lab and into new capabilities for the Department of Defense (DoD). EEI investment supports development of a robust and deliberate Go-to-Market strategy for selling technology to Government and commercial markets and positions DARPA awardees to attract U.S. investment. The following is for informational and planning purposes only and does not constitute solicitation of proposals to the EEI.

There are three elements to DARPA's EEI: (1) A Senior Commercialization Advisor (SCA) from DARPA who works with the Program Manager (PM) to examine the business case for the awardee's technology and uses commercial methodologies to identify steps toward achieving a successful transition of technology to the Government and commercial markets; (2) Connections to potential industry and investor partners via EEI's Transition Working Groups; and (3) Additional funding for awardees to hire an embedded entrepreneur to achieve specific commercialization milestones and work towards the delivery of a robust transition plan for both defense and commercial markets. This embedded entrepreneur's qualifications should include business experience within the target industries of interest, experience in commercializing early stage technology, and the ability to communicate and interact with technical and non-technical stakeholders. Funding for EEI is typically no more than \$250,000 per awardee over the duration of the award. An awardee may apportion EEI funding to hire more than one embedded entrepreneur, if achieving the milestones requires different expertise that can be obtained without exceeding the awardee's total EEI funding. The EEI effort is intended to be conducted concurrent with the research program without extending the period of performance.

#### **EEI Application Process:**

After receiving an award under the solicitation, awardees interested in being considered for EEI should notify their DARPA Program Manager (PM) during the period of performance. Timing of such notification should ideally allow sufficient time for DARPA and the awardee to review the awardee's initial transition plan, identify commercial milestones to deliver under EEI, modify the award, and conduct the work required to achieve such milestones within the original award period of performance. These steps may take 18-24 months to complete, depending on the technology. If the DARPA PM determines that EEI could be of benefit to transition the technology to product(s) the Government needs, the PM will refer the performer to DARPA's

Commercial Strategy team.

DARPA's Commercial Strategy team will then contact the performer, assess fitness for EEI, and in consultation with the DARPA technical office, determine whether to invite the performer to participate in the EEI. Factors that are considered in determining fitness for EEI include DoD/Government need for the technology; competitive approaches to enable a similar capability or product; risks and impact of the Government's being unable to access the technology from a sustainable source; Government and commercial markets for the technology; cost and affordability; manufacturability and scalability; supply chain requirements and barriers; regulatory requirements and timelines; Intellectual Property and Government Use Rights, and available funding.

Invitation to participate in EEI is at the sole discretion of DARPA and subject to program balance and the availability of funding. EEI participants' awards may be subsequently modified bilaterally to amend the Statement of Work to add negotiated EEI tasks, provide funding, and specify a milestone schedule which will include measurable steps necessary to build, refine, and execute a Go-to-Market strategy aimed at delivering new capabilities for national defense. Milestone examples are available at: <https://www.darpa.mil/work-with-us/contract-management>.

Awardees under this solicitation are eligible to be considered for participation in EEI, but selection for award under this solicitation does not imply or guarantee participation in EEI.

### **3. Proprietary Information**

Proposers are responsible for clearly identifying proprietary information. Submissions containing proprietary information must have the cover page and each page containing such information clearly marked 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.

### **4. Controlled Unclassified Information (CUI) and Controlled Technical Information (CTI) on Non-DoD Information Systems**

Proposers and awardees are subject to the DoD requirements related to protection of CUI and CTI IAW Executive Order 13556, *Controlled Unclassified Information*, DFARS 252.204-7000, *Disclosure of Information*, DFARS 252.204-7012, *Safeguarding Covered Defense Information and Cyber Incident Reporting*, DoD Instruction 5200.48, *Controlled Unclassified Information*, DoD Instruction 8582.01, *Security of Non-DoD Information Systems Processing Unclassified Nonpublic DoD Information*. See <http://www.darpa.mil/work-with-us/additional-baa> for additional guidance on protecting CUI on Non-DoD Information Systems.

CUI is defined as unclassified information that requires safeguarding or dissemination controls, pursuant to and consistent with applicable law, regulations, and Government-wide policies.

Controlled Technical Information (CTI) is defined as technical information with military or space application that is subject to controls on its access, use, reproduction, modification, performance, display, release, disclosure, or dissemination. The term CTI does not include information that is lawfully publicly available without restrictions.

DoD considers “technical information” to be technical data or computer software, as those terms are defined in Defense Federal Acquisition Regulation Supplement clause 252.227-7013, "Rights in Technical Data - Noncommercial Items" (48 CFR 252.227-7013). Examples of technical information include research and engineering data; engineering drawings and associated lists; specifications, standards, process sheets, manuals, technical reports, technical orders, catalog-item identifications, data sets, studies and analyses and related information; and computer software code. Note that such technical information may or may not be controlled (i.e., CTI), depending on whether it has military or space application.

Proposers should indicate in their proposal if their proposed solution will be subject to export controls in accordance with the Commerce Control List (CCL) Category 3, Electronics, ECCN 3A001.e, or Technology, ECCN 3E001. All proposals indicating export control requirements must include a draft CUI protection plan in Attachment G: PROPOSAL TEMPLATE VOLUME 3: ADMINISTRATIVE & NATIONAL POLICY REQUIREMENTS detailing how export-controlled information (CUI) will be protected at performance sites as well as sub-contractor locations. The draft CUI protection plan is not a source selection criterion, and there is no page limit. During selection and negotiation, DARPA will determine additional requirements and clarification required of the CUI protection plan.

As part of Attachment D: PROPOSAL TEMPLATE VOLUME 1: TECHNICAL & MANAGEMENT, the proposer must include a Statement of Work with a breakdown of all research tasks and subtasks and indicate the proposed classification for each. For all tasks and subtasks proposed to be unclassified, proposers should distinguish between work proposed to be Fundamental Research versus work proposed to be CUI. Proposers will provide a short explanation for why each subtask should be categorized as Fundamental Research or CUI.

If CUI tasks are proposed in the Statement of Work, proposers must provide a plan for protecting Controlled Unclassified Information as part of Attachment G: PROPOSAL TEMPLATE VOLUME 3: ADMINISTRATIVE & NATIONAL POLICY REQUIREMENTS, Section 8.

CTI is to be marked “DISTRIBUTION C. Distribution authorized to U.S. Government agencies and their contractors; Critical Technology; [current date]. Other requests for this document shall be referred to DARPA, DSO” in accordance with Department of Defense Instruction 5203.24, “Distribution of Statements on Technical Documents.”

## **5. Security Information**

DARPA anticipates that submissions received under this BAA will be unclassified. However, should a proposer wish to submit classified information, an *unclassified* email must be sent to the BAA mailbox requesting submission instructions from the DARPA/DSO Program Security Officer (PSO).

### **a. Controlled Unclassified Information (CUI)**

For unclassified proposals containing controlled unclassified information (CUI), applicants will ensure personnel and information systems processing CUI security requirements are in place.

#### **i. CUI Proposal Markings**



If an unclassified submission contains CUI or the suspicion of such, as defined by Executive Order 13556 and 32 CFR Part 2002, the information must be appropriately and conspicuously marked CUI in accordance with DoDI 5200.48. Identification of what is CUI about this DARPA program, if needed, will be detailed in a DARPA CUI Guide at a later date.

#### ii. CUI Submission Requirements

Unclassified submissions containing CUI may be submitted via DARPA's BAA Website (<https://baa.darpa.mil>) in accordance with Part II Section VIII of this BAA.

#### iii. CUI Authorized Systems

Proposers submitting proposals involving the pursuit and protection of DARPA information designated as CUI must have, or be able to acquire prior to contract award, an information system authorized to process CUI information IAW NIST SP 800-171 and DoDI 8582.01.

### C. Submission Dates and Times

Proposers are warned that submission deadlines as outlined herein are in Eastern Time and will be strictly enforced. When planning a response to this solicitation, proposers should take into account that some parts of the submission process may take from one business day to one month to complete (e.g., registering for a Data Universal Numbering System (DUNS) number or Taxpayer Identification Number (TIN)).

DARPA will acknowledge receipt of *complete* submissions via email and assign identifying numbers that should be used in all further correspondence regarding those submissions. If no confirmation is received within two business days, please contact the BAA Administrator at [MINT@darpa.mil](mailto:MINT@darpa.mil) to verify receipt.

#### 1. Abstracts

Abstracts must be submitted per the instructions outlined herein *and received by DARPA* no later than the due date and time listed in Part One: Overview Information. Abstracts received after this time and date may not be reviewed.

#### 2. Full Proposals

Full proposal packages as detailed in Section IV.B.2 above, and, as applicable, proprietary subawardee cost proposals and classified appendices to unclassified proposals, must be submitted per the instructions outlined herein *and received by DARPA* no later than the due date and time listed in Part One: Overview Information. Proposals received after this time and date may not be reviewed.

### D. Funding Restrictions

Not applicable.

### E. Other Submission Requirements

#### 1. Unclassified Submission Instructions



Proposers must submit all parts of their submission package using the same method; submissions cannot be sent in part by one method and in part by another method nor should duplicate submissions be sent by multiple methods. Email submissions will not be accepted. Failure to comply with the submission procedures outlined herein may result in the submission being deemed non-conforming and withdrawn from consideration.

#### **a. Abstracts**

DARPA/DSO will employ an electronic upload submission system (<https://baa.darpa.mil/>) for all UNCLASSIFIED abstracts sent in response to this solicitation. *Abstracts must not be submitted via Grants.gov or email.*

First time users of the DARPA BAA Submission website must complete a two-step account creation process. The first step consists of registering for an extranet account by going to the URL listed above and selecting the “Account Request” link. Upon completion of the online form, proposers will receive two separate emails; one will contain a user name and the second will provide a temporary password. Once both emails have been received, the second step requires proposers to go back to the submission website and log in using that user name and password. After accessing the extranet, proposers may then create a user account for the DARPA BAA Submission website by selecting the “Register your Organization” link at the top of the page. Once the user account is created, proposers will be able to see a list of solicitations open for submissions, view submission instructions, and upload/finalize their abstract.

Proposers who already have an account on the DARPA BAA Submission website may simply log in at <https://baa.darpa.mil/>, select this solicitation from the list of open DARPA solicitations and proceed with their abstract submission. NOTE: Proposers who have created a DARPA BAA Submission website account to submit to another DARPA Technical Office’s solicitations do not need to create a new account to submit to this solicitation.

All abstracts submitted electronically through the DARPA BAA Submission website must meet the following requirements: (1) uploaded as a zip file (.zip or .zipx extension); (2) only contain the document(s) requested herein; (3) only contain unclassified information; and (4) must not exceed 100 MB in size. Only one zip file will be accepted per abstract and abstracts not uploaded as zip files will be rejected by DARPA.

Technical support for the DARPA BAA Submission website is available during regular business hours, Monday – Friday, 9:00 a.m. – 5:00 p.m. Requests for technical support must be emailed to [BAAT\\_Support@darpa.mil](mailto:BAAT_Support@darpa.mil) with a copy to [MINT@darpa.mil](mailto:MINT@darpa.mil). Questions regarding submission contents, format, deadlines, etc. should be emailed to [MINT@darpa.mil](mailto:MINT@darpa.mil). Questions/requests for support sent to any other email address may result in delayed/no response.

*Since proposers may encounter heavy traffic on the web server, DARPA discourages waiting until the day abstracts are due to request an account and/or upload the submission.*

*NOTE: Proposers submitting an abstract via the DARPA BAA Submission site MUST (1) click the “Finalize” button in order for the submission to upload AND (2) do so with sufficient time for the upload to complete prior to the deadline. Failure to do so will result in a late submission.*

#### **b. Proposals Requesting a Procurement Contract or Other Transaction**

Proposers requesting procurement contracts or Other Transactions may submit full proposals through ONE of the following methods: (1) electronic upload (DARPA-preferred); or (2) direct mail/hand-carry.

### **i. Electronic Upload**

DARPA/DSO encourages proposers to submit UNCLASSIFIED proposals via the DARPA BAA Submission website at <https://baa.darpa.mil>.

First time users of the DARPA BAA Submission website must complete a two-step account creation process. The first step consists of registering for an extranet account by going to the URL listed above and selecting the “Account Request” link. Upon completion of the online form, proposers will receive two separate emails; one will contain a user name and the second will provide a temporary password. Once both emails have been received, the second step requires proposers to go back to the submission website and log in using that user name and password. After accessing the extranet, proposers may then create a user account for the DARPA BAA Submission website by selecting the “Register your Organization” link at the top of the page. Once the user account is created, proposers will be able to see a list of solicitations open for submissions, view submission instructions, and upload/finalize their proposal.

Proposers who already have an account on the DARPA BAA Submission website may simply log in at <https://baa.darpa.mil/>, select this solicitation from the list of open DARPA solicitations and proceed with their proposal submission. *NOTE: Proposers who have created a DARPA BAA Submission website account to submit to another DARPA Technical Office’s solicitations do not need to create a new account to submit to this solicitation.*

All full proposals submitted electronically through the DARPA BAA Submission website must meet the following requirements: (1) uploaded as a zip file (.zip or .zipx extension); (2) only contain the document(s) requested herein; (3) only contain unclassified information; and (4) must not exceed 100 MB in size. Only one zip file will be accepted per full proposal and full proposals not uploaded as zip files will be rejected by DARPA.

Technical support for the DARPA BAA Submission website is available during regular business hours, Monday – Friday, 9:00 a.m. – 5:00 p.m. Requests for technical support must be emailed to [BAAT\\_Support@darpa.mil](mailto:BAAT_Support@darpa.mil) with a copy to [MINT@darpa.mil](mailto:MINT@darpa.mil). Questions regarding submission contents, format, deadlines, etc. should be emailed to [MINT@darpa.mil](mailto:MINT@darpa.mil). Questions/requests for support sent to any other email address may result in delayed/no response.

*Since proposers may encounter heavy traffic on the web server, DARPA discourages waiting until the day proposals are due to request an account and/or upload the submission. NOTE: Proposers submitting a proposal via the DARPA BAA Submission site MUST (1) click the “Finalize” button in order for the submission to upload AND (2) do so with sufficient time for the upload to complete prior to the deadline. Failure to do so will result in a late submission.*

### **ii. Direct Mail/Hand-carry**

Proposers electing to submit procurement contract or Other Transaction proposals via direct mail or hand-carried must provide one paper copy and one electronic copy on CD or DVD of the full proposal package. All parts of the proposal package must be mailed or hand-carried in a single

delivery to the address noted in Section VII below.

#### **a. Proposals Requesting a Cooperative Agreement**

Proposers requesting cooperative agreements must submit proposals through one of the following methods: (1) electronic upload per the instructions at <https://www.grants.gov/applicants/apply-for-grants.html> (DARPA-preferred); or (2) hard-copy mailed directly to DARPA. If proposers intend to use Grants.gov as their means of submission, then they must submit their entire proposal through Grants.gov; applications cannot be submitted in part to Grants.gov and in part as a hard-copy. Proposers using Grants.gov do not submit hard-copy proposals in addition to the Grants.gov electronic submission.

Submissions: In addition to the volumes and corresponding attachments requested elsewhere in this solicitation, proposers must also submit the three forms listed below.

*Form 1: SF 424 Research and Related (R&R) Application for Federal Assistance*, available on the Grants.gov website at [https://apply07.grants.gov/apply/forms/sample/RR\\_SF424\\_2\\_0-V2.0.pdf](https://apply07.grants.gov/apply/forms/sample/RR_SF424_2_0-V2.0.pdf). *This form must be completed and submitted.*

To evaluate compliance with Title IX of the Education Amendments of 1972 (20 U.S.C. § 1681 et.seq.), the Department of Defense (DoD) is collecting certain demographic and career information to be able to assess the success rates of women who are proposed for key roles in applications in science, technology, engineering or mathematics disciplines. In addition, the National Defense Authorization Act (NDAA) for FY 2019, Section 1286, directs the Secretary of Defense to protect intellectual property, controlled information, key personnel, and information about critical technologies relevant to national security and limit undue influence, including foreign talent programs by countries that desire to exploit United States' technology within the DoD research, science and technology, and innovation enterprise. This requirement is necessary for all research and research-related educational activities. The DoD is using the two forms below to collect the necessary information to satisfy these requirements. Detailed instructions for each form are available on Grants.gov.

*Form 2: Research and Related Senior/Key Person Profile (Expanded)*, available on the Grants.gov website at [https://apply07.grants.gov/apply/forms/sample/RR\\_KeyPersonExpanded\\_2\\_0-V2.0.pdf](https://apply07.grants.gov/apply/forms/sample/RR_KeyPersonExpanded_2_0-V2.0.pdf). *This form must be completed and submitted.*

The Research and Related Senior/Key Person Profile (Expanded) form will be used to collect the following information for all senior/key personnel, including Project Director/Principal Investigator and Co-Project Director/Co-Principal Investigator, whether or not the individuals' efforts under the project are funded by the DoD:

- Degree Type and Degree Year.
- Current and Pending Support, including:
  - A list of all current projects the individual is working on, in addition to any future support the individual has applied to receive, regardless of the source.
  - Title and objectives of the other research projects.
  - The percentage per year to be devoted to the other projects.
  - The total amount of support the individual is receiving in connection to each of the other research projects or will receive if other proposals are awarded.
  - Name and address of the agencies and/or other parties supporting the other research projects
  - Period of performance for the other research projects.

Additional senior/key persons can be added by selecting the “Next Person” button at the bottom of the form. Note that, although applications without this information completed may pass Grants.gov edit checks, if DARPA receives an application without the required information, DARPA may determine that the application is incomplete and may cause your submission to be rejected and eliminated from further review and consideration under the solicitation. DARPA reserves the right to request further details from the applicant before making a final determination on funding the effort.

*Form 3: Research and Related Personal Data*, available on the Grants.gov website at [https://apply07.grants.gov/apply/forms/sample/RR\\_PersonalData\\_1\\_2-V1.2.pdf](https://apply07.grants.gov/apply/forms/sample/RR_PersonalData_1_2-V1.2.pdf). *Each applicant must complete the name field of this form, however, provision of the demographic information is voluntary. Regardless of whether the demographic fields are completed or not, this form must be submitted with at least the applicant’s name completed.*

#### **i. Electronic Upload**

DARPA encourages cooperative agreement proposers to submit their proposals via electronic upload at <http://www.grants.gov/web/grants/applicants/apply-for-grants.html>. Proposers electing to use this method must complete a one-time registration process on Grants.gov before a proposal can be electronically submitted. *If proposers have not previously registered, this process can take up to four weeks* so registration should be done in sufficient time to ensure it does not impact a proposer’s ability to meet required submission deadlines. Registration requirements and instructions are outlined at <http://www.grants.gov/web/grants/register.html>.

Carefully follow the DARPA submission instructions provided with the solicitation application package on Grants.gov. Only the required forms listed therein (e.g., SF-424 and Attachments form) should be included in the submission. *NOTE: Grants.gov does not accept zipped or encrypted proposals.*

Once Grants.gov has received an uploaded proposal submission, Grants.gov will send two email messages to notify proposers that: (1) the proposal has been received by Grants.gov; and (2) the proposal has been either validated or rejected by the system. *It may take up to two business days to receive these emails.* If the proposal is validated, then the proposer has successfully submitted their proposal. If the proposal is rejected, the submission must be corrected, resubmitted and revalidated before DARPA can retrieve it. If the solicitation is no longer open, the rejected proposal cannot be resubmitted. Once the proposal is retrieved by DARPA, Grants.gov will send a third email to notify the proposer. DARPA will send a final confirmation email as described in Section IV.C.

*To avoid missing deadlines, Grants.gov recommends that proposers submit their proposals to Grants.gov 24-48 hours in advance of the proposal due date to provide sufficient time to complete the registration and submission process, receive email notifications and correct errors, as applicable.*

Technical support for Grants.gov submissions may be reached at 1-800-518-4726 or [support@grants.gov](mailto:support@grants.gov).

#### **ii. Direct Mail/Hand-carry**

Proposers electing to submit grant or cooperative agreement proposals via direct mail or hand-

carried must provide one paper copy and one electronic copy on CD or DVD of the full proposal package. Proposers must complete the SF 424 R&R form (Application for Federal Assistance, Research and Related) provided at Grants.gov as part of the opportunity application package for this BAA and include it in the proposal submission. All parts of the proposal package must be mailed or hand-carried to the address noted in Section VII below.

## **V. Application Review Information**

### **A. Evaluation Criteria**

Proposals will be evaluated using the following criteria listed in descending order of importance: Overall Scientific and Technical Merit; Potential Contribution and Relevance to the DARPA Mission; and Cost Realism.

- **Overall Scientific and Technical Merit**

The proposed technical approach is innovative, feasible, achievable, and complete. The proposed technical team has the expertise and experience to accomplish the proposed tasks. Task descriptions and associated technical elements provided are complete and in a logical sequence with all proposed deliverables clearly defined such that a final outcome that achieves the goal can be expected as a result of award. The proposal identifies major technical risks, and planned mitigation efforts are clearly defined and feasible. The proposed schedule aggressively pursues performance metrics in an efficient time frame that accurately accounts for the anticipated workload.

- **Potential Contribution and Relevance to the DARPA Mission**

The potential contributions of the proposed effort bolster the national security technology base and support DARPA's mission to make pivotal early technology investments that create or prevent technological surprise. The proposed intellectual property restrictions (if any) will not significantly impact the Government's ability to transition the technology.

- **Cost Realism**

The proposed costs are realistic for the technical and management approach and accurately reflect the technical goals and objectives of the solicitation. The proposed costs are consistent with the proposer's Statement of Work and reflect a sufficient understanding of the costs and level of effort needed to successfully accomplish the proposed technical approach. The costs for the prime proposer and proposed subawardees are substantiated by the details provided in the proposal (e.g., the type and number of labor hours proposed per task, the types and quantities of materials, equipment and fabrication costs, travel and any other applicable costs and the basis for the estimates).

### **B. Review and Selection Process**

DARPA will conduct a scientific/technical review of each conforming proposal. Conforming proposals comply with all requirements detailed in this solicitation; proposals that fail to do so may be deemed non-conforming and may be removed from consideration. Proposals will not be evaluated against each other since they are not submitted in accordance with a common work

statement. DARPA's intent is to review proposals as soon as possible after they arrive; however, proposals may be reviewed periodically for administrative reasons.

The review process identifies proposals that meet the evaluation criteria described above and are, therefore, selectable for negotiation of awards by the Government. DARPA policy is to ensure impartial, equitable, comprehensive proposal evaluations and to select proposals that meet DARPA technical, policy, and programmatic goals. Proposals that are determined selectable will not necessarily receive awards (see Section II). Selections may be made at any time during the period of solicitation. For evaluation purposes, a proposal is defined to be the document and supporting materials as described in Section IV.

### **1. Handling of Source Selection Information**

DARPA policy is to treat all submissions as source selection information (FAR 2.101 and 3.104), and to only disclose their contents to authorized personnel. Restrictive notices notwithstanding, submissions may be handled by support contractors for administrative purposes and/or to assist with technical evaluation. All DARPA support contractors performing this role are expressly prohibited from performing DARPA-sponsored technical research and are bound by appropriate nondisclosure agreements. Subject to the restrictions set forth in FAR 37.203(d), DARPA may also request input on technical aspects of the proposals from other non-Government consultants/experts who are strictly bound by the appropriate non-disclosure requirements.

Submissions will not be returned. The original of each submission received will be retained at DARPA and all other non-required copies destroyed. A certification of destruction may be requested via email to the BAA mailbox, provided the formal request is received within 5 days after being notified of submission status.

### **C. Federal Awardee Performance and Integrity Information (FAPIS)**

Following the review and selection process described above, but prior to making an award above the simplified acquisition threshold (FAR 2.101), DARPA is required<sup>6</sup> to review and consider any information available through the designated integrity and performance system (currently FAPIS). Selectees have the opportunity to comment on any information about themselves entered in the database. DARPA will consider any comments and other information in FAPIS or other systems prior to making an award.

## **VI. Award Administration Information**

### **A. Selection Notices**

After proposal evaluations are complete, proposers will be notified as to whether their proposal was selected for award negotiation as a result of the review process. Notification will be sent by email to the Technical and Administrative POCs identified on the proposal cover sheet. If a proposal has been selected for award negotiation, the Government will initiate those negotiations following the notification.

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<sup>6</sup> Per 41 U.S.C. 2313, as implemented by FAR 9.103 and 2 CFR § 200.205.



## **B. Administrative and National Policy Requirements**

### **1. Solicitation Provisions and Award Clauses, Terms and Conditions**

Solicitation provisions relevant to DARPA BAAs are listed on the Additional BAA Content page on DARPA’s website at [www.darpa.mil/work-with-us/additional-baa](http://www.darpa.mil/work-with-us/additional-baa). This page also lists award clauses that, depending on their applicability, may be included in the terms and conditions of awards resultant from DARPA solicitations. This list is not exhaustive and the clauses, terms and conditions included in a resultant award will depend on the nature of the research effort, the specific award instrument, the type of awardee, and any applicable security or publication restrictions.

For terms and conditions specific to grants and/or cooperative agreements, see the DoD General Research Terms and Conditions (latest version) at <http://www.onr.navy.mil/Contracts-Grants/submit-proposal/grants-proposal/grants-terms-conditions> and the supplemental DARPA-specific terms and conditions at <http://www.darpa.mil/work-with-us/contract-management#GrantsCooperativeAgreements>.

The above information serves to put potential proposers and awardees on notice of proposal requirements and award terms and conditions to which they may have to adhere.

### **2. System for Award Management (SAM) and Universal Identifier Requirements**

All proposers must be registered in SAM unless exempt per FAR 4.1102. FAR 52.204-7, “System for Award Management” and FAR 52.204-13, “System for Award Management Maintenance” are incorporated into this solicitation. See <http://www.darpa.mil/work-with-us/additional-baa> for further information.

International entities can register in SAM by following the instructions in this link:

[https://www.fsd.gov/sys\\_attachment.do?sys\\_id=c08b64ab1b4434109ac5ddb6bc4bcbb8](https://www.fsd.gov/sys_attachment.do?sys_id=c08b64ab1b4434109ac5ddb6bc4bcbb8).

NOTE: New registrations can take an average of 7-10 business days to process in SAM. SAM registration requires the following information:

- DUNS number
- TIN
- Commercial and Government Entity (CAGE) Code. If a proposer does not already have a CAGE code, one will be assigned during SAM registration.
- Electronic Funds Transfer information (e.g., proposer’s bank account number, routing number, and bank phone or fax number).

### **3. Representations and Certifications**

In accordance with FAR 4.1102 and 4.1201, proposers requesting a procurement contract must complete electronic annual representations and certifications at <https://www.sam.gov/>.

In addition, all proposers are required to submit for all award instrument types supplementary DARPA-specific representations and certifications at the time of proposal submission. See <http://www.darpa.mil/work-with-us/reprs-certs> for further information on required representation and certification depending on your requested award instrument.

### **4. Intellectual Property**

Proposers should note that the Government does not own the intellectual property or technical data/computer software developed under Government contracts. The Government acquires the right to use the technical data/computer software. Regardless of the scope of the Government's rights, awardees may freely use their same data/software for their own commercial purposes (unless restricted by U.S. export control laws or security classification). Therefore, technical data and computer software developed under this solicitation will remain the property of the awardees, though DARPA will have, at a minimum, Government Purpose Rights (GPR) to technical data and computer software developed through DARPA sponsorship.

If proposers desire to use proprietary computer software or technical data or both as the basis of their proposed approach, in whole or in part, they should: (1) clearly identify such software/data and its proposed particular use(s); (2) explain how the Government will be able to reach its program goals (including transition) within the proprietary model offered; and (3) provide possible nonproprietary alternatives in any area that might present transition difficulties or increased risk or cost to the Government under the proposed proprietary solution. Proposers expecting to use, but not to deliver, commercial open source tools or other materials in implementing their approach may be required to indemnify the Government against legal liability arising from such use.

All references to "Unlimited Rights" or "Government Purpose Rights" are intended to refer to the definitions of those terms as set forth in the Defense Federal Acquisition Regulation Supplement (DFARS) 227.

#### **a. Intellectual Property Representations**

All proposers must provide a good faith representation of either ownership or possession of appropriate licensing rights to all other intellectual property to be used for the proposed project. Proposers must provide a short summary for each item asserted with less than unlimited rights that describes the nature of the restriction and the intended use of the intellectual property in the conduct of the proposed research. See Attachment G: PROPOSAL TEMPLATE VOLUME 3: ADMINISTRATIVE & NATIONAL POLICY REQUIREMENTS, Section 4.

#### **b. Patents**

All proposers must include documentation proving ownership or possession of appropriate licensing rights to all patented inventions to be used for the proposed project. If a patent application has been filed for an invention, but it includes proprietary information and is not publicly available, a proposer must provide documentation that includes: the patent number, inventor name(s), assignee names (if any), filing date, filing date of any related provisional application, and summary of the patent title, with either: (1) a representation of invention ownership; or (2) proof of possession of appropriate licensing rights in the invention (i.e., an agreement from the owner of the patent granting license to the proposer).

#### **c. Procurement Contracts**

##### **i. Noncommercial Items (Technical Data and Computer Software)**

Proposers requesting a procurement contract must list all noncommercial technical data and computer software that it plans to generate, develop, and/or deliver, in which the Government will acquire less than unlimited rights and to assert specific restrictions on those deliverables. In



the event a proposer does not submit the list, the Government will assume that it has unlimited rights to all noncommercial technical data and computer software generated, developed, and/or delivered, unless it is substantiated that development of the noncommercial technical data and computer software occurred with mixed funding. If mixed funding is anticipated in the development of noncommercial technical data and computer software generated, developed, and/or delivered, proposers should identify the data and software in question as subject to GPR. In accordance with DFARS 252.227-7013, "Rights in Technical Data - Noncommercial Items," and DFARS 252.227-7014, "Rights in Noncommercial Computer Software and Noncommercial Computer Software Documentation," the Government will automatically assume that any such GPR restriction is limited to a period of 5 years, at which time the Government will acquire unlimited rights unless the parties agree otherwise. The Government may use the list during the evaluation process to evaluate the impact of any identified restrictions and may request additional information from the proposer, as may be necessary, to evaluate the proposer's assertions. Failure to provide full information may result in a determination that the proposal is non-conforming. A template for complying with this request is provided in Attachment G: PROPOSAL TEMPLATE VOLUME 3: ADMINISTRATIVE & NATIONAL POLICY REQUIREMENTS, Section 4.

#### **ii. Commercial Items (Technical Data and Computer Software)**

Proposers requesting a procurement contract must list all commercial technical data and commercial computer software that may be included in any noncommercial deliverables contemplated under the research project and assert any applicable restrictions on the Government's use of such commercial technical data and/or computer software. In the event a proposer does not submit the list, the Government will assume there are no restrictions on the Government's use of such commercial items. The Government may use the list during the evaluation process to evaluate the impact of any identified restrictions and may request additional information from the proposer to evaluate the proposer's assertions. Failure to provide full information may result in a determination that the proposal is non-conforming. A template for complying with this request is provided in Attachment G: PROPOSAL TEMPLATE VOLUME 3: ADMINISTRATIVE & NATIONAL POLICY REQUIREMENTS, Section 4.

#### **d. Other Types of Awards**

Proposers requesting an award instrument other than a procurement contract shall follow the applicable rules and regulations governing those award instruments, but in all cases should appropriately identify any potential restrictions on the Government's use of any intellectual property contemplated under those award instruments. This includes both noncommercial items and commercial items. The Government may use the list as part of the evaluation process to assess the impact of any identified restrictions and may request additional information from the proposer, to evaluate the proposer's assertions. Failure to provide full information may result in a determination that the proposal is non-conforming. A template for complying with this request is provided in Attachment G: PROPOSAL TEMPLATE VOLUME 3: ADMINISTRATIVE & NATIONAL POLICY REQUIREMENTS, Section 4.

### **5. Program-generated Data**

Data are increasingly the key product of research and engineering endeavors. To ensure the reproducibility of results and access to source data for future research, awardees will be required to maintain and deliver any data generated during award performance (“program-generated data”) that is needed to accomplish these goals. Awardees shall be expected to document both the proprietary and non-proprietary products of their research to ensure the retention and potential reusability of this information. This may include:

- Raw unprocessed data, software source code and executables, build scripts, process sequence, programmatic communication and other collaboration activities
- Data sets: rarified, experimental, test and measurement data
- Design of experiments and simulations
- Models or simulations (computational or mathematical)
- Recordings of various physical phenomena (including images, videos, sensor data, etc.)
- Access to and use of institutional, organizational or scientific community repositories and archives

When possible, DARPA may share some or all of the program-generated data with the broader research community as open data (with permission to access, reuse, and redistribute under appropriate licensing terms where required) to the extent permitted by applicable law and regulations (e.g., privacy, security, rights in data, and export control). DARPA plans to enable reproducibility of results through data sharing and to establish (or contribute to) digital collections that can advance this and other scientific fields.

## **6. Human Subjects Research (HSR)/Animal Use**

Proposers that anticipate involving human subjects or animals in the proposed research must comply with the approval procedures detailed at <http://www.darpa.mil/work-with-us/additional-baa>, to include providing the information specified therein as required for proposal submission.

## **7. Electronic Invoicing and Payments**

Awardees will be required to submit invoices for payment electronically via Wide Area Work Flow (WAWF), accessed through the Procurement Integrated Enterprise Environment at <https://piee.eb.mil/>, unless an exception applies. Registration in WAWF is required prior to any award under this BAA.

## **8. Disclosure of Information and Compliance with Safeguarding Covered Defense Information Controls**

The following provisions and clause apply to all solicitations and contracts; however, the definition of “controlled technical information” clearly exempts work considered fundamental research and therefore, even though included in the contract, will not apply if the work is fundamental research.

DFARS 252.204-7000, “Disclosure of Information”

DFARS 252.204-7008, “Compliance with Safeguarding Covered Defense Information Controls”

DFARS 252.204-7012, “Safeguarding Covered Defense Information and Cyber Incident Reporting”

The full text of the above solicitation provision and contract clauses can be found at <http://www.darpa.mil/work-with-us/additional-baa#NPRPAC>.

Compliance with the above requirements includes the mandate for proposers to implement the security requirements specified by National Institute of Standards and Technology (NIST) Special Publication (SP) 800-171, “Protecting Controlled Unclassified Information in Nonfederal Information Systems and Organizations” (see <https://nvlpubs.nist.gov/nistpubs/SpecialPublications/NIST.SP.800-171r2.pdf>) and DoDI 8582.01 that are in effect at the time the solicitation is issued.

For awards where the work is considered fundamental research, the contractor will not have to implement the aforementioned requirements and safeguards. However, should the nature of the work change during performance of the award, work not considered fundamental research will be subject to these requirements.

## **C. Reporting**

### **1. Technical and Financial Reports**

The number and types of technical and financial reports required under the award will be specified in the award document and may include monthly financial reports, monthly technical reports and/or a yearly status summary. A final report that summarizes the project and tasks will be required at the conclusion of the performance period for the award. The reports shall be prepared and submitted in accordance with the procedures contained in the award document.

### **2. Patent Reports and Notifications**

All resultant awards will contain a mandatory requirement for patent reports and notifications to be submitted electronically through i-Edison (<https://public.era.nih.gov/iedison>).

## **VII. Agency Contacts**

DARPA will use email for all technical and administrative correspondence regarding this solicitation.

- **Technical POC:** Dr. Vishnu Sundaresan, Program Manager, DARPA/DSO
- **BAA Email:** [MINT@darpa.mil](mailto:MINT@darpa.mil)
- **BAA Mailing Address:**  
DARPA/DSO  
ATTN: HR001121S0033  
675 North Randolph Street  
Arlington, VA 22203-2114
- **DARPA/DSO Opportunities Website:** <http://www.darpa.mil/work-with-us/opportunities>

For information concerning agency level protests see <http://www.darpa.mil/work-with-us/additional-baa#NPRPAC>.

## **VIII. Other Information**

### **A. Proposers Day**

The Program Proposers Day will be held via webcast on July 9, 2021. Advance registration is required for this meeting. See DARPA-SN-21-31 posted at <https://sam.gov/> for all details. Participation in the Program Proposers Day or viewing the webcast is voluntary and is not required to propose to this solicitation.

### **B. Frequently Asked Questions (FAQs)**

Administrative, technical, and contractual questions should be emailed to [MINT@darpa.mil](mailto:MINT@darpa.mil). 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 10 days of the proposal due date may not be answered. DARPA will post an FAQ list at: <http://www.darpa.mil/work-with-us/opportunities>. The list will be updated on an ongoing basis until the BAA expiration date as stated in Part I.

### **C. Collaborative Efforts/Teaming**

DARPA highly encourages teaming before proposal submission and will facilitate the formation of teams with the necessary expertise. Potential proposers may refer to the Proposers Day Special Notice DARPA-SN-21-31.