



Broad Agency Announcement

Ground Truth (GT)

Defense Sciences Office

HR001117S0031

April 28, 2017

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PART I: OVERVIEW INFORMATION

- **Federal Agency Name:** Defense Advanced Research Projects Agency (DARPA), Defense Sciences Office (DSO)
- **Funding Opportunity Title:** Ground Truth (GT)
- **Announcement Type:** Initial Announcement
- **Funding Opportunity Number:** HR001117S0031
- **Catalog of Federal Domestic Assistance (CFDA) Number(s):** 12.910 Research and Technology Development
- **Dates** (All times listed herein are Eastern Time.)
 - Posting Date: April 28, 2017
 - Abstract Due Date: May 15, 2017, 4:00 p.m.
 - FAQ Submission Deadline: June 22, 2017, 4:00 p.m. See Section VIII.A.
 - Full Proposal Due Date: June 29, 2017, 4:00 p.m.
- **Anticipated Individual Awards:** DARPA anticipates multiple awards under both Technical Areas (TAs)
- **Types of Instruments that May be Awarded:** Procurement contracts, grants, cooperative agreements or other transactions.
- **Agency contacts**
 - **Technical POC:** Dr. Adam Russell, Program Manager, DARPA/DSO
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DARPA/DSO
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Arlington, VA 22203-2114
 - **DARPA/DSO Opportunities Website:** <http://www.darpa.mil/work-with-us/opportunities>
- **Teaming Information:** See Section VIII.B 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.A for further 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 CFR § 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 at the Defense Advanced Research Projects Agency (DARPA) is soliciting innovative research proposals in the area of new simulation capabilities to test the accuracy and robustness of causal modeling methods for understanding human social systems and behaviors. Proposed research should investigate innovative approaches that enable revolutionary advances in social science modeling, simulation, and causal inference. Specifically excluded is research that primarily results in evolutionary improvements to the existing state of practice.

In particular, DARPA seeks to create artificial but socially plausible simulations that have known causal ground truth to validate the accuracy and robustness of social science modeling methods. Ground truth simulations should allow for a wide range of qualitative, quantitative, and mixed social science modeling methods, and should provide different kinds of complexity to test causal modeling methods across a range of simulated behaviors and systems.

Using a series of staged tests, DARPA anticipates that these simulations will help quantify the capabilities and theoretical limitations of different modeling methods for explaining and predicting causal processes in complex social systems. Additionally, these simulations will provide opportunities to evaluate new modeling methods, or combinations of methods, to advance the rigor of causal inference and modeling in the pursuit of “solution-oriented” social sciences.

B. Background

Military planners and decision-makers often rely upon the social sciences to help them understand and forecast a variety of scenarios that involve complex human social systems and behaviors. In particular, decision-makers often seek to identify, characterize, and model causal processes at different scales and for different social systems to help explain or predict certain patterns of behavior for a wide range of missions, including stability operations, humanitarian assistance, and counter-insurgency. However, human social systems and behaviors present enduring challenges for making “strong inference”¹ about causal processes.

One of social scientists’ biggest challenges is often the lack of objective knowledge of the actual causes of observed behaviors (“ground truth”) in the real world. Conducting the experimental work necessary for understanding causality in social behaviors and systems is often impractical

¹ Platt, JR. “Strong Inference.” *Science* 16 Oct 1964: Vol. 146, Issue 3642, pp. 347-353

or unethical, while observational (including “big data”) modeling approaches routinely use correlations to make conclusions about causality. These conclusions are often suspect due to inaccuracies and/or incompleteness inherent in social data. Hence the lack of causal ground truth limits capabilities to rigorously evaluate the explanatory and predictive accuracy of different modeling methods, particularly for causal processes at different scales - even as the need for such evaluation is growing in importance.² Consequently, decision-makers cannot be confident in how accurate social science modeling methods are for making strong inference claims about causal processes in social systems and behaviors, or even if those are the correct modeling methods to use.

This challenge is exacerbated by the fact that human social systems often display emergent behaviors. These behaviors arise from dynamic, adaptive, longitudinal, multiscale interactions of different agents across different social structures with different social processes – all of which resist easy abstraction or simplification.

Enabled by increasing computational power and decreasing computational costs, social scientists are frequently incorporating simulation as a modeling method. However, these approaches generally suffer from the same validation challenges as other methods. For example, modelers often assume that if a simulation generates outcomes similar to observed behaviors, they can take this as evidence that their simulations have accurately captured candidate real-world causal mechanisms. Yet different simulations may often result in seemingly similar social phenomena. Further, in the absence of causal ground truth, simulation validation approaches often end up being highly flexible, subjective, and ad hoc. As currently used, simulations cannot escape the same validation limitations that other modeling methods face.

C. Program Description/Scope

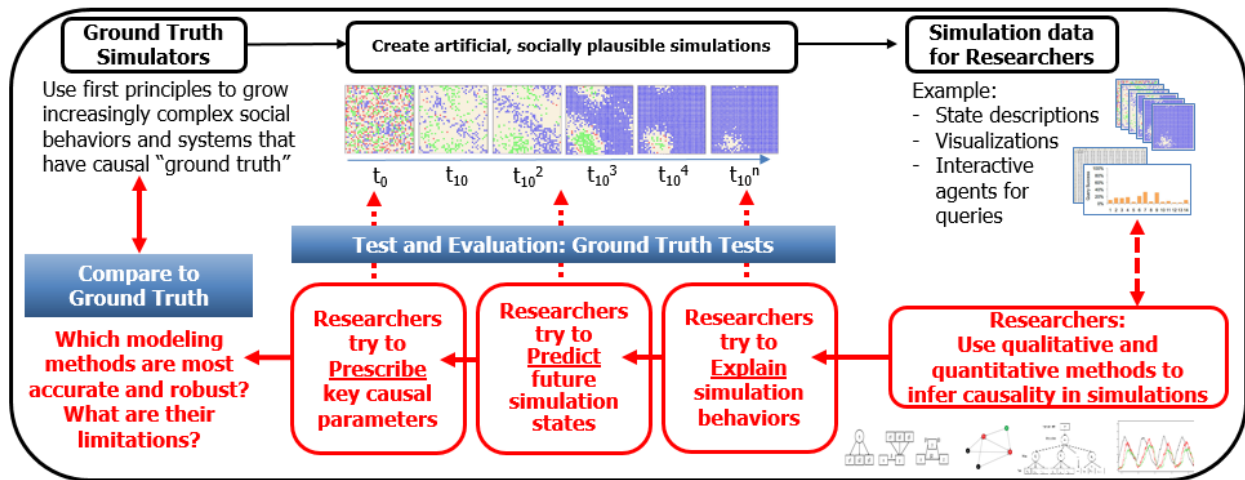
DARPA posits that appropriately complex simulations might offer a high-risk, high-payoff opportunity for making significant advances beyond these current limitations in social science modeling. By using these simulations as social science modeling test beds, DARPA hypothesizes that there will be new opportunities to significantly enhance capabilities for evaluating the accuracy of different causal modeling methods.

The Ground Truth (GT) program is designed to test this hypothesis by creating and using artificial but socially plausible simulations with causal ground truth to quantify the explanatory and predictive performance of a range of social science modeling methods. Because causality is encoded into the simulations, DARPA and the teams creating simulations will have known causal ground truth. Modeling teams will then attempt to discover and predict causality in the simulations using their various methods. Based on the modeling teams’ success in meeting various metrics over a series of increasingly complex challenges, GT will afford unprecedented validation of quantitative, qualitative, and mixed research methods’ abilities to draw strong inference about causal mechanisms of different kinds of social behaviors under different conditions of complexity.

² E.g., Hofman, JM, Sharma, A, Watts, DJ. “Prediction and explanation in social systems.” *Science* 03 FEB 2017: 486-488

Ground Truth Program Vision

Figure 1: Ground Truth Vision



As outlined in Figure 1 above, Ground Truth envisions a programmatic workflow that will result in currently unattainable knowledge about the explanatory and predictive accuracy—and theoretical limitations—of different social science modeling methods for different kinds of social complexity.

GT seeks to fund a number of teams to develop social simulations with causal ground truth that may each give rise to socially plausible but distinctive “alternate” worlds. These Ground Truth Simulators will use different kinds and combinations of first principles to form the causal rules and mechanisms that give rise to the observed simulated behaviors and systems in their particular alternate world. As the goal is not to reflect “real-world” first principles of social behaviors (since these are largely unknown), different Simulators are likely to use different principles to achieve the TA1 goals described in Section I.E, below. GT envisions three different phases of simulations, with TA1 teams creating or evolving greater systemic and behavioral complexity in their respective alternate worlds at each phase (so that the cycle starting with Ground Truth Simulators outlined in Figure 1 will occur three times during the Program, with increasing levels of simulated social complexity). GT envisions that this complexity may be achieved in principled but variable ways by different teams, such as increasing the number and kinds of dynamic interactions in a simulation, the complexity of agents or social structures, or increasing sources and levels of uncertainty in data and behaviors in that world.

At each phase, Ground Truth simulations are developed, deployed, and run in ways that enable modeling teams (see TA2 in Section I.E, below) to conduct “research” on, and in, those alternate worlds. GT foresees funding a number of researcher proposals with innovative approaches to rapid “solution-oriented” teaming, who then seek to discover the causal processes in these simulations. Researchers may observe behaviors in these alternate worlds, perhaps via datasets using web-based applications or a simulation observatory, as well as interact with them in necessarily limited but creative ways to use a wide range of social science research methods. A TA2 team, for example, might collect or be given various kinds and amounts of “observational”

data from different outputs of a certain simulation to enable regression-based statistical inference and machine-learning techniques as well as multi-level modelling and time-series analyses. At the same time, that alternate world might also allow TA2 researchers to interact with certain parts of the simulation – perhaps querying groups of agents on their state or intentions, or conducting limited experimental or qualitative work in a particular section of the simulation. This interaction might let that team apply mixed methods network analyses, content or discourse analysis, grounded theory, or limited participant-observation. Using a combination of initial theorizing and modeling, that TA2 team then seeks to reverse-engineer the simulation’s first principles and hence explain that world’s causal rules and mechanisms.

TA2 teams will also test their modeling methods for predicting future states of the alternate worlds. GT envisions TA1 teams announcing an impending shock to their simulation, for example, by adding new agents to the simulation, removing certain resources, or simulating some other systemic disruption. TA2 teams will model the impact of this disruption on the alternate world in advance and then compare their predictions to the revealed actual outcomes in the simulations.

Finally, TA2 teams will seek to determine the limitations of their causal modeling of an alternate world by “prescribing” specific interventions to effect specific simulation states. GT envisions a TA2 team using their research methods to conclude, for example, that to decrease levels of resource inequality observed in a particular alternate world, their counter-intuitive prescription may be to increase the number of agents in that simulation. TA1 teams then will simulate these prescriptions as far as possible, and TA2 will have their prescriptions scored against the actual revealed simulated results.

If successful, the GT program will result in deliverables that will include artificial but socially plausible simulations with tunable complexity and causal ground truth against which to calibrate the accuracy and theoretical limitations of current and future social science modeling efforts. Successful simulation teams will identify first principles that they then encode as different causal processes in simulations, which – when engineered and run in appropriate platforms – lead to emergent complex social behaviors.

These simulations will then provide capabilities to allow other researchers to test the accuracy of their , modeling methods for inferring causal processes in the simulations, using their models to predict future simulation states, and prescribing simulation parameters to guide future states. By having simulations that can serve as test-beds for social science modeling methods, GT will provide DARPA and the larger social science research communities with Quantitative understanding of why, when, and to what degree different causal modeling methods succeed or fail under conditions of varying social complexity.

If successful, GT will enable the Department of Defense (DoD) and the social sciences to better evaluate which causal modeling methods are most – and least – promising for a wide range of national security missions that involve complex social systems and behaviors.

D. Program Structure

Ground Truth is a 30-month program comprising three phases with durations of 18 months, 6 months and 6 months, respectively. Phase I consists of an Initial Development period and the first of the three Challenges periods; if simulations and methods are sufficiently mature, Phases II and III will consist of additional Challenges. The Challenges are anticipated to increase in both complexity and difficulty as the program continues.

The GT program will be divided into two Technical Areas (TAs) with an independent Test and Evaluation (T&E) team providing oversight. The two TAs are:

- TA1: Simulations
- TA2: Methods

DARPA is soliciting proposals to TA1 or TA2, but is not soliciting proposals for participation on the T&E Team. Proposals to either TA must address the full program timeline. While TA1 simulators will know causal ground truth in the simulations during the Challenges, TA2 researchers will only be able to use their best modeling methods to infer causality.

To avoid a conflict of interest, no person or organization may be a performer for both TA1 and TA2, whether as a prime or as a sub-contractor.

E. Technical Area Descriptions

TA1: Simulations

The goal of TA1 is to leverage and advance complex social simulation capabilities to provide “minimally-viable”³ test beds for a wide range of social science modeling methods. DARPA anticipates that TA1 simulations will have to build upon emerging capabilities that allow for the simulation of many heterogeneous agents with evolving objectives. The potential use of distributed and cloud computing and GPUs may be required for simulating agents and groups that can increasingly interact over structured but dynamic scales and networks and that may

³ “Minimally-viable” means that TA1 simulations will not necessarily require or include intricate or expensive graphics or interfaces to achieve Ground Truth goals. DARPA expects that successful TA1 proposals will focus primarily on making credible arguments for creating simulation capabilities discussed in this BAA. Accordingly, requests for resources for simulations that provide, e.g., graphical interfaces or avatars over and above these minimal capabilities, should be strongly justified.

exhibit purposive, adaptive, biased behaviors, and social learning – often leading to counter-intuitive behaviors at different levels of the simulation.⁴⁵⁶⁷

Additionally, DARPA anticipates that simulations may incorporate complex interactions among agents of systems that lead to learning, communication, group formation, and different responses to different perceived conditions such as resource scarcity or threats. Such interactivity might be instantiated via system dynamics simulations, agent-based models, or combinations thereof, but should presumably provide richness in time, space, and behavioral domains to allow for complex interactions among agents or subsystems.

Proposals: TA1 proposals should include clear, credible, and (where appropriate) quantitative descriptions that include (but need not be limited to) the following:

- Simulation type(s), platforms, requirements, and software proposed, including means of encoding and reporting first principles that form the causal rules and mechanisms that will lead to:
 - Anticipated observable, socially plausible behavior;
 - Types and volume of simulation output to be made available (e.g. visualizations, state descriptions, number of simulation runs, other datasets);
 - Types and level of TA2-simulation interaction(s) to be instantiated (e.g., agent queries from menu, free-form, collective queries, limited experimentation).
- Anticipated/recommended data output formats;
- Principled approaches and mechanisms for increasing complexity within a simulation or across simulations, and whether increases are anticipated to be continuous or discrete;
- Nominated complexity measures for quantifying, comparing simulation complexity;
- Proposed mechanisms, level of control, and workflows for providing Predict and Prescribe Tests for TA2 teams;
- Nominated simulation and scoring metrics for TA2 teams for Explain, Predict, Prescribe Tests;
- Proposed methods for making some or all of the simulations and outputs available to a wider research community during open challenges;
- Identification of specific risks to the proposed simulation approaches and credible mitigation plans, including preventing and/or identifying efforts to “game” the simulations by TA2 or wider research community during open challenges;
- Additional information necessary to understand and evaluate the innovation of the approach(es) being proposed.

4 E.g., Lysenko, Mikola and D'Souza, Roshan M. (2008). 'A Framework for Megascale Agent Based Model Simulations on Graphics Processing Units'. *Journal of Artificial Societies and Social Simulation* 11(4)10. GIScience. 2016.

5 Jin, Xiongbing, et al. "MIRACLE: A prototype cloud-based reproducible data analysis and visualization platform for outputs of agent-based models."

6 Ozik, Jonathan, et al. "From desktop to large-scale model exploration with Swift/T." *Proceedings of the 2016 Winter Simulation Conference*. IEEE Press, 2016.

7 Taylor, Simon JE, et al. "A tutorial on cloud computing for agent-based modeling & simulation with repast." *Proceedings of the 2014 Winter Simulation Conference*. IEEE Press, 2014; https://repast.github.io/repast_hpc.html

Performance Metrics: TA1 performers may elect to develop a single simulation approach that accommodates the varying complexity required across the three Challenges (see below) or develop multiple simulations that collectively provide the required range of complexity. TA1 performers will be assessed according to the following simulation capabilities, listed in order of importance:

- *Verifiable ground truth* – Ability to return known causal ground truth at multiple scales, over time, to include agent and system states, dynamics, and properties, in order to quantitatively test TA2 modeling methods’ accuracy and robustness for causal inference;
- *Simulation Accessibility for researchers* – Capabilities to provide simulation interfaces and simulated datasets that can accommodate and test a reasonably wide range of social science modeling methods including highly qualitative (interviews, surveys, etc.), highly quantitative (regression, time-series analyses, etc.), as well as combinations thereof (mixed methods) ⁸; The simulation should be accessible to at least 50% of TA2 methods at each Challenge;
- *Simulation Flexibility* – The degree to which the simulation complexity can be modified, and in what ways, e.g., by increasing dimensionality, dynamism, interactions, different sources of uncertainty; quantified by changes in e.g., entropy, agent graph connectivity, or parameter uncertainty and variability. The complexity of systems and agent/structure behaviors should be managed and manipulated in a principled manner. Simulations should also be able to accommodate perturbations for conducting the Predict/Prescribe tests described in Section I.D above. The simulation should allow for changes in >30% of rules, variables, agent interactions, sources of uncertainty;
- *Social plausibility* – Ability to grow simulations that are internally consistent, and do not require external interventions by TA1 teams to keep simulations running or to prevent simulation states from leading to total randomness or complete homogeneity.

Nominate Simulation Metrics: Proposers⁹ should nominate metrics for evaluating their simulations in terms of these requirements and include how their approaches will address each of the metrics within their proposal. In coordination with the T&E effort, TA1 teams should aim to quantify and compare simulation accessibility, flexibility, and plausibility using existing and novel metrics tailored to the space.

Anticipated/recommended data output formats: In order to facilitate efficient interaction among the GT performers, TA1 teams will be required to ensure that the output of their simulations conform to a common data model. Details of the data model will depend on the types of simulations proposed by selected TA1 teams and will be determined via collaboration between the TA1 and T&E teams. DARPA anticipates that TA1 teams will use a common format such as YAML or XML and require such information as simulation initial conditions, causal

⁸ For one example typology of different social science research methods, see <http://eprints.ncrm.ac.uk/115/1/NCRMResearchMethodsTypology.pdf>

⁹ 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, grants, cooperative agreements, or Other Transactions. “Subawardee” refers to anyone who might receive a subaward from a prime awardee (e.g., subawardee, consultant, etc.).

rules and processes, and complete state descriptions for each time step. TA1 proposals may nominate specific common data model formats.

Nominate Complexity Metrics: TA1 proposals should nominate candidate metrics for quantifying their simulation complexity, in part, to compare the complexity of their early and later Challenge simulations, as well as to assist with comparing simulation complexity across TA1 performers.

Tests: Teams should describe proposed mechanisms, level of control, and workflows for providing Explain, Predict and Prescribe Tests for TA2 teams. Each Challenge period will see three tests provided to TA2 teams.

- Test 1: “Explain” – TA1 teams should be able to provide TA2 teams with reasonable system observations, datasets, and abilities for limited interaction with various components of the simulation.
- Test 2: “Predict” – TA1 teams will define simulated “impactful” event relevant to the specific simulation platform and parameters. Events will be defined in coordination with DARPA and T&E and will be announced in advance to TA2 teams for their predictive modeling.
- Test 3: “Prescribe” – TA2 teams will work closely with T&E and TA1 teams to formalize their simulation prescriptions, and TA1 teams will then manipulate those parameters and report on the resulting simulation states.

Nominate TA2 Scoring Metrics: DARPA will assess TA2 teams’ modeling methods in terms of their accuracy, robustness, and efficiency across the various Challenge Tests (see section I.D for more information). TA1 proposals should nominate potential metrics that may be most appropriate given their specific simulation approach for evaluating TA2 teams.

Open Challenges: Teams should describe proposed methods for making some or all of the simulations and outputs available to a wider research community during open challenges. Coinciding with the GT test and evaluation periods, DARPA currently expects to make the TA1 simulations open for a wider research community. These Open Challenges will give DARPA the opportunity to assess any solutions submitted from researchers outside of the GT Program. Given the ambitious nature of the GT schedule and technical goals, DARPA does not expect TA1 teams to focus on non-GT solution providers. However, TA1 proposals should provide credible mechanisms and plans for easily making simulations open to non-GT solution providers. Reasonable approaches that increase the likelihood of enabling DARPA, T&E, and TA1 teams to be responsive to non-GT solution providers - without increasing schedule or technical risk for GT goals and performers – will have a higher likelihood of receiving funding.

Human Subject Research Excluded: GT seeks to test social science modeling methods using TA1 simulations with known causal ground truth. Since including actual human participants as sources of data for the simulations would necessarily reduce known ground truth by introducing causal uncertainty that cannot be fully mitigated, DARPA anticipates that TA1 simulation approaches will not involve human subject research (HSR). Proposals that seek to include HSR

should clearly identify where and when such HSR might be necessary, why non-HSR alternatives would be insufficient, and strongly justify the proposed inclusion of HSR.

Publication of Research: Note that while DARPA anticipates that all research conducted for GT will be fundamental, unclassified research and therefore encourages performers to publish and/or distribute deliverables and results, given GT goals, TA1 teams may be expected to maintain some control during the program period over source code, platforms, generative principles, rules, etc.

Out of Scope: Simulations that are already widely available may be easily understood; therefore, while TA1 simulations should consider a balance of availability, speed, cost, and utility, easily acquired simulations may not be appropriate. Given GT goals, DARPA is also not looking to fund investments in standalone computational resources or sandboxes, so proposals seeking to develop large data storage facilities are also out of scope.

TA2: Methods

Successful TA2 teams will accomplish two major outcomes. First, they will provide solutions to the Explain/Predict/Prescribe Tests in TA1 simulations by utilizing a wide range of social science modeling methods. In so doing, they will quantify the accuracy and robustness of those methods for causal inference and prediction under conditions of different kinds of social complexity. TA2 teams will therefore provide DARPA with a sophisticated understanding of when, why, how, and to what degree different modeling methods succeed or fail under these conditions. Second, successful TA2 teams will demonstrate innovative approaches to forming agile, multi-disciplinary, “solution-oriented”¹⁰ modeling teams to address comprehensively and efficiently the various GT Tests they will face during the GT Challenge phases. Note that the GT schedule means TA2 teams may have only days or weeks to identify, create, and deploy modeling teams to develop solutions for specific Tests.

TA2 Proposals: TA2 proposals should include clear, credible, and (where appropriate) quantitative descriptions that include (but need not be limited to) the following:

- Approaches to testing modeling methods across the Explain, Predict, and Prescribe Tests;
- Proposed “solution-oriented” agile management and contracting plan for quickly forming teams and executing within the program timeline;
- Credible knowledge of a wide range of potentially GT-relevant modeling methods and expertise that teams could readily use;
- Hardware requirements for anticipated modeling methods;
- Data assumptions (e.g. scale, fidelity, frequency) required for anticipated methods with regard to TA1 simulation output;
- Examples of previous work on causal inference in social complexity;
- Nominated metrics and/or additional evaluation criteria for scoring TA2 methods’ accuracy, robustness, and efficiency;

¹⁰ E.g., Watts, D. (2017) “Should social science be more solution-oriented? *Nature Human Behaviour* 1 - doi:10.1038/s41562-016-0015

- Nominated measures for quantifying and comparing simulation complexity;
- Appropriate approaches and datasets for possible Initial Development modeling method demonstrations;
- Identification of specific risks to the proposed technical and management approaches and credible mitigation plans;
- Additional information necessary to understand and evaluate the innovation of the approach(es) being proposed.

Performance Metrics: TA2 will respond to the Challenge Tests described above in Section I.D, namely, providing their best solutions to Explain, Predict, and Prescribe various simulation states and behaviors. In collaboration with the T&E team, DARPA will assess TA2 performance according to the following criteria, listed below in order of importance:

- Accuracy: Teams recover at least 50% of causal processes in simulations for first explanatory Test; achieve statistical significance for predict/prescribe Tests
- Robustness: Teams ranked by average accuracy across simulations, capabilities to maintain accuracy under parameter variation and system stochasticity
- Efficiency: Teams ranked by computational efficiency, hardware requirements for methods

Nominate Potential Metrics: While the TA1 teams, T&E, and DARPA will know the principles and rules used to generate the behaviors seen in any given TA1 simulation, it is an open question whether recovering those known principles and rules can offer TA2 a complete description of complex interaction dynamics observed in a simulation. This may be particularly true for simulations that demonstrate dynamic and/or multilevel emergence of potentially new or unanticipated behaviors or properties. TA2 proposals therefore may propose additional metrics to help DARPA quantify the performance of TA2 methods. TA2 teams may also nominate potential measures for quantifying and comparing simulation complexity.

Solution-Oriented Agile Management Plan: Different TA1 simulations may require different modeling methods across the different Challenges and Tests, which could pose significant challenges to current approaches for supporting and conducting social science research. DARPA expects that successful TA2 teams will demonstrate “solution-oriented” approaches for quickly identifying, incorporating, and deploying a potentially wide range of social science modeling methods and expertise for any given Test. This focus on solutions may also mean that TA2 teams adopt and/or develop new modeling methods and approaches, targeted to specific complexity conditions and leveraging interactions across disciplines and TA2 teams. TA2 proposals should therefore identify how proposed approaches to GT agile management will provide new capabilities for solution-oriented social science modeling.

As TA1 simulations will not be known prior to Kickoff, TA2 proposals will have to estimate their approaches to providing teams and solutions for the Tests. For the purposes of their proposals, TA2 teams may assume at least 3 different TA1 simulations for each Challenge period, with datasets that may reach into gigabyte-scales. DARPA anticipates that these simulations and their data will be in formats that will be useful for TA2 teams, but TA2 teams

should not assume a specific Data Format. There may be additional data developed or collected by TA2 teams through their different research and modeling approaches, which DARPA cannot anticipate. To assist in evaluating proposals, therefore, DARPA anticipates that TA2 proposals will provide and justify Not To Exceed (NTE) costs that they believe to be realistic for each Phase, Challenge period, and Test. These costs should include potential sub-contracting costs, as well as anticipated incurred indirect costs.

DARPA anticipates that successful agile, solution-oriented TA2 teaming approaches will propose mechanisms for rapidly identifying and contracting with teams and expertise in response to TA1 simulation Tests. If selected for award, a TA2 team should expect to put in place a contracting mechanism for efficiently preparing a detailed cost estimate of the total amount required to develop and submit Test solutions, and obtaining the consent of the Contracting Officer for the placement of subcontracts. Successful TA2 teams will propose credible approaches to quickly providing detailed requests to the Contracting Officer, which DARPA anticipates will include:

- (1) A description of the supplies or services to be subcontracted;
- (2) Identification of the type of subcontract to be used;
- (3) Identification of the proposed subcontractor;
- (4) The subcontractor's current, complete, and accurate cost or pricing data;
- (5) The Subcontractor's Disclosure Statement or Certificate relating to Cost Accounting Standards for cost-reimbursement subcontracts;
- (6) A negotiation memorandum (if available) reflecting:
 - (a) The total amount of the subcontract and the principal cost elements of the subcontract price negotiations;
 - (b) The most significant considerations controlling establishment of initial or revised prices;
 - (c) The reason certified cost or pricing data were or were not required;
 - (d) The reasons for any significant difference between the Contractor's price objective and the price negotiated.

While specific modeling methods for GT Tests will be unknown during the BAA open period, TA2 proposals should nonetheless demonstrate credible knowledge of potential solution spaces by identifying candidate teammates, their relevant expertise, and a wide range of potentially relevant modeling methods. Depending on the specific simulation, DARPA anticipates that successful TA2 teams may provide solutions that leverage combinations of a wide range of quantitative and qualitative modeling methods, including potentially novel combinations thereof. Accordingly, TA2 proposals may also wish to recommend (or advise against) possible TA1 simulation output and data formats (see TA1 "Proposals" bullets, above). In this regard, TA2 proposers may wish to provide examples of previous modeling method work involving causal inference in complex social systems and behaviors. Further, to assist TA1 and T&E teams in designing simulation capabilities and scoring methods, TA2 performers selected for award may wish to propose limited early demonstrations or testing of modeling methods following GT kickoff. If so, TA2 proposals should identify the GT-relevant datasets and/or simulations they may use and provide credible evidence that they are able to use them for these purposes. Note that given the ambitious GT timelines, TA2 proposals should seriously consider the potential

schedule impacts and credibility of any work that may require Human Subject Research approval.

Challenges:

TA1 teams will develop principled approaches and mechanisms for increasing complexity within a simulation or across simulations, whether increases are anticipated to be continuous or discrete. Teams will develop and deploy their simulations with sufficiently interactive agents, behaviors, and systems to support the evaluation of diverse research methods, models, and tools across all phases of the program. Simulations will target socially plausible systems of varying complexity, corresponding to Challenges 1, 2, and 3 of the program:

- **Challenge 1:** *Simple systems.* These may be simulations with relatively few variables, little dynamism, low uncertainty, and are potentially amenable to near-complete mathematical description.
- **Challenge 2:** *Disorganized complex systems.* These are simulations with many variables, increasing dynamism, increasing uncertainty, and are potentially amenable to probabilistic and statistical methods.
- **Challenge 3:** *Organized complex systems.* These are simulations that may include many interacting variables, high uncertainty, reflexivity, nonlinearity, multi-scale interactions, bifurcations and phase changes, adaptive behavior, goal-driven and/or gaming and deceptive behavior, heterogeneity of subcomponents, and emergent properties.

Tests:

In each Challenge, TA2 teams will address three Tests (note that TA2 teams may use different modeling methods for each Test):

- **Test 1- Explain:** *What is causing the observed behaviors?* TA2 teams will use modeling methods to determine causal processes generating the observed states and behaviors in TA1 simulations.
- **Test 2 - Predict:** *What behaviors will come next?* Based on a pre-announced “impactful event” that TA1 teams will instantiate in their simulation(s), TA2 teams will use their modeling methods to predict future states of the simulation at multiple time points and scales.
- **Test 3 – Prescribe:** *Which parameters lead to different system states?* TA2 teams will use modeling methods to recommend specific ways to influence a given simulation towards a desired state (universal cooperation, reduction of resource hoarding, etc.), and TA1 will instantiate those recommendations in their simulations to evaluate TA2 teams’ prescriptive accuracy.

Following the establishment of TA2 teams, there will be some time where the simulations and simulated datasets are only available to those teams while they develop and test their solutions for evaluation against simulation ground truth. However, after this period, DARPA intends to make the simulations and simulation data publicly available to allow for open responses to each of the Tests – inviting a wider community to participate and explore their modeling capabilities, as well as to serve as a further baseline against which to compare TA2 results.

Throughout the program, TA1 and TA2 performers will interact with the T&E team, and TA1 and TA2 teams should anticipate these interactions in their proposed costs, schedules, and deliverables. The T&E team will comprise subject matter experts from Government, Federally Funded Research and Development Centers (FFRDCs), and/or academia and domain experts. T&E will score the TA2 performance in inferring causality and predicting/prescribing system states in the increasingly complex Challenges. The T&E team will also assess and test the TA1 teams' simulations for suitability to the Challenge according to negotiated metrics. T&E will work with TA1 and TA2 teams to develop a Common Data Format to ensure interoperability of simulations and modeling methods; will lead development of simulation complexity metrics; help shape requirements for minimal size, span, or scale of TA1 simulations; verify TA2 accessibility requirements for simulations; assist with Open Challenge development and deployment; and will work closely with the TA1 and TA2 teams to develop preliminary candidate measures of simulation and real-world computational equivalence.

F. Schedule/Milestones

Proposals to either TA must address the full program timeline. 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. A target start date of December 2017 may be assumed for planning purposes.

All GT performers should expect to attend a kickoff meeting in the Washington, D.C. area. DARPA expects all performers to attend Principal Investigator (PI) Meetings every 6 months, as shown in Figure 2. The purposes of the PI Meetings are to (i) provide the Program Manager and other GT performers with updates on progress towards milestones and goals; (ii) summarize outstanding technical challenges; (iii) support test and evaluation; and (iv) provide Government and potential transition partners with opportunities to provide input, comments, and suggestions for the GT program and its performers. For budgeting purposes, proposers should assume a two-day kickoff meeting, while PI meetings will require three days and will alternate between Washington, D.C., and a west coast location. Regular teleconference meetings will be scheduled with the Government team for progress reporting as well as problems identification and mitigation. Proposers should also anticipate at least one site visit every 6 months by the DARPA Program Manager during which they will have the opportunity to demonstrate progress towards agreed-upon milestones. Additional anticipated programmatic events are included in Tables 1 and 2, below.

	rapid team formation • Early demonstrations of methods as justified	efficiency of each method for each Test on TA1 simple systems simulations	efficiency of each method for each Test on TA1 disorganized complex systems simulations	on TA1 organized complex systems simulations
T&E	• Evaluate accessibility of TA1 simulations to TA2 methods • Develop common data model with TA1 and TA2 collaboration • Establish metrics for evaluating TA1 and TA2 performers	• Assess complexity, flexibility, plausibility of TA1 simulation • Evaluate performance of TA2 methods on TA1 simulations • Recommend appropriate increase in simulation complexity	• Assess complexity, flexibility, plausibility of TA1 simulation • Evaluate performance of TA2 methods on TA1 simulations • Recommend appropriate increase in simulation complexity	• Assess complexity, flexibility, plausibility of TA1 simulation • Evaluate performance of TA2 methods on TA1 simulations • Establish metrics for computational equivalence of simulations and real-world behavior

Table 2: Program events by month

Months after Award	Event	Description
Initial Development		
1	Program Kickoff	<ul style="list-style-type: none"> • TA1 and TA2 teams present technical approach and work plan • T&E team provides test and evaluation plan, candidate metrics
6	PI meetings	<ul style="list-style-type: none"> • All teams: review technical progress
6	Initial Common Data Model Complete	<ul style="list-style-type: none"> • T&E presents initial common data model • TA1 and TA2 begin integration with data model
6	Establish metrics	<ul style="list-style-type: none"> • T&E establishes metrics for TA1 and TA2 performers
8	Simulation Assessment	<ul style="list-style-type: none"> • T&E evaluates TA1 simulations for accessibility to TA2 methods, appropriate complexity
8	Data Model Conformity Assessment	<ul style="list-style-type: none"> • T&E evaluates TA1 and TA2 conformity to data model
Challenge 1		
9	Explain Test	<ul style="list-style-type: none"> • TA1 makes simulation and data available to TA2 • TA2 determines appropriate methods, gathers appropriate team members; begins analysis

Months after Award	Event	Description
11	Open Simulations	<ul style="list-style-type: none"> • TA1 teams make simulations open for wider research community to propose Explain solutions
12	Explain Evaluation	<ul style="list-style-type: none"> • T&E evaluates TA2 results for accuracy, efficiency
12	PI meeting	<ul style="list-style-type: none"> • All teams: review technical progress
12	Predict Test	<ul style="list-style-type: none"> • T&E and TA1 determine simulation parameter changes, provide to TA2 • TA2 determines appropriate methods, gathers appropriate team members; begins analysis
14	Open Simulations	<ul style="list-style-type: none"> • TA1 teams make simulations open for wider research community to propose Predict solutions
15	Predict Evaluation	<ul style="list-style-type: none"> • T&E evaluates TA2 results for accuracy, robustness, computational performance; evaluates TA1 simulation flexibility for Challenge 2
15	Prescribe test	<ul style="list-style-type: none"> • T&E and TA1 determine desired simulation behavior/state; provides to TA2 • TA2 determines appropriate methods, gathers appropriate team members; begins analysis
17	Open Simulations	<ul style="list-style-type: none"> • TA1 teams make simulations open for wider research community to propose Prescribe solutions
18	Prescribe Evaluation	<ul style="list-style-type: none"> • T&E evaluates TA2 results for accuracy, robustness, computational performance; evaluates TA1 simulation accessibility for Challenge 2
18	PI meeting	<ul style="list-style-type: none"> • All teams: review technical progress
Challenge 2		
18	Explain Test	<ul style="list-style-type: none"> • TA1 provides simulation data to TA2 • TA2 determines appropriate methods, gathers appropriate team members; begins analysis
19	Open Simulations	<ul style="list-style-type: none"> • TA1 teams make simulations open for wider research community to propose Explain solutions
20	Evaluation	<ul style="list-style-type: none"> • T&E evaluates TA2 results for accuracy, computational performance
20	Predict Test	<ul style="list-style-type: none"> • T&E and TA1 determine simulation parameter changes, provide to TA2 • TA2 determines appropriate methods, gathers appropriate team members; begins analysis
21	Open Simulations	<ul style="list-style-type: none"> • TA1 teams make simulations open for wider research community to propose Predict solutions
22	Evaluation	<ul style="list-style-type: none"> • T&E evaluates TA2 results for accuracy, robustness, computational performance; evaluates TA1 simulation flexibility for Challenge 3

Months after Award	Event	Description
22	Prescribe test	<ul style="list-style-type: none"> • T&E and TA1 determine desired simulation behavior/state; provides to TA2 • TA2 determines appropriate methods, gathers appropriate team members; begins analysis
23	Open Simulations	<ul style="list-style-type: none"> • TA1 teams make simulations open for wider research community to propose Predict solutions
24	Evaluation	<ul style="list-style-type: none"> • T&E evaluates TA2 results for accuracy, robustness, computational performance; evaluates TA1 simulation accessibility for Challenge 3, social plausibility, real-world computational equivalence
24	PI meetings	<ul style="list-style-type: none"> • All teams: review technical progress
Challenge 3		
24	Explain Test	<ul style="list-style-type: none"> • TA1 provides simulation data to TA2 • TA2 determines appropriate methods, gathers appropriate team members; begins analysis
25	Open Simulations	<ul style="list-style-type: none"> • TA1 teams make simulations open for wider research community to propose Explain solutions
26	Evaluation	<ul style="list-style-type: none"> • T&E evaluates TA2 results for accuracy, computational performance
26	Predict Test	<ul style="list-style-type: none"> • T&E and TA1 determine simulation parameter changes, provide to TA2 • TA2 determines appropriate methods, gathers appropriate team members; begins analysis
27	Open Simulations	<ul style="list-style-type: none"> • TA1 teams make simulations open for wider research community to propose Predict solutions
28	Evaluation	<ul style="list-style-type: none"> • T&E evaluates TA2 results for accuracy, robustness, computational performance
28	Prescribe test	<ul style="list-style-type: none"> • T&E and TA1 determine desired simulation behavior/state; provides to TA2 • TA2 determines appropriate methods, gathers appropriate team members; begins analysis
29	Open Simulations	<ul style="list-style-type: none"> • TA1 teams make simulations open for wider research community to propose Prescribe solutions
30	Evaluation	<ul style="list-style-type: none"> • T&E evaluates TA2 results for accuracy, robustness, computational performance; evaluates TA1 simulation social plausibility, real-world computational equivalence
30	PI Meeting: Review and Program Closeout	<ul style="list-style-type: none"> • Performers (including T&E) present review of experimental results and process capture to DARPA and transition partners

G. Deliverables

DARPA expects performers to provide at a minimum 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 SOW and performance on any relevant Tests.
- A phase completion report submitted within 30 days of the end of each phase, summarizing the research done and anticipated plans for the upcoming phase.
- Other negotiated deliverables specific to the objectives of the individual efforts. These may include:
 - For TA1: simulation parameter settings, outputs for each Test, procedures for deterministically reproducing simulation output;
 - For TA2: model parameter settings, results for each Test, procedures for deterministically reproducing model output
 - For both: publications, intermediate and final versions of software libraries, code, and APIs, including documentation and user manuals, and/or a comprehensive assemblage of design documents, data and results.
- Reporting as outlined in Section VI.C.

H. Other Program Objectives and Considerations

1. Collaboration

DARPA expects all performers to work collaboratively as appropriate 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 within the overall program structure. Furthermore, throughout development of program technologies, it will be necessary for all performers to share relevant information regarding their technology development to support the larger program goals. For example, TA2 performers will need access to the datasets developed by the TA1 performers, while T&E will require access to TA2 modeling methods and results to evaluate accuracy. All proposals must clearly describe plans for interfacing and integrating their proposed technologies/approaches with other performers. *Proposals that fail to include interface and integration plans will be deemed non-conforming and removed from consideration for award.*

DARPA expects GT performers to collaborate closely with the T&E Team, so proposals must include plans for delivering all necessary software, data, and domain knowledge to the T&E Team.

2. Intellectual Property

As discussed above, there is an emphasis on creating and leveraging open source technologies and architectures, making data sharing and collaboration key aspects of this program. Therefore, intellectual property rights asserted by proposers are strongly encouraged to be aligned with open source regimes. See Section VI.B.4 for more information related to intellectual property.

3. Data Management Plan (DMP)

This BAA requires a Data Management Plan (DMP) be included as part of the proposal submission. DARPA/DSO's view of what constitutes the scope of applicable data products to be covered in a DMP is quite broad, potentially encompassing all digital activity related to a project. DARPA's approach to an effective and practical DMP is predicated with two goals:

First, data are increasingly the key products of research and engineering endeavors. To ensure the reproducibility of results and the accessibility of program accomplishments to future users, we require proposers document the necessary and sufficient scope of data that may be applicable to these goals. Performers will be expected to document both the proprietary and non-proprietary products of the program (including raw unprocessed data, rarified data sets, test data, software source code and executables, build scripts, process sequence, programmatic communication and other collaboration activities, as well as other data) to ensure the retention and potential reusability of this information.

Second, when possible, DARPA may also 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) to the extent permitted by applicable law and regulations (e.g., privacy, security, rights in data, and export control). The complete scope of program-generated data described above may go considerably beyond the scope of data to be made public. Hence, DARPA expects that as part of a DMP proposers will delineate their specific data products that are suitable for public release and how they intend to capture and represent this information. In this way, it is DARPA's intention to enable reproducibility of results and establish (or contribute to) digital collections that can advance this and other scientific fields. Note that this provision is not meant to require disclosure of otherwise proprietary internal component or process intellectual property, but to ensure all performers can meet the overall program objectives.

An intended outcome of GT is to identify and quantify the limitations of simulations in terms of complexity, and of methods and models in terms of their ability to explain, predict, and prescribe simulation output. DARPA anticipates that data collection, processing, curation, sharing, and preservation will be critical in achieving this outcome. As such, proposals submitted without a DMP will be deemed non-conforming¹¹ and will not be reviewed. Note that the DMP does not count against the page-limit for Volume 1.

A DMP should include enough detail to ensure that the data products delivered to DARPA (or made public) are adequate for use by an independent third party, both for further exploratory research as well as for reproducibility and verification of the scientific results. For example, proposed DMPs should address the following:

For TA1 proposers specifically:

- Estimates for the format and volume (bytes) of simulation output;
- Plans for persisting simulations and simulation output and making them accessible to TA2 and T&E teams; and
- Procedures for reproducing simulation runs and states.

For TA2 proposers specifically:

¹¹ "Conforming" is defined as having been submitted in accordance with the requirements outlined herein.

- Estimates for the format and volume (bytes) of modeling output;
- Plans for curating model outputs and making them accessible to the TA1 and T&E teams for evaluation and incorporation; and
- Procedures for reproducing model outputs.

All proposers:

- Plans for data capture and sharing, including the extent and specific mechanisms to be used during the period of performance for the program;
- Any data management standards, including meta-data standards, and/or community best practices that may apply;
- Description of the hosting environment(s) for sharing digital research data with user communities;
- Plans for data persistence, accountability, and preservation management beyond the program;
- Anticipated costs required beyond the period of performance for digital asset data management, information sustainability, curation and archiving;
- Any data management standards, including meta-data standards, and/or community best practices that may apply;
- A data inventory, with rough estimates of data kinds and assets; formats; sizes (e.g., KB, MB, GB, TB), etc. Kinds of data might include workflow capture, data sets and analyses, decisions and meta-data, bibliographies and citations informing technical work, etc.
- Anticipated current or future data quality issues;
- How the DMP enhances validation of social science modeling methods;
- How the DMP may support future scientific discoveries and engineering innovation;
- Methods for addressing and protecting sensitive data;
- Anticipated current or future data quality issues;
- How the DMP enhances validation and reproducibility of results;
- How the DMP may support future scientific discoveries and engineering innovation;
- Which elements of the DMP constitute deliverables as part of the program execution plan; and
- Proposer's access to (and proposed use of) institutional, organizational, or scientific community repositories and archives.

With this approach to DMPs, performers are only asked to explicitly document program data, how much there will be and how they intend to manage it as they execute the program. As this is effort that is required to execute the program, DARPA does not expect the existence of a DMP to produce additional cost burden on performers for data management requirements during or after the period of performance.

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 whose proposals are determined to be the most advantageous to the Government, all evaluation factors and the availability of funding 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 to 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);
- 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 additional information in a timely manner.

Proposals identified for negotiation may result in a procurement contract, grant, 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 www.darpa.mil/work-with-us/contract-management#OtherTransactions.

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 BAA, the Government expects that program goals as described herein may be met by proposers intending to perform fundamental research and does not anticipate applying publication restrictions of any kind to individual awards for fundamental research that may result from this BAA. Notwithstanding this statement of expectation, the Government is not prohibited from considering and selecting research proposals that, while perhaps not qualifying as fundamental research under the foregoing definition, still meet the BAA criteria for submissions. If proposals are selected for award that offer other than a fundamental research solution, the Government will either work with the proposer to modify the proposed statement of work to bring the research back into line with fundamental research or else the proposer will agree to restrictions in order to receive an award.

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. Appropriate clauses will be included in resultant awards for non-fundamental research to prescribe publication requirements and other restrictions, as appropriate. This clause can be found at 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 restricted research, their subawardee’s effort may be fundamental research. In those cases, it is the awardee’s responsibility to explain in their proposal why its subawardee’s effort is fundamental research.

III. Eligibility Information

A. Eligible Applicants

All responsible sources capable of satisfying the Government's needs may submit a proposal 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 BAA 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 citing

the specific authority establishing their eligibility to propose to Government solicitations and compete with industry, and their compliance with the associated FFRDC sponsor agreement's terms and conditions. This information is required 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. 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. Foreign Participation

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. For classified submissions, this includes mitigating any Foreign Ownership Control and Influence (FOCI) issues prior to transmitting the submission to DARPA. Additional information on these subjects can be found at http://www.dss.mil/isp/foci/foci_faqs.html.

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 BAA. 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 BAA 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.

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).

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

D. Other Eligibility Requirements

1. Ability to Receive Awards in Multiple Technical Areas - Conflicts of Interest

While proposers may submit proposals for both Technical Areas, a proposer selected for one

Technical Area cannot be selected for the other, whether as a prime proposer, subawardee, or in any other capacity from an organizational to individual level. This is to avoid OCI situations between the Technical Areas and to ensure objective test and evaluation results. The decision as to which proposal to consider for award is at the discretion of the Government.

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 Ground Truth 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 Ground Truth BAA as defined above may be deemed non-conforming¹² 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 Federal Business Opportunities website (<http://www.fbo.gov>), the Grants.gov website (<http://www.grants.gov/>), or referenced herein.

B. Content and Form of Application Submission

1. Abstract Information

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

¹² "Conforming" is defined as having been submitted in accordance with the requirements outlined herein.

- What is the proposed work attempting to accomplish or do?
- How is it done today, 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?

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 two weeks. These official notifications will be sent via email to the Technical POC and/or Administrative POC identified on the abstract coversheet.

a. Abstract Format

All pages shall be formatted for printing on 8-1/2 by 11-inch paper with 1-inch margins and font size not smaller than 12 point. Font sizes of 8 or 10 point may be used for figures, tables, and charts. Document files must be in .pdf, .odx, .doc, .docx, .xls, or .xlsx formats. Submissions must be written in English. The Abstract Summary slide described herein must be in .ppt or .pptx format and should be attached as a separate file to this document.

To assist in abstract development, various templates have been provided along with the BAA posted at <http://www.fbo.gov/>. Attachment 1 is for the Abstract Summary Slide and Attachment 2 is an Abstract Template. Use of these templates is mandatory.

Abstracts shall not exceed a maximum of 4 pages.

Page limit includes:	Page limit does NOT include:
All figures, tables, charts	Official transmittal letter (optional)
Technical Papers	Cover Sheet
Resumes	Table of Contents
References	Bibliography (Optional)
	Abstract Summary Slide

Abstracts must include the following components:

- i. Cover Sheet:** Provide the following information:
 - (1) Label: “Abstract”

- (2) BAA number (HR001117S0031)
- (3) Technical Area
- (4) Abstract title
- (5) Lead organization name
- (6) Technical point of contact (POC) including name, mailing address, telephone, and email address
- (7) Administrative POC including name, mailing address, telephone number, and email address
- (8) Estimated total cost
- (9) Estimated period of performance
- (10) Primary subawardees (if known/applicable)
- (11) Identify any other solicitation(s) to which this concept has been proposed

ii. Abstract Summary Slide: Using the slide template provided as Attachment 1 to the BAA, provide a summary in PowerPoint that effectively and succinctly conveys the main objective, key innovations, expected impact, and other unique aspects of the proposed project. Include the PowerPoint slide as a separate attachment to this document.

iii. Goals and Impact: Answer the eight questions of the Heilmeier Catechism listed below. Limit responses to 500 words per question and be as quantitative as possible.

- What are you trying to do? Articulate your objectives using absolutely no jargon.
- What is the problem? Why is it hard?
- How is it done today, and what are the limits of current practice?
- What's new in your approach and why do you think it will be successful?
- Who cares? If you're successful, what difference will it make? What impact will success have?
- What are the risks and the payoffs? How will it be measured?
- How much will it cost? How long will it take?
- What are the midterm and final "exams" to check for success? How will progress be measured?

iv. Technical Plan: Outline and address technical challenges inherent in the approach and possible solutions for overcoming potential problems. Provide appropriate specific milestones (quantitative, if possible) at intermediate stages of the project to demonstrate progress.

v. Capabilities/Management Plan: Provide a brief summary of expertise of the team, including subcontractors and key personnel. Teaming arrangements do not need to be finalized at the time of abstract submission; however, mention of potential teaming/collaboration arrangements is encouraged. Identify a principal investigator for the project and include a description of the team's organization including roles and responsibilities. Describe any existing intellectual property required to complete the project, and any specialized facilities to be used as part of the project. List Government-furnished materials or data assumed to be available.

vi. Cost and Schedule: Provide a cost estimate for resources (e.g., labor, materials) and any subcontractors over the proposed timeline of the project, broken down by Government fiscal year.

vii. Bibliography (Optional): If desired, include a brief bibliography (maximum 2 pages) with *links* to relevant papers, reports, or resumes of key team members.

2. Full Proposal Information

Proposals consist of Volume 1: Technical and Management Volume, Volume 2: Cost Volume, and Volume 3: Administrative and National Policy Requirements).

To assist in proposal development, various templates have been provided along with the BAA posted at <http://www.fbo.gov/>. Attachment 3 is for the proposal summary slides (introductory section of the Technical Volume), Attachment 4 is for the Technical and Management Volume, Attachment 5 is for the Cost Volume, and Attachment 6 is for the Administrative and National Policy Requirements Volume. Use of these templates is mandatory.

All proposal pages (Volumes 1-3) shall be formatted for printing on 8-1/2 by 11-inch paper with 1-inch margins, single-line spacing, and a font size not smaller than 12 point. Font sizes of 8 or 10 point may only be used for figures, tables, and charts. Document files must be in .pdf, .odx, .doc, .docx, .xls, or .xlsx formats. The proposal summary slides (Attachment 3) described herein must be in .ppt or .pptx format and should be attached as a separate file to this document. Submissions must be written in English.

Proposers are encouraged to submit concise, but descriptive, proposals. Specific examples of problems, approaches, or goals are preferred to qualitative generalities. The Government will not consider pages in excess of the page count limitations, as described herein. Proposals with fewer than the maximum number of pages will not be penalized. Additional information not explicitly called for in the Technical and Management Volume must not be submitted with the proposal, but may be included as links in the bibliography. Such materials will be considered for the reviewers' convenience only and not evaluated as part of the proposal.

Proposals not meeting the format prescribed herein may not be reviewed.

a. Volume 1: Technical and Management Proposal

Volume 1 shall not exceed a maximum of 30 pages.

Page limit includes:	Page limit does NOT include:
Technical figures, tables, charts	Official transmittal letter (optional)
Technical Papers	Cover Sheet
Resumes	Table of Contents
References	Bibliography (optional)
	Proposal Summary Slides

Volume 1 must include the following components:

i. Cover Sheet: Include the following information.

- (1) Label: "Proposal: Volume 1"
- (2) BAA number (HR001117S0031)
- (3) Technical Area
- (4) Proposal title
- (5) Proposer's reference number, if any
- (6) Lead organization (prime proposer) name
- (7) Type of organization, selected from the following categories: Large Business, Small Disadvantaged Business, Other Small Business, Historically Black Colleges and Universities (HBCU), Minority Institution (MI), Other Educational, or Other Nonprofit
- (8) Technical point of contact (POC) including name, mailing address, telephone, and email address
- (9) Administrative POC including name, mailing address, telephone number, and email address
- (10) Total proposed cost separated by base award and any proposed option(s)
- (11) Award instrument requested: procurement contract (specify type), grant, cooperative agreement or OT.
- (12) Place(s) and period(s) of performance
- (13) List all other team members (subawardees and consultants), including Technical POC name, organization and organization type
- (14) Date proposal was prepared
- (15) Proposal validity period

ii. Official Transmittal Letter

iii. Table of Contents

iv. Executive Summary: Provide a synopsis of the proposed project, including answers to the following questions:

- What is the proposed work attempting to accomplish or do?
- How is it done today, and what are the limitations?
- Who or what will be affected and what will be the impact if the work is successful?
- How much will it cost, and how long will it take?

The summary should include a description of the key technical challenges, a concise review of the technologies proposed to overcome these challenges and achieve the project's goal, and a clear statement of the novelty and uniqueness of the proposed work.

Proposal Summary Slides: Using the slide template provided as Attachment 3 to

the BAA, provide a summary in PowerPoint that effectively and succinctly conveys the main objective, key innovations, expected impact, and other unique aspects of the proposed project. Include the PowerPoint slide as a separate attachment to this document.

v. Goals and Impact: Describe what the proposed team is trying to achieve and the difference it will make (qualitatively and quantitatively) if successful. Describe the innovative aspects of the project in the context of existing capabilities and approaches, clearly delineating the uniqueness and benefits of this project in the context of the state of the art, alternative approaches, and other projects from the past and present. Describe how the proposed project is revolutionary and how it significantly rises above the current state of the art.

Describe the deliverables associated with the proposed project and any plans to commercialize the technology, transition it to a customer, or further the work. Discuss the mitigation of any issues related to sustainment of the technology over its entire lifecycle, assuming the technology transition plan is successful.

vi. Technical Plan: Outline and address technical challenges inherent in the approach and possible solutions for overcoming potential problems. Demonstrate a deep understanding of the technical challenges and present a credible (even if risky) plan to achieve the project's goal. Discuss mitigation of technical risk. Provide appropriate measurable milestones (quantitative if possible) at intermediate stages of the project to demonstrate progress, and a plan for achieving the milestones. List Government-furnished materials or data assumed to be available.

vii. Management Plan: Provide a summary of expertise of the proposed team, including any subawardees/consultants and key personnel who will be executing the work. Identify a principal investigator (PI) for the project. Provide a clear description of the team's organization including an organization chart that illustrates, as applicable, the relationship of team members; unique capabilities of team members; task responsibilities of team members; teaming strategy among the team members; and key personnel with the amount of effort to be expended by each person during the project. Provide a detailed plan for coordination including explicit guidelines for interaction among collaborators/subawardees of the proposed project. Include risk management approaches. Describe any formal teaming agreements that are required to execute this project.

viii. Personnel, Qualifications, and Commitments: List key personnel (no more than one page per person), showing a concise summary of their qualifications, discussion of previous accomplishments, and work in this or closely related research areas. Indicate the level of effort in terms of hours to be expended by each person during each contract year and other (current and proposed) major sources of support for them and/or commitments of their efforts. DARPA expects all key personnel associated with a proposal to make substantial time commitment to the proposed activity and the proposal will be evaluated accordingly. It is DARPA's intention to

put key personnel conditions into the awards, so proposers should not propose personnel that are not anticipated to execute the work.

ix. Capabilities: Describe organizational experience in relevant subject area(s), existing intellectual property, or specialized facilities. Discuss any work in closely related research areas and previous accomplishments. Identify other Government solicitation(s) to which this concept has been proposed. If applicable, state whether funding or a positive funding decision has already been received, and from which agency.

x. Statement of Work (SOW): Provide a detailed task breakdown by Government fiscal year (GFY), citing specific tasks and their connection to the interim milestones and metrics, as applicable. Do not include proprietary information. For each defined task/subtask, provide:

- A general description of the objective.
- A detailed description of the approach to be taken to accomplish each defined task/subtask.
- Identification of any tasks/subtasks that will involve human subjects or animals.
- Identification of any tasks/subtasks that will be performed on campus at a university.
- Identification (by name) of the primary organization (prime contractor, subawardee(s), consultant(s)) responsible for task/subtask execution.
- A measurable milestone (e.g., a deliverable, demonstration, or other event/activity that marks task completion).
- A definition of all deliverables (e.g., data, reports, software) to be provided to the Government in support of the proposed tasks/subtasks.]

xi. Schedule and Milestones: Provide a detailed schedule showing tasks (task name, duration, work breakdown structure element as applicable, performing organization), milestones, and the interrelationships among tasks. The task structure must be consistent with that in the SOW. Measurable milestones should be clearly articulated and defined in time relative to the start of the project.

xii. Cost Summary: Provide the cost summary as described in Section IV.B.2.b.ii.(1).

xiv. Bibliography: If desired, include a brief bibliography (maximum 2 pages) with links to relevant papers, reports, or resumes. Do not include technical papers. This section is optional, and the linked materials will not be evaluated as part of the proposal review.

b. Volume 2 - Cost Proposal

This volume is mandatory and must include all the listed components. No page limit is specified for this volume.

The cost proposal should include a spreadsheet file (.xls or equivalent format) that addresses the applicable cost information requested below and provides formula traceability among all components of the cost proposal. The spreadsheet file must be included as a separate file in the full proposal package. Costs must be traceable between the prime proposer and all subawardees/consultants, as well as between the cost proposal and the SOW. This includes ensuring a consistent task structure across all proposal documents. Cost information must be provided in sufficient detail to substantiate the proposed prices.

i. Cover Sheet:

- (1) Label: "Proposal: Volume 2"
- (2) BAA number (HR001117S0031)
- (3) Technical Area
- (4) Proposal title
- (5) Proposer's reference number, if applicable
- (6) Lead organization (prime proposer) name
- (7) Type of organization, selected from the following categories: Large Business, Small Disadvantaged Business, Other Small Business, HBCU, MI, Other Educational, or Other Nonprofit
- (8) Technical point of contact (POC) including name, mailing address, telephone, and email address
- (9) Administrative POC including name, mailing address, telephone number, and email address
- (10) Total proposed cost separated by base award and any proposed option(s)
- (11) Award instrument requested: procurement contract (specify type), grant, cooperative agreement, other transaction
- (12) Place(s) and period(s) of performance
- (13) List all other team member(s) (subawardees and consultants), if applicable; for each, provide the Technical POC name and organization
- (14) Data Universal Numbering System (DUNS) number¹³
- (15) Taxpayer identification number (TIN)¹⁴
- (16) Commercial and Government Entity (CAGE) code¹⁵
- (17) Name, address, and telephone number of the proposer's cognizant Defense Contract Management Agency (DCMA) administration office¹⁶ or Office of Naval Research (ONR) administration office¹⁷, if known
- (18) Name, address, and telephone number of the proposer's cognizant Defense Contract Audit Agency (DCAA) audit office¹⁸, if known
- (19) Date proposal was prepared

¹³ The DUNS number is the Government's contractor identification code for all procurement-related activities. Go to <http://fedgov.dnb.com/webform/index.jsp> to request a DUNS number (may take at least one business day).

¹⁴ See <http://www.irs.gov/businesses/small/international/article/0,,id=96696.00.html> for information on requesting a TIN. NOTE: requests may take from 1 business day to 1 month depending on the method (online, fax, mail).

¹⁵ A CAGE Code identifies companies doing or wishing to do business with the Federal Government. See Section VI.B.2 for further information.

¹⁶ <https://pubapp.dcmil/CASD/CasdSearch.do>.

¹⁷ <http://www.onr.navy.mil/Contracts-Grants/Regional-Contacts.aspx>.

¹⁸ http://www.dcaa.mil/FAQs_Contractor.pdf.

(20) Proposal validity period

ii. Cost Summaries

(1) Cost Summary by Year: Provide total effort cost by Government Fiscal Year (GFY) broken down by major cost items to include: labor costs, materials, travel, consultants, subawards, other direct charges (ODCs), indirect costs (overhead, fringe, general and administrative (G&A)), and any proposed fee for the project.

(2) Cost Summary by Task: Provide a summary of total effort costs by task.

(3) Cost Summary by Month: Provide a summary of projected funding requirements by month.

iii. Cost Details: Provide the following cost details broken down by phase, month, and Government Fiscal Year (GFY) Include supporting documentation describing the method used to estimate costs.

(1) Direct Labor: Provide individual labor categories or persons, with associated labor hours and direct labor rates.

(2) Indirect Costs: Identify all indirect cost rates (Fringe Benefits, Overhead, G&A, Facilities Cost of Money, etc.) and the basis for each.

(3) Materials: Provide an itemized list of all proposed materials including quantities, unit prices, proposed vendors (if known), and the basis of estimate (e.g., quotes, prior purchases, catalog price lists, etc.). Any item that exceeds \$5,000 must be supported with back-up documentation such as a copy of catalog price lists or quotes prior to purchase.

(4) Equipment Purchases: Provide an itemized list of all proposed equipment including quantities, unit prices, proposed vendors (if known) and the basis of estimate (e.g., quotes, prior purchases, catalog price lists, etc.). Any item that exceeds \$5,000 must be supported with back-up documentation such as a copy of catalog price lists or quotes prior to purchase. Include any requests for Government-furnished equipment or information with cost estimates and delivery dates.

(5) Travel: Provide the purpose of the trip, number of trips, number of days per trip, departure and arrival destinations, number of people, etc.

(6) ODCs: Provide an itemized breakdown with costs. Backup documentation must be submitted to support proposed costs. An explanation of any estimating factors, including their derivation and application, must be provided.

(7) Cost Sharing: Provide the source, nature, and amount of any industry cost-sharing.

(8) Consultant Costs: Provide a copy of all consultants' proposed SOWs as well as signed consultant agreements or other documents which verify the proposed loaded daily / hourly rate, hours and any other proposed consultant costs (e.g., travel).

(9) Subawardee Costs: Provide the information requested above in subsections (1)-(7) for each proposed subawardee. *All documentation must be prepared at the same level of detail as that required of the prime.* In addition, prime proposers must provide the following for all proposed subawardees, as applicable:

- A copy of the proposed SOW as well as any documents which verify the proposed loaded daily / hourly rate, hours and any other proposed costs (e.g., travel).
- interdivisional work transfer agreements or evidence of similar arrangements; and
- A cost or price reasonableness analysis of proposed subawardee prices as defined in FAR 15.404-3. Such analysis shall indicate the extent to which the prime proposer has negotiated subawardee prices.

The prime proposer is responsible for the compilation and submission of all non-proprietary subawardee cost proposals. Proposal submissions will not be considered complete until the Government has received all subawardee cost proposals.

Proprietary subawardee cost proposals may be included as part of Volume 2 or emailed separately (by the subawardee) to GroundTruth@darpa.mil. Email messages must include "Subawardee Cost Proposal" in the subject line and identify the principal investigator, prime proposer organization and proposal title in the body of the message.

iv. Rate Agreements: Provide any available approved rate information or other documentation that may assist in expediting negotiations (e.g., Forward Pricing Rate Agreement, Department of Health and Human Services (DHHS) or Office of Naval Research (ONR) rate agreements).

v. Proposals Requesting a Procurement Contract: Provide the following information where applicable. NOTE: this information is not required for grants, cooperative agreements or other transactions.

(1) Proposals for \$750,000 or more (inclusive of all options): If applicable per FAR 15.403-4, provide "certified cost or pricing data" (as defined in FAR 2.101). If applicable per FAR 52.230-2, provide a Cost Accounting Standards (CAS) Disclosure Statement as required by 48 CFR 9903.202. The disclosure forms may be found at http://www.whitehouse.gov/omb/procurement_casb.

(2) Proposals for \$700,000 or more (inclusive of all options): Applicable proposals that (1) include subawardees and (2) are not exempt per FAR 19.702(b) must include a subcontracting plan pursuant to Section 8(d) of the Small Business Act (15 U.S.C. § 637(d)) and FAR 19.702(a)(1). The plan format is outlined in FAR 19.704.

(3) Proposals for a cost-type contract: Proposers who do not have a cost accounting system that has been deemed adequate for determining accurate costs must provide the DCAA Pre-award Accounting System Adequacy Checklist in order to facilitate DCAA’s completion of Standard Form (SF) 1408. The checklist may be found at:

http://www.dcaa.mil/preaward_accounting_system_adequacy_checklist.html.

vi. Proposals Requesting an Other Transaction for Prototypes: Provide the following information where applicable.

(1) Proposers must indicate whether they qualify as a nontraditional Defense contractor,¹⁹ have teamed with a nontraditional Defense contractor, or are providing a one-third cost share for this effort. Provide information to support the claims.

(2) Provide a detailed list of milestones including: description, completion criteria, due date, and payment/funding schedule (to include, if cost share is proposed, contractor and Government share amounts). Milestones must relate directly to accomplishment of technical metrics as defined in the solicitation and/or the proposal. While agreement type (fixed price or expenditure based) will be subject to negotiation, the use of fixed price milestones with a payment/funding schedule is preferred. Proprietary information must not be included as part of the milestones.

c. Volume 3 - Administrative and National Policy Requirements

This volume is mandatory and must include ALL of the following components. If a particular subsection is not applicable, state “NONE” (i.e., do not delete the subsection or leave it blank). No page limit is specified for this volume.

i. Team Member Identification: Provide a list of all team members including the prime, subawardee(s), and consultant(s), as applicable. Identify specifically whether any are a non-US organization or individual, FFRDC and/or Government entity. Use the following format for this list:

Prime			
Individual Name:	Organization:	Non-U.S. Organization: <input type="checkbox"/> Yes	<input type="checkbox"/> No
		Non-U.S. Individual: <input type="checkbox"/> Yes	<input type="checkbox"/> No

¹⁹ For definitions and information on Other Transaction agreements see <http://www.darpa.mil/work-with-us/contract-management#OtherTransactions>.

		FFRDC: <input type="checkbox"/> Yes <input type="checkbox"/> No
		Government Entity: <input type="checkbox"/> Yes <input type="checkbox"/> No
Subawardees/Consultants		
Individual Name:	Organization:	Non-U.S. Organization: <input type="checkbox"/> Yes <input type="checkbox"/> No Non-U.S. Individual: <input type="checkbox"/> Yes <input type="checkbox"/> No FFRDC: <input type="checkbox"/> Yes <input type="checkbox"/> No Government Entity: <input type="checkbox"/> Yes <input type="checkbox"/> No
Individual Name:	Organization:	Non-U.S. Organization: <input type="checkbox"/> Yes <input type="checkbox"/> No Non-U.S. Individual: <input type="checkbox"/> Yes <input type="checkbox"/> No FFRDC: <input type="checkbox"/> Yes <input type="checkbox"/> No Government Entity: <input type="checkbox"/> Yes <input type="checkbox"/> No

ii. Government or FFRDC Team Member Proof of Eligibility to Propose: If any of the team member organizations are a Government entity or FFRDC, provide documentation (per Section III.A.1) citing the specific authority that establishes the applicable team member’s eligibility to propose to Government solicitations to include: (1) statutory authority; (2) contractual authority; (3) supporting regulatory guidance; and (4) evidence of agency approval for applicable team member participation.

iii. Government or FFRDC Team Member Statement of Unique Capability: If any of the team member organizations are a Government entity or FFRDC, provide a statement (per Section III.A.1) that demonstrates the work to be performed by the applicable team member is not otherwise available from the private sector.

iv. Organizational Conflict of Interest Affirmations and Disclosure: Per Section III. B, provide the following information for all team members. If not applicable, state “NONE.”

- Affirm whether SETA, A&AS, or similar support is being or was provided to any DARPA office(s) within one calendar year of this proposal submission by any team member (individual or organization).
 - If yes, provide the following information for each applicable team member:
 - 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.
- Identify any other potential OCI involving any of the proposed team members (individual or organization). For each instance, identify the applicable team member and provide an OCI mitigation plan in accordance with FAR 9.5.

v. Collaboration Plan:

As outlined in Section I.H.1, provide a detailed plan for collaboration with the T&E team.

vi. Data Management Plan (DMP):

As outlined and in accordance with Section I.H.3, provide a detailed plan for achieving reproducibility and interoperability such that an independent third party will be able to recreate the scientific results.

vii. Intellectual Property (IP): If no IP restrictions are intended, state “NONE.” The Government will assume unlimited rights to all IP not explicitly identified as restricted in the proposal.

For all technical data or computer software that will be delivered to the Government with other than unlimited rights, provide (per Section VI.B.4) a list describing all proprietary claims to results, prototypes, deliverables or systems supporting and/or necessary for the use of the research, results, prototypes and/or deliverables. Provide documentation proving ownership or possession of appropriate licensing rights to all patented inventions (or inventions for which a patent application has been filed) to be used for the proposed project. Use the following format for these lists:

NONCOMMERCIAL				
Technical Data and/or Computer Software To be Delivered With Restrictions	Summary of Intended Use in the Conduct of the Research	Basis for Assertion	Asserted Rights Category	Name of Person Asserting Restrictions

COMMERCIAL				
Technical Data and/or Computer Software To be Delivered With Restrictions	Summary of Intended Use in the Conduct of the Research	Basis for Assertion	Asserted Rights Category	Name of Person Asserting Restrictions

viii. Human Subjects Research (HSR):

GT seeks to test social science modeling methods using TA1 simulations with known causal ground truth. Since including actual human participants as sources of data for the simulations would necessarily introduce causal uncertainty that cannot be fully mitigated, DARPA anticipates that TA1 simulation approaches will not involve HSR. Proposals that seek to include HSR should clearly identify where and when such HSR might be necessary and appropriate, and strongly justify the proposed inclusion of HSR.

ix. Animal Use: If animal use is not a factor in the proposal, state “NONE.”

If the proposed research will involve animal use, provide a brief description of the plan

for Institutional Animal Care and Use Committee (IACUC) review and approval. For further information on this subject, see Section VI.B.3.

x. Representations Regarding Unpaid Delinquent Tax Liability or a Felony Conviction under Any Federal Law: Per Section VI.B.10, complete the following statements.

(a) The proposer represents that it is is not a corporation that has any unpaid Federal tax liability that has been assessed, for which all judicial and administrative remedies have been exhausted or have lapsed, and that is not being paid in a timely manner pursuant to an agreement with the authority responsible for collecting the tax liability.

(b) The proposer represents that it is is not a corporation that was convicted of a felony criminal violation under a Federal law within the preceding 24 months.

xi. Publication of Grant Awards: Provide a 1-page explanation of the proposed effort as outlined in Section VI.B.5.

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. See Section V.B.1 for additional information.

4. 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).

Security classification guidance and direction via a SCG and/or DD Form 254, “DoD Contract Security Classification Specification,” will not be provided at this time, since DARPA is soliciting ideas only. If a determination is made that the award instrument may result in access to classified information, a SCG and/or DD Form 254 will be issued by DARPA and attached as part of the award.

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 DUNS number or 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 GroundTruth@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--full proposal (Technical and Management Volume, Cost Volume, National and Administrative Requirements) and, as applicable, proprietary subawardee cost proposals, 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.*

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 with a copy to GroundTruth@darpa.mil. Questions regarding submission contents, format, deadlines, etc. should be emailed to GroundTruth@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 with a copy to GroundTruth@darpa.mil. Questions regarding submission contents, format, deadlines, etc. should be emailed to GroundTruth@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.

c. Proposals Requesting a Grant or Cooperative Agreement

Proposers requesting grants or cooperative agreements may only submit proposals through ONE of the following methods: (1) electronic upload at Grants.gov (DARPA-preferred); or (2) direct mail/hand-carry to DARPA.

i. Electronic Upload

DARPA encourages grant and 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.

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 are relevant to the national technology base. Specifically, DARPA's mission is to make pivotal early technology investments that create or prevent strategic surprise for U.S. National Security.

The proposed intellectual property restrictions (if any) will not significantly impact DARPA'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 BAA; 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 (FAPIIS)

Following the review and selection process described above, but prior to making an award above the simplified acquisition threshold (FAR 2.101), DARPA is required²⁰ to review and consider any information available through the designated integrity and performance system (currently FAPIIS). Selectees have the opportunity to comment on any information about themselves entered in the database. DARPA will consider any comments and other information in FAPIIS 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.

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. 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 www.onr.navy.mil/Contracts-Grants/submit-proposal/grants-proposal/grants-terms-conditions.aspx and the supplemental DARPA-specific

²⁰ Per 41 U.S.C. 2313, as implemented by FAR 9.103 and 2 CFR § 200.205.

terms and conditions at 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 BAA. See www.darpa.mil/work-with-us/additional-baa for further information.

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
- 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 www.sam.gov/. In addition, resultant procurement contracts will require supplementary DARPA-specific representations and certifications. See www.darpa.mil/work-with-us/additional-baa for further information.

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.

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

- **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 Section IV.B.2.c.

- **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 Section IV.B.2.c.

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 Section IV.B.2.c.

5. Human Subjects Research (HSR)/Animal Use

GT seeks to test social science modeling methods using TA1 simulations with known causal ground truth. Since including actual human participants as sources of data for the simulations would necessarily introduce causal uncertainty that cannot be fully mitigated, DARPA anticipates that TA1 simulation approaches will not involve HSR. Proposals that seek to include HSR should clearly identify where and when such HSR might be necessary and appropriate, and strongly justify the proposed inclusion of HSR.

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

6. Controlled Unclassified Information (CUI) on Non-DoD Information Systems

All proposers and awardees will be subject to the DARPA requirements related to Controlled Unclassified Information on Non-DoD Information Systems as detailed at www.darpa.mil/work-

[with-us/additional-baa.](#)

7. Electronic Invoicing and Payments

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

8. Electronic and Information Technology

All electronic and information technology acquired or created through this BAA must satisfy the accessibility requirements of Section 508 of the Rehabilitation Act (29 U.S.C. § 749d) and FAR 39.2.

9. Publication of Grant Awards

Per Section 8123 of the Department of Defense Appropriations Act, 2015 (Pub. L. 113-235), all grant awards must be posted on a public website in a searchable format. To comply with this requirement, proposers requesting grant awards must submit a maximum one (1) page abstract that may be publicly posted and explains the program or project to the public. The proposer should sign the bottom of the abstract confirming the information in the abstract is approved for public release. Proposers are advised to provide both a signed PDF copy, as well as an editable (e.g., Microsoft word) copy. Abstracts contained in grant proposals that are not selected for award will not be publicly posted.

C. Reporting

1. Technical and Financial Reports

The number and types of technical and financial reports required under the contracted project will be specified in the award document, and will include, as a minimum, monthly financial status reports and 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. Adam Russell, Program Manager, DARPA/DSO

- **BAA Email:** GroundTruth@darpa.mil
- **BAA Mailing Address:**
DARPA/DSO
ATTN: HR001117S0031
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. Frequently Asked Questions (FAQs)

Administrative, technical, and contractual questions should be emailed to GroundTruth@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 7 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.

B. Collaborative Efforts/Teaming

DARPA highly encourages teaming before proposal submission.

C. Proposers Day

The Ground Truth Proposers Day was held on April 20, 2017 via webcast. DARPA will post the presented materials to the DARPA/DSO Opportunities website (<http://www.darpa.mil/work-with-us/opportunities>). Viewing the Ground Truth Proposers Day webcast is voluntary and is not required to propose to this solicitation.