

Broad Agency Announcement

Living Foundries: Advanced Tools and Capabilities for Generalizable Platforms (ATCG)

Microsystems Technology Office (MTO)

DARPA-BAA-11-60

September 2, 2011

Table of Contents:

Part I: Overview	Information3
Part II: Full Text	of Announcement
Sec. I: FU	NDING OPPORTUNITY DESCRIPTION4
Sec. II: A	WARD INFORMATION12
Sec. III: E	LIGIBILITY INFORMATION
A.	Eligible Applicants
B.	Procurement Integrity, Standards of Conduct, Ethical Considerations, and Organizational Conflicts of Interest
C.	Cost Sharing/Matching
Sec. IV. A	APPLICATION AND SUBMISSION INFORMATION15
A.	Address to Request Application Package
B.	Security and Proprietary Issues
C.	Proposal Abstract and Full Proposal Submission Information
Sec. V. A	PPLICATION REVIEW INFORMATION26
A.	Evaluation Criteria
B.	Review and Selection Process
Sec. VI. A	WARD ADMINISTRATION INFORMATION
A.	Selection Notices
B.	Administrative and National Policy Requirements
C.	Reporting
D.	Electronic Systems
Sec. VII.	AGENCY CONTACTS
Sec. VIII.	OTHER INFORMATION
A.	Intellectual Property
B.	Non-Procurement Contract Proposers – Noncommercial and Commercial Items (Technical Data and Computer Software)
C.	All Proposers – Patents
D.	All Proposers – Intellectual Property Representations
_	

E. Other Transaction Agreements (OTAs)

NOTE: PROPOSERS ARE CAUTIONED THAT EVALUATION RATING MAY BE LOWERED AND/OR PROPOSALS REJECTED IF ALL PROPOSAL PREPARATION AND/OR SUBMITTAL INSTRUCTIONS LISTED HEREIN ARE NOT FOLLOWED.

THOSE INTENDING TO SUBMIT A PROPOSAL FOR AN ASSISTANCE INSTRUMENT (GRANT OR COOPERATIVE AGREEMENT) ARE STRONGLY ENCOURAGED TO READ THE INSTRUCTIONS PROVIDED AT SECTION IV(B)(4) REGARDING THE TIME REQUIRED TO RECEIVE VALIDATION OF SUBMISSIONS MADE THROUGH GRANTS.GOV. PROPOSALS THAT ARE VALIDATED AFTER THE PROPOSAL DUE DATE/TIME WILL BE CONSIDERED LATE AND, AS SUCH, WILL NOT BE CONSIDERED DURING THE INITIAL ROUND OF REVIEWS.

Part I: Overview Information

- Federal Agency Name Defense Advanced Research Projects Agency (DARPA), Microsystems Technology Office (MTO)
- **Funding Opportunity Title** Living Foundries: Advanced Tools and Capabilities for Generalizable Platforms (ATCG)
- Announcement Type Initial announcement
- Funding Opportunity Number Broad Agency Announcement (BAA) 11-60
- Catalog of Federal Domestic Assistance Numbers (CFDA) 12.910 Research and Technology Development
- Dates
 - Posting Date: September 2, 2011
 - o Industry Day Date: June 28, 2011 (DARPA-SN-11-44)
 - o Proposal Abstract Due Date: On or before 4:00 PM Eastern, September 26, 2011
 - o Proposal Due Date: On or before 4:00 PM Eastern, November 17, 2011
- Concise description of the funding opportunity –DARPA is soliciting innovative research proposals to develop new tools, technologies and methodologies to transform biology into an engineering practice, speeding the biological design-build-test cycle and expanding the complexity of systems that can be engineered. The goal is to enable the rapid development of previously unattainable technologies and products, leveraging biology to solve challenges associated with production of new materials, novel capabilities, fuel and medicines. For example, one motivating, widespread and currently intractable problem is that of corrosion/materials degradation-a challenge which costs the DoD nearly \$23 B/yr. Living Foundries, with its ability to truly program and engineer biology, may enable the capability to design and engineer systems to rapidly and dynamically prevent, seek out, identify and repair corrosion/materials degradation. Ultimately, in turning biology into an engineering endeavor, Living Foundries aims to enable on-demand production of new and high-value materials, devices and capabilities for the Department of Defense (DoD). This announcement, Living Foundries: ATCG, focuses on the development of the component, advanced tools and capabilities for rapidly engineering new biological systems. Example areas of interest include: design and automation tools, modular genetic parts and devices, standardized test platforms and chassis, tools for rapid physical construction, editing and manipulation of genetic designs, and new characterization and debugging tools for synthetic networks.
- Anticipated individual awards Multiple awards are anticipated.
- **Types of instruments that may be awarded** Procurement contract, grant, cooperative agreement or other transaction.
- Question and Answer Page <u>https://safe.sysplan.com/livingfoundries</u>
- Agency contact

Dr. Alicia Jackson, Program Manager DARPA/MTO ATTN: DARPA-BAA-11-60 3701 North Fairfax Drive Arlington, VA 22203-1714 The BAA Coordinator for this effort can be reached by electronic mail: DARPA-BAA-11-60@darpa.mil

Part II: Full Text of Announcement

I. <u>FUNDING OPPORTUNITY DESCRIPTION</u>

The Defense Advanced Research Projects Agency often selects its research efforts through the Broad Agency Announcement (BAA) process. The BAA will appear first on the FedBizOpps website, <u>http://www.fedbizopps.gov/</u>, and the Grants.gov website <u>http://www.grants.gov/</u>. The following information is for those wishing to respond to the BAA.

Introduction

As part of its Living Foundries Program, DARPA is soliciting innovative research proposals to develop new tools, technologies and methodologies to transform biology into an engineering practice, speeding the biological design-build-test cycle and expanding the complexity of systems that can be engineered. The goal is to enable the rapid development of previously unattainable technologies and products, leveraging biology to solve challenges associated with production of new materials, novel capabilities, fuel and medicines. For example, one motivating, widespread and currently intractable problem is that of corrosion/materials degradation. The DoD must operate in all environments, including some of the most corrosively aggressive on Earth, and do so with increasingly complex heterogeneous materials systems. This multifaceted and ubiquitous problem, which affects nearly all systems, costs the DoD nearly \$23 B/yr. Living Foundries, with its ability to truly program and engineer biology, may enable the capability to design and engineer systems to rapidly and dynamically prevent, seek out, identify and repair corrosion/materials degradation. In turning biology into an engineering endeavor, Living Foundries aims to enable on-demand production of new and high-value materials, devices and capabilities for the Department of Defense (DoD).

The Living Foundries' portfolio consists of a set of programs, of which this BAA is the first, whose ultimate goal is to harness the use of biology as a technology and drive its advance as a manufacturing platform. This announcement, Living Foundries: Advanced Tools and Capabilities for Generalizable Platforms (ATCG), calls for the development of the advanced, translatable tools and capabilities that will make up an end-to-end technology platform for rapidly, safely, and predictably engineering new biological systems. The goals of these advanced tools and capabilities are to accelerate the biological design-build-test cycle (the process of taking a new biological design from conception to execution) and to expand the complexity of designs that can be built. DARPA anticipates a second BAA comprised of challenge demonstrations necessitating the integration of these tools and capabilities into a platform to prove-out the Living Foundries goal of rapid biological design and engineering for the production of materials and new biological functionalities; for example, such a platform would may enable the rapid design and fabrication of systems to prevent, seek out, identify and repair corrosion/materials degradation for a variety of environments and materials, as well as be capable of the design and fabrication of additional systems for unrelated applications.

Accomplishing the vision of Living Foundries requires a program that is more than multidisciplinary – it requires a new engineering discipline built upon the integration of new ideas, approaches and tools from fields spanning computer science and electrical engineering to chemistry and the biological sciences, in order to overcome current limitations and to create revolutionary capabilities in our ability to engineer biology. Key to success will be opening up the biological design and manufacturing process to new researchers, allowing information to be readily shared, and establishing a design ethos founded on predictability and reproducibility.

Research proposed in the ATCG BAA should investigate innovative approaches that produce transformative advances in our ability to engineer biology. Specifically excluded is research that will primarily result in evolutionary improvements to the existing state of practice.

Background

Current approaches to engineering biology rely on an *ad hoc*, laborious, trial-and-error process, wherein one successful project often does not translate to enabling subsequent new designs. As a result, the state of the art development cycle for engineering a new biologically manufactured product often takes 7+ years and tens to hundreds of millions of dollars (*e.g.* microbial production of artemisinic acid for the treatment of malaria and the non-petroleum-based production 1,3-propanediol). The impact of current approaches is two-fold. First, the number of new entrants and innovators into the biomanufacturing space is immediately limited – few have the expertise, capital and/or time necessary to develop and engineer a new product. Second, combined with the complexity of biological systems, an *ad hoc* approach results in one-off efforts limited to modifying only a small set of genes and constructing simple, isolated genetic circuits and metabolic pathways. Consequently, while progress has been made, we are constrained to producing only a tiny fraction of the vast number of possible chemicals, materials, and functional systems that would be enabled by the ability to truly engineer biology. A new approach is needed.

This new approach is Living Foundries: develop and apply an engineering framework to biology that decouples biological design from fabrication, yields design rules and tools, and manages biological complexity through abstraction and standardization. One analogy is that Living Foundries aims to do for biological design what very-large-scale integration (VLSI) did for integrated circuits. Applying an engineering framework to biology will remove barriers to researchers outside the biological sciences, bringing diverse expertise and new methods to biological design. The best innovations will introduce new architectures and tools that will form the foundational technology for engineering biology.

The vision of Living Foundries is one where new and multiple cellular functions are readily constructed, combined, and controlled by an integrated genetic circuitry. The ultimate effect of which will be to open up the full space of biologically produced materials and systems. To achieve this, new tools, technologies and methodologies that directly address our current limitations and expand our capabilities must be developed. The outcome should be an open technology platform that integrates these tools and capabilities, allowing new designs to rapidly move from conception to execution.

Program Scope & Structure

DARPA is soliciting innovative research and development proposals for the Living Foundries: ATCG program that focus on the development of new tools, technologies and methodologies to compress the biological design-build-test cycle by at least 10x in both time and cost while increasing the complexity of systems that can be designed and executed by orders of magnitude. These advancements should enable the ability to rapidly design and build new systems to create novel capabilities and to address complex challenges that today have no or few solutions (*e.g.* corrosion).

Each proposal may address one or more areas of interest, examples of which are described below. If addressing more than one area within a single proposal, proposers must ensure that they are proposing one coherent vision, and demonstrate that each area is necessary and inseparable from the other(s) to achieve that vision. Disjointed efforts submitted under a single proposal will not be supported. Since the tools and capabilities required ultimately must be integrated and demonstrated with a proof-of-concept, proposals must also address how the need for future integration will inform the design and development of these individual tools/capabilities from their conception. Simultaneously developing multiple interrelated tools, technologies and/or methodologies in close concert is one (not the only) way to address this requirement. Successful proposals will consist of a multidisciplinary team with expertise both inside and outside of the biological sciences and will ensure a tight coupling between any proposed design tool development and experimental work. Again, DARPA is only interested in proposals that will result in transformative advances in our ability to engineer biology

The ATCG Program should not exceed 30 months. Proposals should be separated into two execution phases with the first phase (Phase I) expected to last no more than 12 months. Phase I may last up to 18 months only if the extra time is justified by the technical nature of the effort. Funding for a second phase is contingent on meeting the milestones proposed in Phase I. Phase I should focus on the development of new tools and capabilities and include a proof-of-concept to demonstrate utility to the Living Foundries' goals. The remainder of the effort should focus on refining the tools and capabilities to demonstrate appropriate robustness and the ability to translate across multiple platforms and systems in preparation for the Demonstration projects in the anticipated BAA #2 and their associated target applications. Note that work performed under the ATCG BAA should not be confined to one particular challenge demonstration or application (e.g. corrosion) that results in a one-off capability; tools and capabilities proposed should enable the ability to tackle a broad array of challenges. Each proposal should include a discussion of how the proposed tools/capabilities advance the vision of the Living Foundries program, a detailed evaluation of the state of the art for the respective tool, technology or methodology, a plan for the safe and responsible development of the proposed tools/capabilities, as well as quantitative performance and evaluation metrics.

Collaboration

Collaborative efforts/teaming are encouraged if the proposed tools/capabilities require a team to ensure successful execution. Any teams should be sized according to the scale of the technical effort proposed and expertise required. A teaming website has been established at https://safe.sysplan.com/livingfoundries/ to facilitate the formation of teaming arrangements

between interested parties. Specific content, communications, networking, and team formation are the sole responsibility of the proposer. Neither DARPA nor the Department of Defense (DoD) endorses the destination web site or the information and organizations contained therein, nor does DARPA or the DoD exercise any responsibility at the destination. This website is provided consistent with the stated purpose of this BAA.

Example Areas of Interest

Developing engineered biological solutions to the diverse challenges we face, such as corrosion, requires the rapid and predictable design and implementation of systems that can sense and respond to their environment, perform complex logic functions, synthesize materials *in situ*, signal, and exhibit a host of other engineered behaviors. The design and implementation of these functionalities today is extremely difficult. The state of the art biological design cycle consists of a highly coupled design and fabrication process that is lengthy, empirical, *ad hoc*, and constrained to producing simple designs and products. This cycle consists of (1) identifying and modifying potential genes, pathways and regulatory elements of interest from nature, (2) "designing" genetic networks and pathways, (3) synthesizing and assembling the corresponding DNA sequence, and (4) testing and optimizing the implemented design. From idea conception to final construct, the entire process takes 7+ years. To achieve the Living Foundries: ATCG goals of compressing the design-build-test cycle timeline by at least an order of magnitude and increasing the complexity of designs that we can build, new approaches, tools and capabilities are needed.

Listed below are several example areas of interest for developing new tools and capabilities. This list is not comprehensive and <u>additional/alternative areas of research and development are</u> <u>welcome</u> that will revolutionize the capability to rapidly and predictably engineer biology. If proposing additional/alternative areas of research, proposers should be explicit in detailing what problem they are addressing, why it is important to the goals of Living Foundries, and what the impact will be if successful.

(1) Design tools that span from high-level description to synthetic circuit modeling to automated fabrication in cells, *i.e.* interoperable tools and databases for design, modeling, and fabrication

Current software approaches to designing genetic systems rely on boutique, custom solutions produced by individual groups tailored to their specific methodologies and tools. This results in a myriad of design tools that are not readily adopted or combined with other software, preventing their widespread use and the subsequent democratization of the biological design or fabrication process. Furthermore, there is significant opportunity for automation of many wet-lab tasks, reducing variability between experiments and increasing the speed and throughput of constructing new designs. Challenges to developing a standardized, widespread suite of design/modeling/fabrication tools include: 1) core data models must include sufficient granularity of information to encompass the diverse needs of researchers, but retain enough abstraction to limit the computational performance needed, 2) tools must be interoperable *via* a

defined application programming interface (API) and 3) tools must both inform and be informed by experimental work and wet-lab methodologies to ensure their utility. To encourage interoperability, all applicable design tools and databases developed under the ATCG program should be compatible with Synthetic Biology Open Language (SBOL) core data model.

(2) Modular genetic parts, regulators, devices, and circuits (and the new methods to develop and refine these) that allow a combination of systems to be designed and reproducibly assembled increasing the efficiency, sophistication, and scale of possible designs. In particular, DARPA is looking to approaches that harness and take advantage of the networks of DNA, RNA and proteins that work in concert to give rise to biological function.

A key challenge is a lack of sufficient, robust sets of parts, regulators, devices and circuits to rapidly design new genetic systems of complexity beyond a few tens of genes, single circuits, or simple tweaking of existing pathways. Orthogonal biological parts, regulators and circuits with well-characterized function for a variety of host systems and conditions would make biological engineering more predictable and enable the construction and integration of more complex systems than are currently possible. Current approaches to parts development involve extensive mining and harvesting of naturally occurring genes, whose behavior is often not predictable outside their native context. Furthermore, existing genes/genetic parts, devices and circuits have not evolved or been designed with sufficient robustness for use with CAD tools, restricting the ability to decouple biological design from fabrication. New approaches that incorporate techniques such as directed evolution are needed to create new and refine existing modular genetic parts, regulators and circuits to expand the diversity of available building blocks applicable to an array of genetic regulatory mechanisms.

(3) Well understood test platforms, 'cell-like' systems, and chassis that readily integrate new genetic designs in a predictable fashion

Current challenges in predictably engineering new biological systems include unintended interactions and possible failure modes that result from complex cellular backgrounds interacting with engineered genetic networks. Genetic designs are typically inserted into a few well-known chassis (*e.g. E. coli, S. cerivisiae*) with largely only experiential expectations of how the genetic pathways will perform in the host. Proposals should address the technical challenges associated with implementing genetic designs into cell or cell-like systems in a predictable and robust fashion. The ultimate goal is to have platforms that are well understood and whose inner machinery will predictably interact with designed genetic networks thereby removing the significant time spent tackling unintended interactions from the design-build-test cycle.

(4) Rapid physical construction, editing and manipulation of genetic designs of up to genome scale complexity including: low cost, rapid DNA synthesis and assembly techniques that produce up to megabase pair lengths of DNA, facile modification and manipulation of genetic designs into a system/chassis, and designs engineered to readily translate between different systems/chassis

Engineering biology with useful complexity requires new approaches for synthesizing, assembling, and manipulating genetic designs rapidly, cheaply, and accurately. The goal is to shift the designers' mindset towards design and experimentation and facilitate more complex,

previously unattainable system designs and architectures. Unlike computer programming, where writing and producing variants of new code is essentially free, DNA synthesis and assembly (the writing of 'biological code') is expensive (0.40-0.80 per bp), slow (2wks-2mos turn time), error prone ($\sim 10^{-2}$ - 10^{-3}), and limited in length and complexity (<25kb). These limitations restrict biological designers to constructing conservative, evolutionary designs, with little room for multiple design refinements, variants or new ideas. Furthermore, the ability to facilely manipulate and integrate genetic code is restricted to only a handful of organisms, limiting the number of possible useful systems and products. The ability to synthesize, modify and test many new designs (up to the genome scale) with little overhead will help to inform and create the biological design rules and tools that are necessary for complex design.

(5) Routine system characterization and debugging of synthetic gene networks that feeds back and informs the design cycle

Current methods for testing new genetic designs revolve around fluorescence or mass spectrometry techniques and require the physical fabrication and incorporation of the complete genetic design into the host system to measure outcomes/final product(s) while producing only a limited amount of quantitative information on expression levels, interactions within the cell, and effect on cell state. Furthermore, the limited throughput of these techniques combined with their analytical limitations, hinder and even prevent large scale screening projects (e.g., for directed enzyme evolution), as the throughput of the assays make these projects unrealistic for many researchers. To enable increases in genetic design complexity, pathway debugging is needed to determine failure points – information that can be fed back to the designer and to design tools to inform re-design. Additionally, new analytical techniques are needed to accurately query the concentrations and interactions of mRNA, proteins, and metabolites within a biological system cheaply and quickly to understand how synthetic gene networks function and interact with the host system in non-specific ways outside of their intended purpose. Proposals in this area should not simply apply high-throughput, parallelization techniques to traditional mass spectrometry or fluorescence; rather they should provide new and enhanced techniques tailored to biological characterization and the needs of Living Foundries.

Program Metrics and Justification

Proposers should address the following questions in describing their proposal's vision and for each tool, technology, or methodology to be developed:

- (1) What is the end goal and how does this compare against the current state of the art? Include quantitative metrics.
- (2) Why is the specific tool/capability proposed important and what problem does it solve? Be quantitative.
- (3) What is the impact? Be quantitative. By how much will each tool/capability speed the biological design, build, test cycle and/or expand the complexity of designs that can be built?
- (4) What is the new technical idea behind the proposed tool/capability and why can it succeed now? Provide examples of recent scientific advances that will enable success.

- (5) How will each specific tool/capability be developed to ensure its ability to integrate with and support other tools/capabilities?
- (6) What is the proposed proof-of-concept to be demonstrated by the end of Phase I to demonstrate the utility of the proposed tools/capabilities to the Living Foundries goals?
- (7) Looking ahead to the challenge demonstrations in BAA #2 if successful, what specific new target applications will be possible that cannot be achieved today?

Furthermore, proposers should identify appropriate <u>quantitative</u> milestones that facilitate tracking of the research progress towards the overall phase and program goals. This includes quantitative performance criteria for each phase as well as intermediate goals and milestones. Proposers should also include a comparison against the state of the art. As an example, if proposing a new DNA synthesis and assembly technique, potential quantitative, end goal metrics/milestones might include: >100x cost reduction (<\$0.008/bp), 2 day turn time, >1Mbp length and error rates of 10^{-5} - 10^{-6} . This would result in being able to synthesize 10 small (10Mbp) genomes at a cost of only \$200K (as opposed to \$20M).

A successful proposal will thoroughly discuss all details for meeting the metrics set forth for the program as well as the associated risks and risk-mitigation strategies to meeting those metrics and related milestones. Proposers should provide detailed technical rationale supporting the ability to achieve each milestone and plan for the testing and evaluation of their tools, capabilities, and/or constructs at each milestone.

Bio-Safety and Security

Proposers must ensure and demonstrate throughout the program that all methods and demonstrations of capability comply with national guidance for manipulation of genes and organisms and follow all guidance for biological safety and biosecurity. Proposals should address any potential safety/security issues that the development of the proposed tools/capabilities might pose and include a discussion of approaches and strategies to manage, mitigate and monitor these risks during technology development. In addition, demonstrations and testbeds must meet any applicable regulations designed to protect human health and the environment promulgated by the Environmental Protection Agency, National Institutes of Health, or other relevant agencies of the federal government. Proposers must also comply with any state or municipal regulations or ordinances governing biotechnology practices.

Proposers should be sure to refer to the following documents:

1. Presidential Bioethics Commission Report on Synthetic Biology: (<u>http://www.bioethics.gov/documents/synthetic-biology/PCSBI-Synthetic-Biology-Report-12-16-10.pdf</u>)

2. NIH "Dual Use Research: A Dialogue" (a 7 minute video): http://oba.od.nih.gov/biosecurity/biosecurity.html 3. NIH Office of Biotechnology Assessment (OBA) "Does Your Research Have Dual Use Potential?" <u>http://oba.od.nih.gov/biosecurity/pdf/EducationalBrochureDualUseResearch.pdf</u>

4. National Science Advisory Board for Biosecurity (NSABB): "Addressing Biosecurity Concerns Related to Synthetic Biology"

http://oba.od.nih.gov/biosecurity/pdf/NSABB%20SynBio%20DRAFT%20Report-FINAL%20(2)_6-7-10.pdf

5. United States Department of Health and Human Services Guidance Document on Synthetic Biology and Synthetic dsDNA Research: (http://www.phe.gov/Preparedness/legal/guidance/syndna/Documents/syndna-guidance.pdf).

6. Coordinated Framework for the Regulation of Biotechnology: <u>http://usbiotechreg.nbii.gov/</u>

7. Biotechnology Program under the Toxic Substances Control Act (TSCA): <u>http://epa.gov/biotech_rule/pubs/biorule.htm</u>

8. International Treaty and on Prevention of Biological Weapons/ Biological Weapons Convention including all Appendices (1969-2008; http://www.state.gov/www/global/arms/treaties/bwc1.html)

Intellectual Property and Data Sharing

DARPA expects its investment in the tools and capabilities developed under the ATCG program to be multiplied many-fold by adoption and improvement by researchers across the US. In order to achieve this vision, the Living Foundries program aims to facilitate interoperability and open the field to new entrants. As such, all proposals should contain an intellectual property and data dissemination plan that strives to maximize these aims. For example, even in cases of preexisting IP, nonassertion covenants have successfully been used to enhance openness. Commitments to nonexclusive, nondiscriminatory licensing represent another mechanism for ensuring that IP does not prevent widespread dissemination of, and improvement upon, basic platform technologies. However, in cases where are strong reasons for maintaining or acquiring exclusive IP, justification and proof of compatibility and interoperability may be sufficient.

To facilitate interoperability, all applicable design tools and databases developed under the ATCG program should be compatible with Synthetic Biology Open Language (SBOL) core data model.

Remainder of This Page Intentionally Left Blank

II. AWARD INFORMATION

Multiple awards are anticipated. The amount of resources made available under this BAA will depend on the quality of the proposals received and the availability of funds.

The Government reserves the right to select for negotiation all, some, one, or none of the proposals received in response to this solicitation, and to make awards without discussions with proposers. The Government also reserves the right to conduct discussions if it is later determined to be necessary. If warranted, portions of resulting awards may be segregated into pre-priced options. Additionally, DARPA reserves the right to accept proposals in their entirety or to select only portions of proposals for award. In the event that DARPA desires to award only portions of a proposal, negotiations may be opened with that proposer. The Government reserves the right to fund proposals in phases with options for continued work at the end of one or more of the phases.

Awards under this BAA will be made to proposers on the basis of the evaluation criteria listed below (see section labeled "Application Review Information", Sec. V.), and program balance to provide overall value to the Government. Proposals identified for negotiation may result in a procurement contract, grant, cooperative agreement, or other transaction depending upon the nature of the work proposed, the required degree of interaction between parties, and other factors. The Government reserves the right to request any additional, necessary documentation once it makes the award instrument determination. Such additional information may include but is not limited to Representations and Certifications. The Government reserves the right to remove proposers from award consideration should the parties fail to reach agreement on award terms, conditions and cost/price within a reasonable time or the proposer fails to timely provide requested additional information.

As of the date of publication of this BAA, DARPA expects that program goals for this BAA may be met by proposers intending to perform 'fundamental research,' *i.e.*, basic or applied research performed on campus 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. Notwithstanding this statement of expectation, DARPA 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, then DARPA 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. See Section VI.B.4 for further information on fundamental, non-fundamental and restricted research. In all cases, the DARPA contracting officer shall have sole discretion to select award instrument type and to negotiate all instrument provisions with selectees.

III. <u>ELIGIBILITY INFORMATION</u>

A. Eligible Applicants

All responsible sources capable of satisfying the Government's needs may submit a proposal that shall be considered by DARPA. Historically Black Colleges and Universities (HBCUs), Small Businesses, Small Disadvantaged Businesses and Minority Institutions (MIs) are encouraged to submit proposals and join others in submitting proposals; however, no portion of this announcement will be set aside for these organizations' participation due to the impracticality of reserving discrete or severable areas of this research for exclusive competition among these entities.

Federally Funded Research and Development Centers (FFRDCs) and Government entities (Government/National laboratories, military educational institutions, etc.) are subject to applicable direct competition limitations and cannot propose to this BAA in any capacity unless they address the following conditions. FFRDCs must clearly demonstrate that the proposed work is not otherwise available from the private sector AND must also provide a letter on letterhead from their sponsoring organization citing the specific authority establishing their eligibility to propose to government solicitations and compete with industry, and compliance with the associated FFRDC sponsor agreement and terms and conditions. This information is required for FFRDCs proposing to be prime or subcontractors. 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 (as well as, where relevant, contractual authority) establishing their ability to propose to Government solicitations. 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 eligibility submissions on a case-by-case basis; however, the burden to prove eligibility for all team members rests solely with the Proposer.

B. Procurement Integrity, Standards of Conduct, Ethical Considerations, and Organizational Conflicts of Interest

Current federal employees are prohibited from participating in particular matters involving conflicting financial, employment, and representational interests (18 USC 203, 205, and 208). The DARPA Program Manager for this BAA is Dr. Alicia Jackson. Once the proposals have been received, and prior to the start of proposal evaluations, the Government will assess potential conflicts of interest and will promptly notify the Proposer if any appear to exist. (Please note, the Government assessment does NOT affect, offset, or mitigate the Proposer's own duty to give full notice and planned mitigation for all potential organizational conflicts, as discussed below.)

Without prior approval or a waiver from the DARPA Director, in accordance with FAR 9.503, a Contractor cannot simultaneously provide scientific, engineering, technical assistance (SETA) or

similar support and also be a technical performer. Therefore, all Proposers as well as proposed subcontractors and consultants must affirm whether they (their organizations and individual team members) are providing SETA or similar support to any DARPA technical office(s) through an active contract or subcontract. All affirmations must state which office(s) the Proposer, subcontractor, consultant, or individual supports and identify the prime contract number(s). Affirmations shall be furnished at the time of proposal submission. All facts relevant to the existence or potential existence of organizational conflicts of interest (FAR 9.5) must be disclosed. The disclosure must include a description of the action the Proposer has taken or proposes to take to avoid, neutralize, or mitigate such conflict. If in the sole opinion of the Government after full consideration of the circumstances, a proposal fails to fully disclose potential conflicts of interest and/or any identified conflict situation cannot be effectively mitigated, the proposal will be rejected without technical evaluation and withdrawn from further consideration for award.

If a prospective Proposer believes that any conflict of interest exists or may exist (whether organizational or otherwise) or has questions on what constitutes a conflict of interest, the Proposer should promptly raise the issue with DARPA by sending his/her contact information and a summary of the potential conflict by email to the BAA mailbox at <u>DARPA-BAA-11-60@darpa.mil</u> before time and effort are expended in preparing a proposal and mitigation plan.

C. Cost Sharing/Matching

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

Remainder of This Page Intentionally Left Blank

IV. APPLICATION AND SUBMISSION INFORMATION

A. Address to Request Application Package

This solicitation contains all information required to submit a proposal. No additional forms, kits, or other materials are needed. This notice constitutes the total BAA. No additional information is available, nor will a formal Request for Proposal (RFP) or additional solicitation regarding this announcement be issued. Requests for same will be disregarded.

B. Security and Proprietary Issues

<u>Security:</u> The Government anticipates proposals submitted under this BAA will be unclassified. No classified proposals will be accepted.

Proprietary Data: All proposals containing proprietary data should have the cover page and each page containing proprietary data clearly marked as containing proprietary data. It is the Proposer's responsibility to clearly define to the Government what is considered proprietary data.

It is the policy of DARPA to treat all proposals as competitive information, and to disclose their contents only for the purpose of evaluation. Proposals will not be returned. The original of each proposal received will be retained at DARPA and all other non-required copies destroyed. A certification of destruction may be requested, provided the formal request is received at this office within 5 days after unsuccessful notification.

C. Proposal Abstract and Full Proposal Submission Information

It is STRONGLY ENCOURAGED that a proposal abstract be submitted to determine the acceptability of the proposed concept to the BAA. This procedure is intended to minimize unnecessary effort in proposal preparation and review. Proposal Abstracts are due on or before 4:00 p.m., ET, September 26, 2011. Full proposals are due on or before 4:00 p.m., ET, November 17, 2011. Further information regarding abstract and full proposal submission dates and instructions is specified in Section IV. C.5.

DARPA will respond to abstracts with a statement as to whether DARPA is interested in the idea. DARPA will attempt to reply to abstracts *via* e-mail within thirty (30) calendar days of receipt. Should a proposer be discouraged from submitting a full proposal, the letter must contain feedback for the proposer regarding the rationale for the decision not to recommend a full proposal be submitted. Abstracts will be reviewed in the order they are received. Regardless of DARPA's response to an abstract, proposers may submit a full proposal. DARPA will review all full proposals submitted using the published evaluation criteria and without regard to any comments resulting from the review of an abstract.

Proposers are required to submit full proposals by the time and date specified in the BAA in order to be considered during the initial round of selections. DARPA may evaluate proposals received after this date for a period up to 180 days from date of posting on FedBizOpps and Grants.gov. Ability to review late submissions remains contingent on availability of funds. Proposals and abstracts may not be submitted by fax or e-mail; any so sent will be disregarded.

Proposal abstracts and full proposals not meeting the format described in the BAA may not be reviewed.

1. Proposal Abstract Format

Proposal abstracts should follow the same general format as described for Volume I under FULL PROPOSAL FORMAT (see below), but include ONLY Section I and Section II with significant focus on Parts A and B, key personnel, and program metrics and milestones in enough detail to provide a representative overview of the proposed effort. Note that no formal transmittal letter is required for proposal abstracts. The cover sheet should be clearly marked "PROPOSAL ABSTRACT" and the total length should not exceed 8 pages, excluding cover page and Summary PowerPoint slide.

2. Full Proposal Format

All full proposals must be in the format given below. Nonconforming proposals may be rejected without review. Proposals shall consist of two separate files, Volume I (Technical and Management Proposal) and Volume II (Cost Proposal). All pages shall be printed on single-spaced, 8-1/2 by 11 inch paper with the type not smaller than 12 point font. Smaller font may be used for figures, tables, and charts. Volume I, Technical Management Proposal, may include an attached bibliography of relevant technical papers or research notes (published and unpublished) which document the technical ideas and approach upon which the proposal is based. Intellectual Property/Patents Requirements and the bibliography are not included in the page counts. The submission of other supporting materials along with the proposals is strongly discouraged and will not be considered for review. Volume I shall not exceed 30 pages, excluding the bibliography, summary PowerPoint slide and Section I.

Volume I, Technical and Management Proposal

Section I, Administrative

COVER SHEET TO INCLUDE:

- A. Cover sheet to include:
 - (1) BAA number
 - (2) Technical area
 - (3) Lead organization submitting proposal
 - (4) Type of business, selected among the following categories: "LARGE BUSINESS", "SMALL DISADVANTAGED BUSINESS", "OTHER SMALL

BUSINESS", "HBCU", "MI", "OTHER EDUCATIONAL", OR "OTHER NONPROFIT"

- (5) Contractor's reference number (if any)
- (6) Other team members (if applicable) and type of business for each
- (7) Proposal title
- (8) Technical point of contact to include: salutation, last name, first name, street address, city, state, zip code, telephone, fax, electronic mail
- (9) Administrative point of contact to include: salutation, last name, first name, street address, city, state, zip code, telephone, fax, electronic mail
- (10) Total funds requested from DARPA, separated by Base Award and Options (if any), and the amount of cost share (if any); AND
- (11) Date proposal was submitted
- B. Official Signed Transmittal Letter. (Note: An official transmittal letter is not required when submitting a Proposal Abstract.)

Section II. Summary of Proposal

This section should clearly and concisely highlight and address the following:

- A. Innovative claims for the proposed research. This section should succinctly describe the uniqueness and benefits of the proposed approach relative to the current state-of-art alternate approaches. The following points should be specifically addressed:
 - (1) What is the end goal and how does this compare against the state of the art? Include quantitative metrics.
 - (2) What is the impact? Be quantitative. By how much will each tool/capability speed the biological design, build, test cycle and/or expand the complexity of designs that can be built?
 - (3) What is the new technical idea behind the proposed tool/capability and why can it succeed now? Provide examples of recent scientific advances that will enable success.
 - (4) What are the major technical risk elements?
 - (5) How will each specific tool/capability be developed to ensure its ability to integrate with and support other tools/capabilities?
 - (6) What is the proposed proof-of-concept to be demonstrated by the end of Phase I to demonstrate the utility of the proposed tools/capabilities to the Living Foundries goals?
 - (7) Looking ahead to the challenge demonstrations in BAA #2 if successful, what specific new target applications will be possible that cannot be achieved today?

- B. Strategy/description for how tools/capabilities will be disseminated and safely used by the community and ultimately, industry;
- C. Technical and Management Approach, including a discussion of how the program will be organized, key personnel and capabilities, and proposed teaming approach;
- D. Cost, schedule and measurable milestones for the proposed research, including estimates of cost for each task in each year of the effort delineated by the prime and subcontractors, total cost and cost share, if applicable. (Note: Measurable milestones should capture key development points in tasks and should be clearly articulated and defined in time relative to start of effort.);
- E. PowerPoint summary slides summarizing the program and effort; download and use the template provided with the subject BAA, Attachment 2. Submit the PowerPoint (or equivalent) file in addition to Volume I and Volume II of your full proposal.

Section III. Detailed Proposal Information

- A. Technical Rationale and Approach. This section is the centerpiece of the proposal and should succinctly describe the uniqueness and benefits of the proposed approach relative to the current state-of-art alternate approaches. A concise section, enhancing that of Section II, outlining the scientific and technical challenges, unique approaches, and potential anticipated technical solutions to the challenges that will be addressed. This section should demonstrate that the proposer has a clear understanding of the state of the art; and should provide sufficient technical details so as to permit complete evaluation of the feasibility of the idea.
- B. Program metrics and milestones. All program metrics must be associated with demonstrable, quantitative measures of performance and should be summarized in a single table. Proposals should clearly explain the technical approach(es) that will be employed to meet or exceed each defined metric and provide ample justification as to why the approach(es) is/are feasible. Additionally, comparison with other ongoing research shall be provided indicating advantages and disadvantages of the proposed effort.
- C. Program Plan & Risk Assessment. Detailed program plan and risk assessment enhancing that of Section II. Summary of Proposal. A narrative explaining the explicit timelines, milestone achievements, and quantitative program metrics (to include proposer defined metrics, if applicable) by which progress toward the goals can be evaluated. The proposed period of performance of the overall program, and each program stage, should be clearly stated. The narrative plan should include a test plan/approach detailing how all program metrics will be accurately measured. This section should also identify major technical risk elements specific to the proposed technical and management approach, estimate the risk magnitude for each such element, and describe specific plans to mitigate risks. All program metrics should be described/discussed in detail so government reviewers can assess risks associated with meeting them.
- D. Bio-safety/security. Proposals should address any potential bio-safety/security issues that the development of the proposed tools/capabilities might pose and include a discussion of approaches and strategies to manage, mitigate and monitor these risks during technology

development. Proposers should include a discussion of their proposed work in the use research of concern: context of the NSABB definition of dual (http://oba.od.nih.gov/biosecurity/nsabb_faq.html#NSABB_FAQ001). See NIH Office of Biotechnology Activities' (OBA's) "Does Your Research Have Dual Use Potential?" (http://oba.od.nih.gov/biosecurity/pdf/EducationalBrochureDualUseResearch.pdf). Will it meet this definition? How will the risks be assessed? And if it does meet this definition, how will the risks be mitigated (e.g., communication plan, etc)? If proposals do not address bio-safety/security issues, they should provide justification for their omission. (See Part II: Full Text of Announcement, Bio-Safety and Security, above, for further reference material)

- E. Teaming and Management Plan. A clearly defined organization chart for the program team which includes the programmatic relationship and a summary of each member's roles and responsibilities. Additionally, a narrative discussing (1) the proposers teaming strategy/rationale; (2) the specific roles and responsibilities of the team members; (3) the unique capabilities of the team members; and (4) the proposers team management approach. This section shall also include any formal teaming agreements which are required to execute this program.
- F. Statement of Work (SOW). Avoiding the overuse of technical jargon, succinctly and clearly define the technical tasks/subtasks to be performed, their durations, and dependencies among them. The page length for the SOW will be dependent on the amount of the effort. The SOW must not include proprietary information. For each task/subtask, provide:
 - a. A general description of the objective;
 - b. A detailed description of the approach to be taken to accomplish each defined task/activity);
 - c. Identification of the primary organization responsible for task execution (prime, sub, team member, by name, etc.);
 - d. The completion criteria for each task/activity a product, event or milestone that defines its completion;
 - e. Define all deliverables (reporting, data, reports, software, etc.) to be provided to the Government in support of the proposed research tasks/activities.
- G. Description of the results, products, transferable technology, and expected technology transition path/plan enhancing that of Section II. Summary of Proposal. See also Section VIII. "Intellectual Property."
- H. Capabilities. A section describing relevant prior work, the background, qualifications and relevant experience of team member organizations (prime and sub) and key individuals to be assigned to the program, and the facilities and equipment to be utilized. Please do not attach supporting material (CDs, movies, *etc.*) to the proposal, except as noted in Section IV. Additional Information below.
- I. Cost schedules and measurable milestones for the proposed research. Note: Measurable milestones should capture key development points in tasks and should be clearly articulated and defined in time relative to start of effort. Cost schedules should include:

- a. Estimates of cost for each task in each year of the effort delineated by the prime and subcontractors;
- b. Total cost;
- c. Any cost share
- J. Intellectual Property and Data Sharing. Include an intellectual property and data dissemination plan that strives to maximize the Living Foundries program aims to facilitate interoperability and open the field to new entrants. See also Section VIII. "Intellectual Property."

Section IV. Additional Information

A brief bibliography of relevant technical papers and research notes (published and unpublished) which document the technical ideas upon which the proposal is based. Copies of not more than three (3) relevant papers can be included in the submission.

Volume II, Cost Proposal – {No Page Limit}

Cover sheet to include:

- (1) BAA number;
- (2) Technical area;
- (3) Lead Organization submitting proposal;
- (4) Type of business, selected among the following categories: "LARGE BUSINESS", "SMALL DISADVANTAGED BUSINESS", "OTHER SMALL BUSINESS", "HBCU", "MI", "OTHER EDUCATIONAL", OR "OTHER NONPROFIT";
- (5) Contractor's reference number (if any);
- (6) Other team members (if applicable) and type of business for each;
- (7) Proposal title;
- (8) Technical point of contact to include: salutation, last name, first name, street address, city, state, zip code, telephone, fax (if available), electronic mail (if available);
- (9) Administrative point of contact to include: salutation, last name, first name, street address, city, state, zip code, telephone, fax (if available), and electronic mail (if available);
- (10) Award instrument requested: cost-plus-fixed-free (CPFF), cost-contract—no fee, cost sharing contract no fee, or other type of procurement contract (*specify*), grant, cooperative agreement, or other transaction;
- (11) Place(s) and period(s) of performance;
- (12) Total proposed cost separated by basic award and option(s) (if any);

- (13) Name, address, and telephone number of the proposer's cognizant Defense Contract Management Agency (DCMA) administration office (*if known*);
- (14) Name, address, and telephone number of the proposer's cognizant Defense Contract Audit Agency (DCAA) audit office (*if known*);
- (15) Date proposal was prepared;
- (16) DUNS number;
- (17) TIN number; and
- (18) Cage Code;
- (19) Subcontractor Information;
- (20) Proposal validity period; and
- (21) Any Forward Pricing Rate Agreement, other such approved rate information, or such documentation that may assist in expediting negotiations (if available).

The proposers, to include eligible FFRDCs, cost volume shall provide cost and pricing information (See Note 1), or other than cost or pricing information if the total price is under \$700,000, in sufficient detail to substantiate the program price proposed (*e.g.*, realism and reasonableness). In doing so, the proposer shall provide a summary cost breakdown and a detailed cost breakdown by Government fiscal year, phase (if multiple phases are proposed), by technical task/subtask, and by month for each technical area proposed.

See Attachment 1 for Cost Proposal Summary Checklist.

The breakdown shall include, at a minimum:

A. Total program cost broken down by major cost items

- Direct Labor a breakout clearly identifying the individual labor categories with associated labor hours and direct labor rates, as well as a detailed Basis of- Estimate (BOE) narrative description of the methods used to estimate labor costs;
- (2) Indirect Costs Including Fringe Benefits, Overhead, General and Administrative Expense, Cost of Money, Fee, etc. (must show base amount and rate);
- (3) **Travel** Provide the purpose of the trip, number of trips, number of days per trip, departure and arrival destinations, number of people, etc.;
- (4) **Other Direct Costs** Itemized with costs; Back-up documentation is to be submitted to support proposed costs;
- (5) **Material/Equipment** A priced Bill-of-Material (BOM) clearly identifying, for each item proposed, the quantity, unit price, the source of the unit price (i.e., vendor quote, engineering estimate, etc.), the type of property (i.e., material, equipment, special test equipment, information technology, etc.), and a cross-reference to the Statement of Work (SOW) task/s that require the item/s. At time of proposal submission, any item that exceeds \$5,000 must be supported with basis-of-estimate (BOE) documentation such as a copy of catalog price lists, vendor quotes or a written engineering estimate (additional

documentation may be required during negotiations, if selected). <u>If seeking a</u> procurement contract and items of Contractor Acquired Property are proposed, exclusive of material, the proposer shall clearly demonstrate that the inclusion of such items as Government Property is in keeping with the requirements of FAR Part 45.102.

- (6) Information Technology An itemization of any information technology (IT) purchase, as defined in FAR Part 2.101. This includes hardware & software.
- (7) **Consultants** If consultants are to be used, proposer must provide a copy of the consultant's proposed SOW as well as a signed consultant agreement or other document which verifies the proposed loaded daily / hourly rate and any other proposed consultant costs (e.g. travel);
- (8) Subcontracts Itemization of all subcontracts. Additionally, the prime contractor is responsible for compiling and providing, as part of its proposal submission to the Government, subcontractor proposals prepared at the same level of detail as that required by the prime. Subcontractor proposals include Interdivisional Work Transfer Agreements (ITWA) or similar arrangements. If seeking a procurement contract, the prime contractor shall provide a cost reasonableness analysis of proposed subcontractor cost/prices. Such analysis shall indicate the extent to which the prime contractor has negotiated subcontract cost/prices and whether any such subcontracts are to be placed on a sole-source basis. All proprietary subcontractor proposal documentation which cannot be uploaded to TFIMS or Grants.gov as part of the proposer's submission, shall be made immediately available to the Government, upon request, under separate cover (i.e., mail, electronic/email, etc.), either by the proposer or by the subcontractor organization – this does not relieve the proposer from the requirement to include, as part of their TFIMS submission, subcontract proposals that do not include proprietary pricing information (rates, factors, etc.);
- (9) **Cost-Sharing** The source, nature, and amount of any industry cost-sharing
- (10) Written justification required per Section VI(B)(4) pertaining to subcontracted effort being considered Contracted Fundamental Research.

Proposers are encouraged to provide the aforementioned cost breakdown as an editable MS Excel spreadsheet, inclusive of calculations formulae, with tabs (material, travel, ODC's) provided as necessary. The Government also requests and recommends that the Cost Proposal include MS Excel file(s) that provide traceability between the Bases of Estimate (BOEs) and the proposed costs across all elements and phases. This includes the calculations and adjustments that are utilized to generate the Summary Costs from the source labor hours, labor costs, material costs, etc. input data. It is requested that the costs and Subcontractor proposals be readily traceable to the Prime Cost Proposal in the provided MS Excel file(s); however, this is not a requirement.

Where the effort consists of multiple portions that could reasonably be partitioned for purposes of funding, these should be identified as options with separate cost estimates. NOTE: for IT and

equipment purchases, include a letter stating why the proposer cannot provide the requested resources from its own funding.

The cost proposal should include identification of pricing assumptions of which may require incorporation into the resulting award instrument (i.e., use of Government Furnished Property/Facilities/Information, access to Government Subject Matter Experts, etc.).

Note 1: "cost or pricing data" as defined in FAR Subpart 15.4 shall be required if the proposer is seeking a procurement contract award of \$700,000 or greater unless the proposer requests an exception from the requirement to submit cost or pricing data. "Cost or pricing data" are not required if the proposer proposes an award instrument other than a procurement contract (e.g., a grant, cooperative agreement, or other transaction.) Those proposing a grant or cooperative agreement may follow/use the application instructions/form templates (i.e., DARPA BAA Form Package) provided as part of the BAA posting to grants.gov; however, the costing details requested above should be provided to the maximum extent possible, as this will reduce the time needed to negotiate any resulting award instrument.

PLEASE NOTE, PROPOSERS ARE CAUTIONED THAT EVALUATION RATINGS MAY BE LOWERED AND/OR PROPOSALS REJECTED IF PROPOSAL PREPARATION (PROPOSAL FORMAT, CONTENT, ETC.) AND/OR SUBMITTAL INSTRUCTIONS ARE NOT FOLLOWED.

3. Other Submission Requirements

Cost Proposal Summary Checklist (Attachment 1) for Full Proposal submission.

4. Submission Dates and Times

a. Proposal Abstract Submission Date

Proposal abstracts must be submitted to via T-FIMS on or before 4:00 p.m. ET, September 26, 2011. Proposal abstracts received after this time and date may not be reviewed.

b. Full Proposal Submission Date

The full proposal must be submitted to DARPA/MTO, 3701 North Fairfax Drive, Arlington, VA 22203-1714 (Attn.: DARPA-BAA-11-60) on or before 4:00 p.m., ET, November 17, 2011 in order to be considered during the initial round of selections; however proposals received after this deadline may be received and evaluated up to 180 days from date of posting on FedBizOpps and Grants.gov. Ability to review late submissions remains contingent on availability of funds. Proposals may not be submitted by fax or e-mail; any so sent will be disregarded

DARPA will post a consolidated Question and Answer to the MTO solicitation webpage <u>http://www.darpa.mil/Opportunities/Solicitations/MTO Solicitations.aspx</u>. In order to allow the Government adequate time to provide a response to questions prior to the proposal due date,

proposers are encouraged to submit questions by no later than November 1, 2011 to <u>DARPA-BAA-11-60@darpa.mil</u>.

DARPA will acknowledge receipt of complete submissions via email and assign control numbers that should be used in all further correspondence regarding proposals.

Failure to comply with the submission procedures may result in the submission not being evaluated.

5. Submission Instructions

Proposal abstracts may only be submitted through T-FIMS. Depending on the type of award instrument, full proposals may be submitted through Grants.Gov, T-FIMS, or as Hard Copies/On CD-ROM. Grant or cooperative agreement full proposals may only be submitted to DARPA through Grants.gov or in hard-copy. Grant or cooperative agreement full proposals may not be submitted through any other means (including T-FIMS and other comparable systems). Full proposals seeking other than a grant or cooperative agreement must be submitted through T-FIMS.

All administrative correspondence and questions on this solicitation, including requests for information on how to submit an abstract or full proposal to this BAA, should be directed to DARPA-BAA-11-60@darpa.mil. DARPA intends to use electronic mail and fax for correspondence regarding DARPA-BAA-11-60. Proposals and abstracts may not be submitted by fax or e-mail; any so sent will be disregarded. DARPA encourages use of the Internet for retrieving the BAA and any other related information that may subsequently be provided.

Abstract Submissions:

Proposal abstracts may only be submitted through T-FIMS (no email, fax or hardcopy submissions are permitted). See <u>https://www.tfims.darpa.mil/baa/</u> for more information on how to request an account, upload abstracts, and use the T-FIMS tool

Upon review, DARPA will provide written feedback on the likelihood of a full proposal being selected and the time and date for submission of a full proposal, which may differ from the originally published date below.

Full Proposal Submissions:

For Proposers Requesting an Assistance Instrument:

Grant or cooperative agreement proposals may only be submitted to DARPA through Grants.gov (using the APPLY function) or in hard-copy. Grant or cooperative agreement full proposals may not be submitted through any other means (including T-FIMS and other comparable systems). If proposers intend to use Grants.gov as their means of submission, then they must submit their entire abstract/full proposal through Grants.gov; applications cannot be submitted in part to Grants.gov and in part as a hard-copy. Proposers using the Grants.gov APPLY do not submit paper abstracts/full proposals in addition to the Grants.gov APPLY electronic submission.

Proposers must complete the following steps in the order listed below before submitting abstracts/full proposals on Grants.gov (these steps are also detailed at www.grants.gov/applicants/get_registered.jsp):

- Proposers must obtain a DUNS number
- Proposers must register their organization in the Central Contractor Registration (CCR) https://www.bpn.gov/ccr/default.aspx)
- Proposers must register the Authorized Organization Representative (AOR) in Grants.gov
- Proposers must have the organization's E-BIZ point of contact authorize the AOR to submit applications.

Once Grants.gov has received an abstract/full proposal submission, Grants.gov will send two email messages to advise proposers as to whether or not their abstracts/full proposals have been validated or rejected by the system; IT MAY TAKE UP TO TWO DAYS TO RECEIVE THESE EMAILS. The first email will confirm receipt of the abstract/full proposal by the Grants.gov system; this email only confirms receipt, not acceptance. The second email will indicate that the application has been successfully validated by the system prior to transmission to the grantor agency or has been rejected due to errors. If the abstract/full proposal is validated, then the proposer has successfully submitted. If the abstract/full proposal is rejected, the proposer will have to resubmit. Once the abstract/full proposal is retrieved by DARPA, the proposer will receive a third email from Grants.gov. To avoid missing deadlines, proposers should submit their abstracts/full proposals in advance of the final abstract/full proposal due dates with sufficient time to receive confirmations and correct any errors in the submission process through Grants.gov. For more information on submitting proposals to Grants.gov, visit the Grants.gov submissions page at: http://grants.gov/applicants/apply_for_grants.jsp.

Proposers electing to submit grant or cooperative agreement abstracts/full proposals as hard copies must complete the SF 424 R&R form (Application for Federal Assistance, Research and Related) available the Grants.gov website: on http://www.grants.gov/agencies/aapproved standard forms.jsp#2. Attach the proposal (if submitting a full proposal please upload two separate documents, Volume I, Technical and Management Proposal and Volume II, the Cost Proposal) as attachments to the application package. No other Grants.gov forms are required. Please note that Grants.gov does not accept zipped or encrypted abstracts or full proposals. More detailed instructions for using Grants.gov can be found on the Grants.gov website.

Technical support for Grants.gov submissions may be reached at 1-800-518-4726 or support@grants.gov.

If submitting hard-copy, an original and (4) copies of the proposal and (4) electronic copies of the proposal on a CD-ROM shall be submitted to DARPA/MTO, 3701 North Fairfax Drive, Arlington, VA 22203-1714 (Attn: DARPA-BAA-11-60) no later than time and date specified in Section IV, Application and Submission Information

For Proposers Requesting a Contract or Other Transaction Agreement:

Full proposals sent in response to DARPA-BAA-11-60 unless seeking a grant or cooperative agreement must be submitted through T-FIMS. See <u>https://www.tfims.darpa.mil/baa/</u> for more information on how to request an account, upload abstracts and full proposals, and use the T-FIMS tool. Because proposers using T-FIMS may encounter heavy traffic on the web server, and T-FIMS requires a registration and certificate installation for all proposers, proposers should not wait until the day the abstract/full proposal is due to create an account in T-FIMS and submit the abstract/full proposal. All proposers using T-FIMS must also encrypt the proposal, as per the instructions below.

All abstracts and full proposals submitted through T-FIMS must be encrypted using WinZip or PKZip with 256-bit AES encryption. Only one zipped/encrypted file will be accepted per abstract/ full proposal and abstracts//full proposals not zipped/encrypted will be rejected by DARPA. An encryption password form must be completed and emailed to (insert THE APPROPRIATE BAA MAILBOX) at the time of abstract/full proposal submission. See https://www.tfims.darpa.mil/baa/ for the encryption password form.

Note the word "PASSWORD" must appear in the subject line of the above email and there are minimum security requirements for establishing the encryption password. <u>Failure to provide the encryption password may result in the abstract/full proposal not being evaluated</u>. For further information and instructions on how to zip and encrypt abstract/full proposal files, see <u>https://www.tfims.darpa.mil/baa/</u>.

6. Intergovernmental Review: Not Applicable

V. <u>APPLICATION REVIEW INFORMATION</u>

A. Evaluation Criteria

Proposals will be evaluated using the following criteria, listed in descending order of importance: (a) Overall Scientific and Technical Merit; (b) Potential Contribution and Relevance to the DARPA Mission; (c) Proposer's Capabilities and/or Related Experience; (d) Realism of Proposed Schedule; and (e) Cost Realism

(a) Overall Scientific and Technical Merit

The proposed technical approach is feasible, achievable, complete and supported by a proposed technical team that has the expertise and experience to accomplish the proposed tasks. 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.

(b) Potential Contribution and Relevance to the DARPA Mission

The potential contributions of the proposed effort with relevance to the national technology base will be evaluated. Specifically, DARPA's mission is to maintain the technological superiority of

the U.S. military and prevent technological surprise from harming our national security by sponsoring revolutionary, high-payoff research that bridges the gap between fundamental discoveries and their application. The proposal clearly articulates how the proposed tools, technologies and methodologies directly address current limitations to achieving the Living Foundries' goals and vision.

(c) Proposer's Capabilities and/or Related Experience

The proposer's prior experience and current capabilities must clearly demonstrate an ability to deliver products that meet the proposed technical performance within the proposed budget and schedule. The proposed team has the expertise to manage the cost and schedule. Similar efforts completed/ongoing by the proposer in this area are fully described including identification of other Government sponsors.

(d) Realism of Proposed Schedule

The proposer's abilities to aggressively pursue performance metrics in the shortest timeframe and to accurately account for that timeframe will be evaluated, as well as proposer's ability to understand, identify, and mitigate any potential risk in schedule.

(e) Cost Realism

The objective of this criterion is to establish that the proposed costs are realistic for the technical and management approach offered, as well as to determine the proposer's practical understanding of the effort. The proposal will be reviewed to determine if the costs proposed are based on realistic assumptions, reflect a sufficient understanding of the technical goals and objectives of the BAA, and are consistent with the proposer's technical approach (to include the proposed Statement of Work). At a minimum, this will involve review, at the prime and subcontract level, of the type and number of labor hours proposed per task as well as the types and kinds of materials, equipment and fabrication costs proposed. It is expected that the effort will leverage all available relevant prior research in order to obtain the maximum benefit from the available funding. The evaluation criterion recognizes that undue emphasis on cost may motivate proposers to offer low-risk ideas with minimum uncertainty and to staff the effort with junior personnel in order to be in a more competitive posture. DARPA discourages such cost strategies.

B. Review and Selection Process

Evaluation of proposals will be accomplished through a scientific/technical review of each proposal. 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.

Award(s) will be made to proposers whose proposals are determined to be the most advantageous to the Government, all factors considered, including the potential contributions of the proposed work to the overall research program and the availability of funding for the effort.

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

It is the policy of DARPA to ensure impartial, equitable, comprehensive proposal evaluations and to select the source (or sources) whose offer meets the Government's technical, policy, and programmatic goals. Pursuant to FAR 35.016, the primary basis for selecting proposals for acceptance shall be technical, importance to agency programs, and fund availability. In order to provide the desired evaluation, qualified Government personnel will conduct reviews and (if necessary) convene panels of experts in the appropriate areas.

Proposals will not be evaluated against each other since they are not submitted in accordance with a common work statement. For evaluation purposes, a proposal is the document described in "Proposal Information", Section IV.C. Other supporting or background materials submitted with the proposal will be considered for the reviewer's convenience only and not considered as part of the proposal.

Restrictive notices notwithstanding, proposals may be handled for administrative purposes by support contractors. These support contractors are prohibited from competition in DARPA technical research and are bound by appropriate non-disclosure requirements.

Subject to the restrictions set forth in FAR 37.203(d), input on technical aspects of the proposals may be solicited by DARPA from non-Government consultants /experts who are strictly bound by the appropriate non-disclosure requirements.

It is the policy of DARPA to treat all proposals as competitive information and to disclose their contents only for the purpose of evaluation. No proposals will be returned. After proposals have been evaluated and selections made, the original of each proposal received will be retained at DARPA and all other copies will be destroyed.

VI. <u>AWARD ADMINISTRATION INFORMATION</u>

A. Selection Notices

As soon as the evaluation of a proposal is complete, the proposer will be notified that 1) the proposal has been selected for funding pending contract negotiations, or 2) the proposal has not been selected. These official notifications will be sent via email to the Technical POC identified on the proposal coversheet.

B. Administrative and National Policy Requirements

1. Meeting and Travel Requirements

There will be a program kickoff meeting and all key participants are required to attend. Performers should also anticipate regular program-wide PI Meetings (at least two per year) and periodic site visits at the Program Manager's discretion.

2. Human Use

All research involving human subjects, to include use of human biological specimens and human data, selected for funding must comply with the federal regulations for human subject protection. Further, research involving human subjects that is conducted or supported by the DoD must comply with 32 CFR 219, *Protection of Human Subjects* http://www.access.gpo.gov/nara/cfr/waisidx_07/32cfr219_07.html) and DoD Directive 3216.02, *Protection of Human Subjects and Adherence to Ethical Standards in DoD-Supported Research* (http://www.dtic.mil/whs/directives/corres/pdf/321602p.pdf).

Institutions awarded funding for research involving human subjects must provide documentation of a current Assurance of Compliance with Federal regulations for human subject protection, for example a Department of Health and Human Services, Office of Human Research Protection Federal Wide Assurance (<u>http://www.hhs.gov/ohrp</u>). All institutions engaged in human subject research, to include subcontractors, must also have a valid Assurance. In addition, personnel involved in human subjects research must provide documentation of completing appropriate training for the protection of human subjects.

For all proposed research that will involve <u>human subjects in the first year or phase of the project</u>, the institution must provide evidence of or a plan for review by an Institutional Review Board (IRB) upon final proposal submission to DARPA. The IRB conducting the review must be the IRB identified on the institution's Assurance. The protocol, separate from the proposal, must include a detailed description of the research plan, study population, risks and benefits of study participation, recruitment and consent process, data collection, and data analysis. Consult the designated IRB for guidance on writing the protocol. The informed consent document must comply with federal regulations (32 CFR 219.116). A valid Assurance along with evidence of appropriate training all investigators should all accompany the protocol for review by the IRB.

In addition to a local IRB approval, a headquarters-level human subjects regulatory review and approval is required for all research conducted or supported by the DoD. The Army, Navy, or Air Force office responsible for managing the award can provide guidance and information about their component's headquarters-level review process. Note that confirmation of a current Assurance and appropriate human subjects protection training <u>is required</u> before headquarters-level approval can be issued.

The amount of time required to complete the IRB review/approval process may vary depending on the complexity of the research and/or the level of risk to study participants. Ample time should be allotted to complete the approval process. The IRB approval process can last between one to three months, followed by a DoD review that could last between three to six months. No DoD/DARPA funding can be used towards human subjects research until ALL approvals are granted.

3. Animal Use

Any Recipient performing research, experimentation, or testing involving the use of animals shall comply with the rules on animal acquisition, transport, care, handling, and use in: (i) 9 CFR parts 1-4, Department of Agriculture rules that implement the Laboratory Animal Welfare Act of 1966, as amended, (7 U.S.C. 2131-2159); (ii) the guidelines described in National Institutes of Health Publication No. 86-23, "Guide for the Care and Use of Laboratory Animals"; (iii) DoD Directive 3216.01, "Use of Laboratory Animals in DoD Program."

For submissions containing animal use, proposals should briefly describe plans for Institutional Animal Care and Use Committee (IACUC) review and approval. Animal studies in the program will be expected to comply with the PHS Policy on Humane Care and Use of Laboratory Animals, available at <u>http://grants.nih.gov/grants/olaw/olaw.htm</u>.

All Recipients must receive approval by a DoD certified veterinarian, in addition to an IACUC approval. No animal studies may be conducted using DoD/DARPA funding until the USAMRMC Animal Care and Use Review Office (ACURO) or other appropriate DoD veterinary office(s) grant approval. As a part of this secondary review process, the Recipient will be required to complete and submit an ACURO Animal Use Appendix, which may be found at https://mrmc-www.army.mil/index.cfm?pageid=Research_Protections.acuro&rn=1.

4. Publication Approval

It is the policy of the Department of Defense that the publication of products of fundamental research will remain unrestricted to the maximum extent possible. The definition of Contracted Fundamental Research is:

"Contracted Fundamental Research includes [research performed under] grants and contracts that are (a) funded by budget category 6.1 (Basic Research), whether performed by universities or industry or (b) funded by budget category 6.2 (Applied Research) and performed on-campus at a university. The research shall not be considered fundamental in those rare and exceptional circumstances where the applied research effort presents a high likelihood of disclosing performance characteristics of military systems or manufacturing technologies that are unique and critical to defense, and where agreement on restrictions have been recorded in the contract or grant." Such research is referred to by DARPA as "Restricted Research."

Pursuant to DoD policy, research performed under grants and contracts that are (a) funded by budget category 6.2 (Applied Research) and NOT performed on-campus at a university or (b) funded by budget category 6.3 (Advanced Research) does not meet the definition of fundamental research. Publication restrictions will be placed on all such research.

Research to be performed as a result of this BAA is expected to be Fundamental. DARPA does not anticipate applying publication restrictions of any kind.

Proposers are advised if they propose grants or cooperative agreements, DARPA may elect to award other award instruments due to the need to apply publication or other restrictions. DARPA will make this election if it determines that the research resulting from the proposed program 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 and will be considered Restricted Research.

For certain research projects, it may be possible that although the research being performed by the Prime Contractor is Restricted Research, a subcontractor may be conducting Contracted Fundamental Research. In those cases, it is the Prime Contractor's responsibility to explain in their proposal why its subcontractor's effort is Contracted Fundamental Research.

The following same or similar provision will be incorporated into any resultant Restricted Research or Non-Fundamental Research procurement contract or other transaction:

There shall be no dissemination or publication, except within and between the Contractor and any subcontractors, of information developed under this contract or contained in the reports to be furnished pursuant to this contract without prior written approval of DARPA's Public Release Center (DARPA/PRC). All technical reports will be given proper review by appropriate authority to determine which Distribution Statement is to be applied prior to the initial distribution of these reports by the Contractor. With regard to subcontractor proposals for Contracted Fundamental Research, papers resulting from unclassified contracted fundamental research are exempt from prepublication controls and this review requirement, pursuant to DoD Instruction 5230.27 dated October 6, 1987.

material for written approval for When submitting open publication, the Contractor/Awardee must submit a request for public release to the PRC and include the following information: 1) Document Information: document title, document author, short plain-language description of technology discussed in the material (approx. 30 words), number of pages (or minutes of video) and document type (briefing, report, abstract, article, or paper); 2) Event Information: event type (conference, principle investigator meeting, article or paper), event date, desired date for DARPA's approval; 3) DARPA Sponsor: DARPA Program Manager, DARPA office, and contract number; and 4) Contractor/Awardee's Information: POC name, e-mail and phone. Allow four weeks for processing; due dates under four weeks require a justification. Unusual electronic file formats may require additional processing time. Requests can be sent either via e-mail to prc@darpa.mil or via 3701 North Fairfax Drive, Arlington VA 22203-1714, telephone (571)218-4235. Refer to http://www.darpa.mil/NewsEvents/Public_Release_Center/Public_Release_Center.aspx for information about DARPA's public release process.

5. Export Control

The following clause will be included in all procurement contracts, and may be included in Other Transactions as deemed appropriate:

(a) *Definition*. "Export-controlled items," as used in this clause, means items subject to the Export Administration Regulations (EAR) (15 CFR Parts 730-774) or the International Traffic in Arms Regulations (ITAR) (22 CFR Parts 120-130). The term includes:

<u>1) "Defense items," defined in the Arms Export Control Act, 22 U.S.C. 2778(j)(4)(A), as</u> defense articles, defense services, and related technical data, and further defined in the ITAR, 22 CFR Part 120.

2) "Items," defined in the EAR as "commodities", "software", and "technology," terms that are also defined in the EAR, 15 CFR 772.1.

(b) The Contractor shall comply with all applicable laws and regulations regarding exportcontrolled items, including, but not limited to, the requirement for contractors to register with the Department of State in accordance with the ITAR. The Contractor shall consult with the Department of State regarding any questions relating to compliance with the ITAR and shall consult with the Department of Commerce regarding any questions relating to compliance with the EAR.

(c) The Contractor's responsibility to comply with all applicable laws and regulations regarding export-controlled items exists independent of, and is not established or limited by, the information provided by this clause.

(d) Nothing in the terms of this contract adds, changes, supersedes, or waives any of the requirements of applicable Federal laws, Executive orders, and regulations,

including but not limited to—

- (1) The Export Administration Act of 1979, as amended (50 U.S.C. App. 2401, et seq.);
- (2) The Arms Export Control Act (22 U.S.C. 2751, et seq.);
- (3) The International Emergency Economic Powers Act (50 U.S.C. 1701, et seq.);
- (4) The Export Administration Regulations (15 CFR Parts 730-774);
- (5) The International Traffic in Arms Regulations (22 CFR Parts 120-130); and
- (6) Executive Order 13222, as extended;

(e) The Contractor shall include the substance of this clause, including this paragraph (e), in all subcontracts.

6. Subcontracting

Pursuant to Section 8(d) of the Small Business Act (15 U.S.C. 637(d)), it is the policy of the Government to enable small business and small disadvantaged business concerns to be considered fairly as subcontractors to contractors performing work or rendering services as prime contractors or subcontractors under Government contracts, and to assure that prime contractors and subcontractors carry out this policy. Each proposer who submits a contract proposal and includes subcontractors is required to submit a subcontracting plan in accordance with FAR 19.702(a) (1) and (2) should do so with their proposal. The plan format is outlined in FAR 19.704.

7. Electronic and Information Technology

All electronic and information technology acquired through this solicitation must satisfy the accessibility requirements of Section 508 of the Rehabilitation Act (29 U.S.C. 794d) and FAR Subpart 39.2. Each proposer who submits a proposal involving the creation or inclusion of electronic and information technology must ensure that Federal employees with disabilities will have access to and use of information that is comparable to the access and use by Federal employees who are not individuals with disabilities and members of the public with disabilities seeking information or services from DARPA will have access to and use of information and data that is comparable to the access and use of information and will have access to and use of the public with disabilities.

8. Employment Eligibility Verification

As per FAR 22.1802, recipients of FAR-based procurement contracts must enroll as Federal Contractors in E-verify and use E-Verify to verify employment eligibility of all employees assigned to the award. All resultant contracts from this solicitation will include FAR 52.222-54, "Employment Eligibility Verification." This clause will not be included in grants, cooperative agreements, or Other Transactions.

9. Central Contractor Registration (CCR) and Universal Identifier Requirements

Unless the proposer is exempt from this requirement, as per FAR 4.1102 or 2 CFR 25.110 as applicable, all proposers must be registered in the Central Contractor Registration (CCR) and have a valid Data Universal Numbering System (DUNS) number prior to submitting a proposal. Information on CCR registration is available at <u>http://www.ccr.gov</u>. All proposers must maintain an active CCR registration with current information at all times during which they have an active Federal award or proposal under consideration by DARPA. All proposers must provide the DUNS number in each proposal they submit.

DARPA cannot make an assistance award to a proposer until the proposer has provided a valid DUNS number and has maintained an active CCR registration with current information.

10. Reporting Executive Compensation and First-Tier Subcontract Awards

FAR clause <u>52.209-9</u>, Updates of Publicly Available Information Regarding Responsibility Matter, will be included in all contracts valued at \$500,000 where the contractor has current active Federal contracts and grants with total value greater than \$10,000,000.

a. Reporting

The number and types of reports will be specified in the award document, but will include as a minimum quarterly financial status reports. The reports shall be prepared and submitted in accordance with the procedures contained in the award document and mutually agreed on before award. Reports and briefing material will also be required as appropriate to document progress in accomplishing program metrics. A Final Report that summarizes the project and tasks will be required at the conclusion of the performance period for the award, notwithstanding the fact that the research may be continued under a follow-on vehicle.

b. Electronic Systems

i. Representations and Certifications

In accordance with FAR 4.1201, prospective proposers shall complete electronic annual representations and certifications at http://orca.bpn.gov.

ii. Wide Area Work Flow (WAWF)

Unless using another approved electronic invoicing system, performers will be required to submit invoices for payment directly via the Internet/WAWF at <u>http://wawf.eb.mil</u>. Registration to WAWF will be required prior to any award under this BAA.

iii. i-Edison

The award document for each proposal selected for funding will contain a mandatory requirement for patent reports and notifications to be submitted electronically through i-Edison (http://s-edison.info.nih.gov/iEdison.

VII. <u>AGENCY CONTACTS</u>

Email is a preferred method of communication.

Administrative, technical or contractual questions should be sent via e-mail to <u>DARPA-BAA-11-60@darpa.mil</u>. If e-mail is not available, fax questions to (703) 807-1797. Attention: DARPA-BAA-11-60. All requests must include the name, email address, and phone number of a point of contact.

The technical POC for this effort is Dr. Alicia Jackson E-mail: <u>Alicia.Jackson@darpa.mil</u>. DARPA/Office ATTN: DARPA BAA11-60 3701 North Fairfax Drive Arlington, VA 22203-1714

VIII. OTHER INFORMATION

A. Intellectual Property Procurement Contract Proposers

1. Noncommercial Items (Technical Data and Computer Software)

Proposers responding to this BAA requesting a procurement contract to be issued under the FAR/DFARS shall identify all noncommercial technical data and noncommercial computer software that it plans to generate, develop, and/or deliver under any proposed award instrument in which the Government will acquire less than unlimited rights, and to assert specific restrictions on those deliverables. Proposers shall follow the format under DFARS 252.227-7017 for this stated purpose. In the event that proposers do not submit the list, the Government will assume that it automatically has "unlimited rights" to all noncommercial technical data and noncommercial computer software generated, developed, and/or delivered under any award instrument, unless it is substantiated that development of the noncommercial technical data and noncommercial computer software occurred with mixed funding. If mixed funding is anticipated in the development of noncommercial technical data and noncommercial computer software generated, developed, and/or delivered under any award instrument, then proposers should identify the data and software in question, as subject to Government Purpose Rights (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 five (5) years in accordance with the applicable DFARS clauses, at which time the Government will acquire "unlimited rights" unless the parties agree otherwise. Proposers are admonished that the Government will 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. If no restrictions are intended, then the proposer should state "NONE." It is noted an assertion of "NONE" indicates that the Government has "unlimited rights" to all noncommercial technical data and noncommercial computer software delivered under the award instrument, in accordance with the DFARS provisions cited above. Failure to provide full information may result in a determination that the proposal is not compliant with the BAA - resulting in nonselectability of the proposal.

A sample list for complying with this request is as follows:

NONCOMMERCIAL					
Technical Data	Summary of	Basis for	Asserted Rights	Name of Person Asserting	
Computer Software To	Intended Use in the	Assertion	Category	Restrictions	
be Furnished With	Conduct of the				
Restrictions	Research				
(LIST)	(NARRATIVE)	(LIST)	(LIST)	(LIST)	

2. Commercial Items (Technical Data and Computer Software)

Proposers responding to this BAA requesting a procurement contract to be issued under the FAR/DFARS shall identify all commercial technical data and commercial computer software that may be embedded in any noncommercial deliverables contemplated under the research effort, along with any applicable restrictions on the Government's use of such commercial technical data and/or commercial computer software. In the event that proposers do not submit the list, the Government will assume that 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, as may be necessary, to evaluate the proposer's assertions. If no restrictions are intended, then the proposal is not compliant with the BAA – resulting in nonselectability of the proposal.

A sample list for complying with this request is as follows:

COMMERCIAL							
Technical Data	Basis for Assertion	Asserted Rights	Name of Person Asserting				
Computer Software To		Category	Restrictions				
be Furnished With							
Restrictions							
(LIST)	(LIST)	(LIST)	(LIST)				

B. Non-Procurement Contract Proposers – Noncommercial and Commercial Items (Technical Data and Computer Software)

Proposers responding to this BAA requesting a Grant, Cooperative Agreement, Technology Investment Agreement, or Other Transaction for Prototype shall follow the applicable rules and regulations governing these various 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 in question. This includes both Noncommercial Items and Commercial Items. Although not required, proposers may use a format similar to that described in Paragraphs 1.a and 1.b above. 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. If no restrictions are intended, then the proposer should state "NONE." Failure to provide full information may result in a determination that the proposal is not compliant with the BAA – resulting in nonselectability of the proposal.

C. All Proposers – Patents

Include documentation proving your ownership of or possession of appropriate licensing rights to all patented inventions (or inventions for which a patent application has been filed) that will be utilized under your proposal for the DARPA program. If a patent application has been filed for an invention that your proposal utilizes, but the application has not yet been made publicly available and contains proprietary information, you may provide only the patent number, inventor name(s), assignee names (if any), filing date, filing date of any related provisional application, and a summary of the patent title, together with either: 1) a representation that you own the invention, or 2) proof of possession of appropriate licensing rights in the invention.

D. All Proposers – Intellectual Property Representations

Provide a good faith representation that you either own or possess appropriate licensing rights to all other intellectual property that will be utilized under your proposal for the DARPA program. Additionally, proposers shall 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.

E. Other Transaction Agreements (OTAs)

DARPA is able to obtain its research support through a variety of legal instruments and flexible arrangements, to include use of Other Transaction Agreements (OTAs). OTAs are potentially applicable to a wide variety of DARPA programs. They are likely to be particularly applicable to support dual-use technologies (those with commercial nonmilitary potential as well as potential military applications), consortia or multi-party agreements, and work supported by multiple funding sources. Because OTAs are not traditional procurement contracts, DARPA is not required to include the traditional FAR and DFARS clauses in these agreements, but is free to negotiate provisions that are mutually agreeable to both the Government and the consortium of companies entering into the agreement. Proposals may, but need not, state that an OTA rather than a contract or grant is desired. Furthermore, DARPA does not enter into OTAs when a contract or grant is feasible or appropriate. See FAR 35.003 for Government-wide policy on use of contracts for research and development.

There are two types of commonly used OTAs awarded pursuant to 10 U.S.C. 2371: Other Transactions for Research and Other Transactions for Prototype Projects (a.k.a. "845s"). Of these two types of OTAs, the one most pertinent to this BAA is referred to as a Technology Investment Agreement (TIA) and is issued in accordance with Part 37 of the Department of Defense Grant and Agreement Regulations (DoDGARs) (<u>http://www.dtic.mil/whs/directives/corres/html/321006r.htm</u>. TIAs are assistance instruments used to stimulate or support research designed to: (a) reduce barriers to commercial firm's participation in defense research, to give the Department of Defense (DoD) access to the broadest possible technology and industrial base; (b) promote new relationships among performers in both the defense and commercial sectors of that technology and industrial base; and (c) stimulate performers to develop, use, and disseminate improved practices. As a matter of 43 DoD policy, a TIA may be awarded only when one or more for-profit firms are to be involved either in the (1) performance of the research project; or (2) the commercial application of the research results (e.g. commercial transition partner). Also of importance is the requirement that, to the maximum extent practicable, the non-Federal parties carrying out a research project under a TIA are to provide at least half of the costs of the project – this being a statutory condition for any TIA, or Other Transaction Agreement in general, issued under the authority of 10 U.S.C. 2371. Such instruments can involve a single performer or multiple performers participating as a consortium (which are not required to operate as a separate legal entity) and the Generally Accepted Accounting Principle (GAAP) applies rather than the FAR or DFARS cost principles.

For information on 845 Other Transaction Authority for Prototypes (OTA) agreements, refer to http://www.darpa.mil/Opportunities/Contract_Management/Other_Transactions_and_Technolog y_Investment_Agreements.aspx All proposers requesting an 845 Other Transaction Authority for Prototypes (OTA) agreement must include a detailed list of milestones. Each such milestone must include the following: milestone description, completion criteria, due date, payment/funding schedule (to include, if cost share is proposed, contractor and Government share amounts). It is noted that, at a minimum, such milestones should relate directly to accomplishment of program technical metrics as defined in the BAA and/or the proposer's proposal. Agreement type, fixed price or expenditure based, will be subject to negotiation by the Agreements Officer; however, it is noted that the Government prefers use of fixed price milestones with a payment/funding schedule to the maximum extent possible. Do not include proprietary data. If the proposer requests award of an 845 OTA agreement as a nontraditional defense contractor, as so defined in the OSD guide entitled "Other Transactions (OT) Guide For Projects" Prototype dated January 2001 (as amended) (http://www.acq.osd.mil/dpap/Docs/otguide.doc), information must be included in the cost proposal to support the claim. Additionally, if the proposer plans requests award of an 845 OTA agreement, without the required one-third (1/3) cost share, information must be included in the cost proposal supporting that there is at least one non-traditional defense contractor participating to a significant extent in the proposed prototype project.