

Broad Agency Announcement (BAA) BAA 12-011

Unmanned Aerial Systems Interface, Selection, and Training Technologies (UASISTT)

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INTRODUCTION:

This publication constitutes a Broad Agency Announcement (BAA) as contemplated in Federal Acquisition Regulation (FAR) 6.102(d)(2) and 35.016. A formal Request for Proposals (RFP), solicitation, and/or additional information regarding this announcement will not be issued.

The Office of Naval Research (ONR) will not issue paper copies of this announcement. The ONR reserves the right to select for award all some or none of the proposals in response to this announcement. The ONR reserves the right to fund all, some or none of the proposals received under this BAA. ONR provides no funding for direct reimbursement of proposal development costs. Technical and cost proposals (or any other material) submitted in response to this BAA will not be returned. It is the policy of ONR to treat all proposals as sensitive competitive information and to disclose their contents only for the purposes of evaluation. **I. GENERAL**

INFORMATION:

1. Agency Name - Office of Naval Research

One Liberty Center
875 N. Randolph Street
Arlington, VA 22203-1995

2. Research Opportunity Title - Unmanned Aerial Systems Interface, Selection, and Training Technologies (UASISTT)

3. Program Name - Unmanned Aerial Systems Interface, Selection, and Training Technologies (UASISTT) Enabling Capability

4. Research Opportunity Number - 12-011

5. Response Date –

ONR reserves the right to modify these events and dates as needed.

Industry Day	17 August 2012
White Papers	10 September 2012
Full Proposal Oral Presentations	5 - 9 November 2012
Full Proposals Due	7 December 2012

See the Significant Dates and Times in Section IV.3.

6. Research Opportunity Description -

The Office of Naval Research (ONR) is interested in receiving proposals for developing technology solutions addressing critical deficiencies in selecting, training and equipping the Air Vehicle Operator (AVO) position, primarily in Group 3, 4 and Group 5 Unmanned Aerial Systems (UAS) - for example, Shadow, BAMS, Firescout and UCLASS.

Introduction

Beginning in FY12, the Navy and Marine Corps will significantly increase their rate of acquisition of a wide range of Unmanned Aerial System (UAS) platforms. These UASs will include significant technological advances, blending automation with dynamic, decentralized control, and will support a wide range of missions, many of a different nature than traditional manned aircraft missions. Yet, despite these technological advances, these UAS capabilities do not lend themselves to easy use by their operators. From a human systems integration perspective, these systems are not well-supported by control station interfaces, training technologies or selection tools-as indicated by the fact that, despite advances in UAS capabilities, as much as 50 percent of all UAS mishaps are attributed to human factors (Williams, 2004; Tvaryanas, 2005, 2006).

Reducing mishaps and unsuccessful UAS operations will require better-designed interfaces and a new kind of operator-one who has been specifically selected, more efficiently trained and properly equipped to: process information effectively; safely and effectively interact with emerging and cutting-edge technologies; work collaboratively with others; and, effectively manage their cognitive workload over long duration missions. (McCarely & Wickens, 2005). To address these gaps, the Office of Naval Research is soliciting proposals for the Unmanned Aerial Systems Interface, Selection, and Training Technologies (UASISTT) FY 14 to FY 17 Enabling Capability under the Capable Manpower Future Naval Capability. This program will lay the necessary groundwork for providing an optimally selected, effectively trained cadre of UAS personnel to operate their systems through a common control system (CCS).

Since the 1990s all three services have conducted varying levels of investigation to better understand how to select Air Vehicle Operators (AVOs), how to train them and how to equip them. These early studies often assumed that selection and training criteria should be similar to those used in manned aviation (Barnes et al, 2000; Hall & Tirre, 1998) and that manned aviation was the gold standard against which UAS AVO requirements should be considered. Many of these early studies focused on assessing UAS operator requirements for platforms whose control schema and missions mirrored those of manned aviation platforms (Biggerstaff et al, 1998; Kay et al, 1999). Yet fiscal realities and evolving mission sets, combined with significant advances in the state of the art of UAS platforms and control schema, which are moving towards the AVO as mission manager vice hands - on controller, have changed the UAS landscape. Today, simply replicating the manned aviation select- train-equip approach is an inefficient solution at best and a potentially disastrous one at worst (McCarley & Wickens, 2005). As a recent US Air Force Scientific Advisory Board has stated: "the considerable base of human factors knowledge derived from cockpit experience may have limited applicability to future systems..." (US Air Force, 2004).

While this sentiment speaks to future aviation systems writ large, UASs are an effective illustration of an aviation system that represents a significant departure from traditional roles and responsibilities for its human operator. First, the AVOs, unlike manned aviators, are not co-

located with their platform. This decoupling of the human from the system they operate has created unique human system integration issues (Tvaryanas, 2006). Compared to their manned aviation counterparts, AVOs work in sensory-deprived conditions, lacking the visual, auditory, and tactile cues present in manned aviation. Second, as automation becomes more reliable, the role of the AVO will continue to shift towards mission management of multiple and different UAS platforms (Tvaryanas, 2006). Even today, AVOs, especially for Group 4 and 5 UASs, interact with their systems more through decision making, course of action planning, collaborative planning and resource management than through hands-on 'stick and rudder' skills (Kay et al 1999). These roles and responsibilities are more reflective of mission management activities, like those of an Air Traffic Controller.

These, and other, differences between manned and unmanned aerial systems require new technologies and methodologies to ensure effective UAS operations. UASISTT will address the selection, training and interface design gaps as equal parts of a common approach for optimizing Human - (Unmanned Aerial) System Integration. This will require a detailed examination of: the types of Knowledge Skills and Abilities (KSAs) necessary to succeed in UAS operations; the best approaches for taking advantage of simulation based training to enhance these KSAs; and, design approaches that should be followed in order to provide UAS operators with an effective way of interacting with their systems.

Technical Areas:

This call focuses on three technical areas to overcome the limitations discussed above: 1) Selection for UAS Personnel (SUPER), to accurately forecast candidate UAS operator performance across UAS platforms and missions; 2) Distributed, Adaptive & Modular entities for UAS (DyAdeM), to automatically generate realistic & adaptive synthetic entities for simulated UAS training within the Navy's Common Control System (CCS); and, 3) UAS Control Station Human Machine Interface (CaSHMI), to provide validated information display concepts for the Navy's CCS. Proposals to each technical area must include a comprehensive approach for assessing and quantifying the benefit of the proposed solution to the human operator, measured against an initial baseline capability. Proposals may be submitted to any single technical area or to a combination of technical areas BUT THE OFFEROR MUST SUBMIT A SEPARATE PROPOSAL FOR EACH TECHNICAL AREA IN WHICH HE WISHES TO PROPOSE. If submitting to more than one technical area, the proposal must clearly address each technical area as a separate and distinct effort.

For planning purposes, the types of UAS platforms under consideration are from Group 3, 4 and 5 platforms (e.g., Shadow, BAMS, Firescout, UCLASS; specific platforms may vary based on availability). Specific UAS Group platforms are indicated in each Technical Area's description. The proposed mission set focuses on a 'Patterns of Life', scenario which involves characterizing the routine day to day behaviors of objects of interest (e.g., ships, ground vehicles, civilians) in a specific location. This scenario involves mission goals like surveillance, maritime patrol, battle management, and penetrating strike. AVO candidate Selection criteria should be developed based around these platforms; synthetic entities should be developed to support these mission goals; and interface prototypes and design guidelines should focus on facilitating execution of these mission goals through more effective information display enabling operators to perform their missions on

these Navy/Marine Corps UAS platforms. Specifics concerning government furnished equipment and information are provided in a later section of this BAA.

1) Selection for UAS Personnel (SUPER)

Objective: Develop a UAS Air Vehicle Operator test selection battery integrated into the Department of the Navy's existing Automated Pilot Exam framework.

Scope: The scope of this technical area focuses on developing measures, standards and tests for predicting/forecasting a UAS AVO candidate's performance in training and live operations, in terms of UAS-appropriate knowledge, skills and abilities.

Background: Effective selection procedures identify individuals who possess a minimum level of qualifications and the aptitude to acquire the relevant knowledge, skills, and abilities to perform specific tasks and missions. Done properly, selection and classification procedures reduce overall training and interface design requirements. For manned aviation, the Department of the Navy uses a secure, web-based test delivery platform called the Automated Pilot Exam (APEX) to deliver the manned Aviation Selection Test Battery (ASTB) worldwide. APEX is government owned and is capable of delivering psychomotor evaluations, tests of divided attention, and reaction-time evaluations, using stick-and-throttle inputs or keyboard and mouse. It is also capable of administering computer-adaptive multiple-choice tests, which tailor test content to examinee ability level, reducing test length, increasing score accuracy, and improving test security.

UAS platforms represent a unique domain from the perspective of the KSAs needed for successful operations. This is partly due to the wide range of platforms and missions that UAS support and partly due to the unique role that UAS operators are asked to assume. UAS operators must excel at integrating information from partial, incomplete & abstracted data, attained from multiple sources, in collaboration with other UAS operators who may be located across vast geographical and temporal ranges. They may also be required to concurrently operate more than one platform, performing more than one mission goal. As the technical capabilities of these platforms continue to grow, along with the mission sets, these cognitive and social competencies will be a far greater influence on mission success than some of the more standard ones currently selected by the manned ASTB.

There are currently no tools in place to select and classify candidate UAS operators based on these competencies. Preliminary research suggests that such tools should include an emphasis on assessing: spatial capabilities (McKinley et al, 2011); Social and interpersonal abilities and personality traits (Kay et al 1999; Carretta & Ree, 2003); Executive processes, like attention management, information processing, multitasking and decision making (Squire & Parasuraman, 2010; McKinley et al 2011); and human - autonomy interactions (McCarley & Wickens, 2005; Squire & Parasuraman, 2010). Additional capabilities, with associated assessment tools, may also factor into developing an overall UAS AVO selection capability.

Similarly, there are no standards, policies and guidelines for developing UAS operator career fields based on these competencies. Manpower and personnel decisions regarding the candidate pool from which AVOs are chosen have historically been based on manned aviation requirements

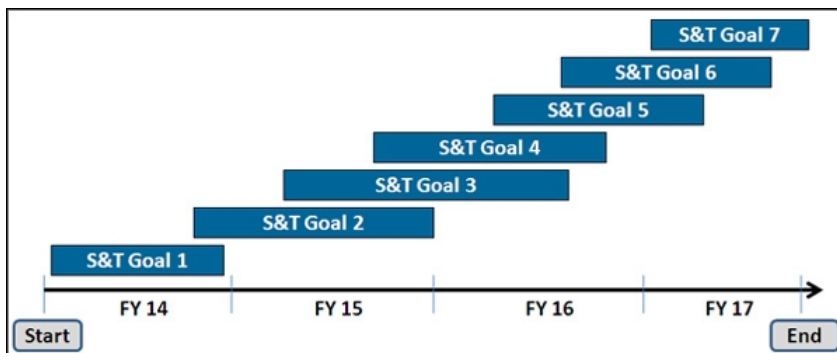
rather than on UAS operational requirements. Recent studies conducted by the Air Force suggest that non-aviators may be as competent as aviators in terms of many of the KSAs that may be associated with UAS operations (McKinley et al 2011). This suggests that the results from this technical area should be used to help with manpower and personnel determinations, as well as with career field development plans.

The desired products from this technical area include: a series of assessments using SUPer, to determine whether or not it is possible to identify individuals with appropriate UAS AVO-relevant aptitudes and KSAs for populations including both military (Enlisted and Officer) and civilian personnel, as well as individuals with or without previous manned flight experience. The outcomes should include the identification of KSAs and the behaviorally anchored proficiency level requirements on each for UAS AVO operators in one or more Group 3, 4 and 5 UAS. The outcomes should quantify the degree to which each KSA can likely be satisfied using civilian, Enlisted, or Officer candidates, and whether those candidates should have prior manned flight experience. The outcomes should also identify those KSAs that are best attained through a focused training curriculum, along with guidelines for how to structure a curriculum to train those KSAs.

S & T Goals:

- 1) Identify the knowledge skills and abilities relating to operating Navy/USMC Group 3, 4 and 5 UAS platforms, according to platform and mission
- 2) Identify and develop the specific UAS selection tests, and develop data collection instruments to capture test measures
- 3) Develop capability to interface selection tests with APEX architecture
- 4) Enable extensibility to multiple platforms and missions
- 5) Validate and assess the selection tool in terms of reliability, factor structure of the composite test battery, and predictive validity, and demonstrate its utility in guiding AVO selection policy (see 'Assessment' section below for more details)
- 6) Identify the costs/benefits of using different candidate AVO populations
- 7) Develop standards for implementing these tests in terms of classifying and selecting UAS operators and maintaining an effective UAS career field.

A notional timeline for achieving the seven S&T goals indicated above is provided below as an example for informational purposes only.



Desired Outcomes: Test batteries that select and classify AVO candidates in terms of their ability

to successfully operate Group 3, 4 and 5 UAS platforms across the already identified mission goals. These updatable and extensible test batteries will be delivered as algorithms or similar software that can be integrated into the existing APEX infrastructure. Additionally, selection and classification guidelines will be documented to support the development and maintenance of UAS operator career fields, to include recommendations for which candidate pools are best suited for AVO selection, and AVO training curriculum content.

Assessment:

1) The resultant selection tools and components developed should be assessed in terms of their predictive validity, reliability (test-retest and/or internal consistency), face validity, fairness and freedom from bias against any protected demographic groups under Title VII. Acceptable thresholds include:

a. Predictive validity 0.25

b. Internal Consistency (for tests comprised of discrete items) 0.70

c. Test-Retest Reliability (for tests of continuous performance): 0.50

2) Assessment of the selection tool, using different candidate AVO populations, in terms of the tool's effectiveness to classify individuals with the most appropriate KSAs to perform AVO tasks. Assessment should be considered in terms of answering the core question of whether or not previous manned flight experience, level of military background and other experiences play a significant role in selecting the optimal AVO candidate.

2) Dynamic Adaptive and Modular entities for UAS (DyAdeM)

Objective: Develop the tools, standards and guidelines to generate large numbers of realistic semi-automated force (SAF) behaviors in a format that can be integrated into the Navy's SAF generation technology

Scope: The scope of this technical area focuses on enabling the Navy's policy to use simulation for training UAS operators.

Background: Typical simulation-based training for aviation requires the integration of hundreds, if not thousands, of simulated entities into the overall training scenario. Developing these entities requires significant time and effort and results in entities whose behaviors are strictly guided, scripted, and limited based on pre-determined rules that define the entities' behaviors over the course of the training scenario. The net result is entities whose behaviors are not realistic, leading to reduced training effectiveness, yet require significant effort to create, leading to prohibitively high authoring costs.

An alternative approach is to replace hand-coded rule sets with a capability to automatically generate new and appropriate SAF behaviors from one or more data sources including: data captured during live UAS exercises; data captured from experts operating their systems within a simulated environment; or data provided in a script-like format. On the basis of one or more of these initial data sets, it should then be possible to model those behaviors and extend those models to provide new behaviors that will drive SAF entities in a training environment. This approach will require integrating cognitive modeling approaches with machine learning techniques to generate tactically authentic behaviors. Recent advances in the development of knowledge

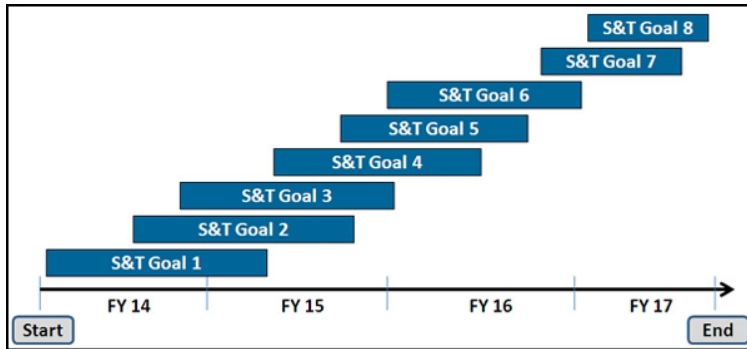
structures (Bermejo, 2006; Koeing, 2009) provide a formal approach for representing and characterizing underlying behaviors from large data sets (Boyce & Pahl, 2007), making it possible to capture structured data from one or more sources. Cognitive models provide a means of formally representing these underlying behaviors of interest. Machine learning techniques provide a wide range of inductive approaches to generalize these modeled behaviors to new missions and contexts. Training objectives, doctrine and tactics, techniques and procedures (TTPs) bound the initial cognitive models and subsequent machine learning generalization to ensure that new behaviors are tactically authentic. The resultant behaviors can then be validated as part of a new training scenario.

The desired products from this technical area will provide the underlying behaviors that drive SAFs, and should be integratable into the Navy's SAF generation technology. Of particular interest are SAF behaviors driving the large numbers of entities that provide the ecological background against which the 'Patterns of Life' scenario plays out. These include the seemingly random actions of groups of individuals, ground vehicles or surface ships as they affect and are affected by the trainee's actions. The manner in which these behaviors drive SAF, as well as the manner in which these SAF are represented to the trainee, should be part of the design documentation developed in coordination with designated Navy stakeholders. For assessment and validation purposes the Navy will make available access to their SAF generation technologies and prototype training systems as required, pending acceptance of appropriate conditions.

S & T Goals:

- 1) Develop the knowledge structures that will be used to capture source data
- 2) Define boundaries of behavior patterns that are of interest. This includes identifying what kind of activities to look for in real entity behaviors. Definitions may be user defined or may be automatically pulled from a pre-defined set. For the current application these behaviors should focus on the routine day to day activities of one or more object categories of interest (e.g., ships, ground vehicles, civilians) in a specific environment setting.
- 3) Find the behavior patterns of interest using the boundary definitions.
- 4) Develop representative cognitive models form behavior data
- 5) Apply doctrine, relevant tactics, techniques and procedures (TTPs) and training goals and objectives to define desired SAF behaviors. This provides constraints on current and future SAF behaviors.
- 6) Use machine learning techniques to generate novel, doctrinally accurate, SAF behaviors from the existing modeled behaviors
- 7) Validate and assess SAF behaviors in terms of authenticity, reduced time to develop and improved training (see 'Assessment' section below for more details)
- 8) Develop standards and guidelines to integrate SAF behaviors into Navy SAF generation tools

A notional timeline for achieving the eight S&T goals indicated above is provided below as an example for informational purposes only



Desired Outcomes: A software capability to develop a representative set of SAF behaviors from one or more data sources, model those behaviors subject to a set of constraints, and extend those models to provide new, realistic and authentic SAF behaviors. These behaviors should be integratable into a Navy/USMC training scenario. Additionally, development guidelines & standards that support building and integrating these behaviors into Navy/USMC SAF generation technologies should be provided.

Assessment: The assessment of this product will focus on its ability to both reduce operator/instructor workload necessary to craft new behaviors and to increase trainee proficiency as a result of training with more realistically behaving SAFs. Assessment will be based on developing SAF behaviors to populate a realistic 'Patterns of Life' scenario in partnership with the Navy. Validation will include demonstrating up to 20% reduction in cost (e.g., time, effort, labor) to populate a specific training scenario with up to 100 synthetic entities, compared to current approaches, without negatively impacting training effectiveness when compared to current approaches for populating training scenarios.

3) UAS Control Station Human Machine Interface (CaSHMI)

Objective: Develop interface design concepts, prototypes, and guidelines for the Common Control System that have been validated on Navy/USMC supported systems, in terms of how well they allow AVOs to manage their cognitive workload, improve their cognitive performance, and safely and effectively operate multiple and different UAS platforms.

Scope: The scope of this technical area focuses on realizing the Navy's vision for a Common Control System through which multiple and different UAS will be operated.

Background: Critical challenges with using a single system to display information relating to operating multiple and different types of UAS platforms include: characterizing the necessary information that operators must be provided with in order to make effective decisions and to take appropriate actions; providing that information in a way that allows for task switching and multi-tasking without reducing operator cognitive performance; enabling AVOs to interactively manage the flow of information from UASs with varying levels of autonomy; supporting collaboration with other UAS teams and support personnel; and extending the underlying design principles to account for new platforms, missions and advances in information display technologies such as those that will adapt information presentation based on context, mission and user performance.

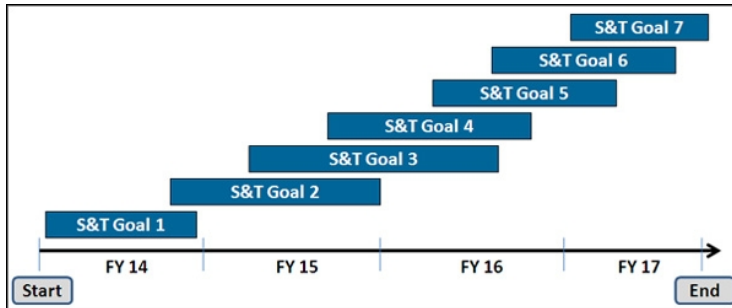
At the core of this technical area lies the need to find platform-common information requirements and platform-specific information requirements and evaluate design solutions for both in terms of AVO performance for Group 4 and 5 platforms. These requirements should be considered in terms of the mission characteristics that these UASs will be required to perform in a 'Patterns of Life' scenario. Once identified, taking a cue from work in both manned aviation which has developed a 'common' approach to representing much of the basic information required to aviate-navigate-communicate regardless of platform (Wiener & Nagel, 1988; Mejdal, McCauley & Beringer, 2001), approaches for representing information in terms of optimizing AVO performance should be developed. These approaches should also take into consideration design guidelines and solutions that have been implemented in other mission management-like domains like Air Traffic Control (Friedman-Berg, Yuditsky, & Smith, 2004). Traditional human factors techniques (e.g., Wickens & Hollands, 2000) as well more recently developed neuroergonomic assessment methodologies (e.g., Parasuraman & Rizzo, 2007) are expected to form the basis for much of this technical area.

The desired products from this technical area include documented human factors-driven design guidance developed in coordination with the appropriate Navy leads for the Common Control System and appropriate prototype systems; inputs and recommendations for KSAs to be addressed in AVO training; and inputs and recommendations for KSAs to be part of AVO candidate selection and classification. For test and evaluation purposes, the Navy will make available its UAS Family of Systems Lab (or similar Integration lab facility) as required, pending acceptance of appropriate conditions and availability of facilities.

S & T Issues:

- 1) Identify the core information requirements, platform common and platform specific, leading to successful operation of Group 4 and 5 UAS platforms
- 2) Develop one or more potential display design options that address the requirements identified in (1)
- 3) Develop a suite of measurements to assess key AVO performance characteristics including: situational awareness, workload, vigilance and related indicators of cognitive performance, as well as related psychomotor measures as needed. Specific assessment techniques should be presented and suitably justified in terms of their ability to characterize the link between good design and improved human performance. The development of new measurement approaches is acceptable but should be justified.
- 4) In conjunction with appropriate Navy organizations, develop prototype interface(s) based on (2)
- 5) Conduct appropriate tests and assessments of design options, in terms of information requirements, using measures developed in (3)
- 6) Assess and validate effectiveness of design in terms of enabling a single operator to manage up to 3 UAS of no more than 2 different types showing at least a 25% improvement in performance during a 'Patterns of Life' scenario (see 'Assessment' section below for more details)
- 7) Develop standards and guidelines for effective display designs for the common control system.

A notional timeline for achieving the seven S&T goals indicated above is provided as an example for informational purposes only



Desired Outcomes: Standards & guidelines for developing interface designs along with conceptual frameworks and design prototypes that improve interface ease of use, reducing training requirements, operator workload, operational errors and user fatigue/stress while increasing operator situational awareness and cognitive performance while operating multiple and different UAS systems during long-duration UAS missions in coordination with other UAS operator teams. Standards and guidelines should include recommendations for KSAs to be addressed in AVO training for KSAs to be selected for in candidate AVOs.

Assessment: The assessment will focus on the degree to which the proposed interface design optimizes the AVO's performance compared to a baseline, currently in-use design. Interface design effectiveness should be assessed under two conditions. Early into the effort, effectiveness can be assessed under abstract/lab-based conditions to help provide insight into which measures and design options may be most effective. Later into the effort, operationally relevant measures, which focus on the overall impact of the selected design specifications on AVO performance during an operationally relevant mission (Patterns' of Life'), should be collected within an effective UAS simulation (to be supported by the Navy). For both approaches specific outcomes should demonstrate:

- a. Reduced frequency of vigilance decrements
- b. Improved ability to shift attention across tasks by reducing associated latencies/shift costs associated with multitasking
- c. Enhanced SA over long duration tasks
- d. Ability to easily and effectively transfer control of air vehicles across individuals and teams
- e. Ease of use (or, learnability) of the proposed interface design
- f. Enhanced ability to interact with automation, as demonstrated by reduced frequency of 'automation surprises'

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Factors Implications. Federal Aviation Administration, Department of Transportation Report No. DOT/FAA/AM-04/24

7. Point(s) of Contact -

Questions of a technical nature shall be directed to the cognizant Technical Point of Contact, as specified below:

Science and Technology Point of Contact:

Program Manager Name: CDR Joseph Cohn
Address: Office of Naval Research
Division Deputy / Program Officer
Code 341 Human and Bioengineered Systems
875 N. Randolph Street
Arlington VA 22203-1995
Code: 341 Email: joseph.cohn@navy.mil

Questions of a business nature shall be directed to the cognizant Contract Specialist, as specified below:

Business Point of Contact:

Name: Russelle Dunson
Address: 875 N. Randolph Street
Arlington VA 22203-1995
Code: 0254
Phone: 703-696-8375
Email: russelle.dunson@navy.mil

Any questions regarding this solicitation must be provided to the Technical Point of Contact and Business Point of Contact listed in this solicitation. All questions shall be submitted in writing by electronic mail.

Questions submitted within 2 weeks prior to a deadline may not be answered, and the due date for submission of the white paper and/or full proposal will not be extended.

Amendments will be posted to one or more of the following webpages:

- Federal Business Opportunities (FEDBIZOPPS) Webpage - <https://www.fbo.gov/>
- ONR Broad Agency Announcement (BAA) Webpage - <http://www.onr.navy.mil/en/Contracts-Grants/Funding-Opportunities/Broad-Agency-Announcements.aspx>

Questions of a security nature should be submitted to:

Diana Pacheco
Industrial Security Specialist
Office of Naval Research
Security Department, Code 43
One Liberty Center
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Arlington, VA 22203-1995
Email Address: diana.pacheco@navy.mil

Any CLASSIFIED questions shall be handled through the ONR Security POC. Specifically, any entity wanting to ask a CLASSIFIED question shall send an email to the ONR Security POC with copy to both the Technical POC and the Business POC stating that the entity would like to ask a CLASSIFIED question. DO NOT EMAIL ANY CLASSIFIED QUESTIONS. The Security POC will contact the entity and arrange for the CLASSIFIED question to be asked through a secure method of communication.

8. Instrument Type(s) - Contracts

Awards will be issued as Contracts. ONR reserves the right to award a different instrument type if deemed to be in the best interest of the Government.

Any contract awards resulting from this BAA will incorporate the most current FAR, DFARs, NMCARS and ONR clauses. Examples of model contracts can be found on the ONR website at the following link: <http://www.onr.navy.mil/Contracts-Grants/submit-proposal/contracts-proposal/contract-model-awards.aspx>.

9. Catalog of Federal Domestic Assistance (CFDA) Numbers -

12.300

10. Catalog of Federal Domestic Assistance (CFDA) Titles -

Basic & Applied Scientific Research

11. Other Information -

Work funded under a BAA may include basic research, applied research and some advanced technology development (ATD). With regard to any restrictions on the conduct or outcome of work funded under this BAA, ONR will follow the guidance on and definition of "contracted fundamental research" as provided in the Under Secretary of Defense (Acquisition, Technology and Logistics) Memorandum of 24 May 2010. As defined therein the definition of "contracted fundamental research", in a DoD contractual context, includes [research performed under] grants and contracts that are (a) funded by Research, Development, Test, and Evaluation Budget Activity

1 (Basic Research), whether performed by universities or industry or (b) funded by Budget Activity 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.

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 "contracted fundamental research." In conformance with the USD(AT&L) guidance and National Security Decision Direction 189, ONR will place no restriction on the conduct or reporting of unclassified "contracted fundamental research," except as otherwise required by statute, regulation or Executive Order. 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* in the proposal to identify and describe the subcontracted unclassified research and include a statement confirming that the work has been scoped, negotiated, and determined to be fundamental research according to the prime contractor and research performer.

Normally, fundamental research is awarded under grants with universities and under contracts with industry. ATD is normally awarded under contracts and may require restrictions during the conduct of the research and DoD pre-publication review of research results due to subject matter sensitivity. Potential offerors should consult with the appropriate ONR POCs to determine whether the proposed effort would constitute basic research, applied research or ATD.

As regards to the present BAA, the Research and Development efforts to be funded will consist of applied research and advanced technology development ONLY. The funds available to support awards are Budget Activity 2 and 3.

FAR Part 35 restricts the use of the Broad Agency Announcements (BAAs), such as this, to the acquisition of basic and applied research and that portion of advanced technology development not related to the development of a specific system or hardware procurement. Contracts and grants and other assistance agreements made under BAAs are for scientific study and experimentation directed towards advancing the state of the art and increasing knowledge or understanding. **THIS ANNOUNCEMENT IS NOT FOR THE ACQUISITION OF TECHNICAL, ENGINEERING AND OTHER TYPES OF SUPPORT SERVICES.**

II. AWARD INFORMATION

1. Amount and Period of Performance-

Total Amount of Funding Available

- \$9.3M over four (4) years
- o Technical Area 1: \$2.8M
- o Technical Area 2: \$2.4M

o Technical Area 3: \$4.1M

Anticipated Number of Awards

- One (1) to five (5) across all three Technical Areas

Anticipated Range of Individual Award Amounts per Annum

- Technical Area 1: \$500K-\$9MK
- Technical Area 2: \$500K-\$800K
- Technical Area 3: \$700K-\$1M

Anticipated Period of Performance

- Four (4) years

2. Production and Testing of Prototypes-

In the case of funded proposals for the production and testing of prototypes, ONR may during the contract period add a contract line item or contract option for the provision of advanced component development or for the delivery of additional prototype units. However, such a contract addition shall be subject to the limitations contained in Section 819 of the National Defense Authorization Act for Fiscal Year 2010.

III. ELIGIBILITY INFORMATION

All responsible sources from academia and industry may submit proposals under this BAA. Historically Black Colleges and Universities (HBCUs) and Minority Institutions (MIs) are encouraged to submit proposals and join others in submitting proposals. However, no portion of this BAA will be set aside for HBCU and MI participation.

Federally Funded Research & Development Centers (FFRDCs), including Department of Energy National Laboratories, are not eligible to receive awards under this BAA. However, teaming arrangements between FFRDCs and eligible principal bidders are allowed so long as they are permitted under the sponsoring agreement between the Government and the specific FFRDC.

Navy laboratories and warfare centers as well as other Department of Defense and civilian agency laboratories are also not eligible to receive awards under this BAA and should not directly submit either white papers or full proposals in response to this BAA. If any such organization is interested in one or more of the programs described herein, the organization should contact an appropriate ONR POC to discuss its area of interest. The various scientific divisions of ONR are identified at <http://www.onr.navy.mil/>. As with FFRDCs, these types of federal organizations may team with other responsible sources from academia and industry that are submitting proposals under this BAA.

University Affiliated Research Centers (UARC) are eligible to submit proposals under this BAA unless precluded from doing so by their Department of Defense UARC contracts.

Teams are also encouraged and may submit proposals in any and all areas. However, Offerors must be willing to cooperate and exchange software, data and other information in an integrated program with other contractors, as well as with system integrators, selected by ONR.

Some topics cover export controlled technologies. Research in these areas is limited to "U.S. persons" as defined in the International Traffic in Arms Regulations (ITAR) - 22 CFR § 1201.1 et seq.

IV. APPLICATION AND SUBMISSION INFORMATION

1. Application and Submission Process - Industry Day, White Paper, Oral Presentation, Full Proposals

Pre-proposal Conference/Industry Day: The ONR UASISTT Program will conduct an unclassified briefing for potential Offerors on Tuesday, 17 August 2012 in Arlington, VA. The purpose of the meeting will be to provide potential Offerors with a better understanding of the scope of the Program and objectives of this BAA. The briefing will be held at 0900 Eastern Daylight Time (EDT) with check-in beginning at 0800 Eastern Time. All attendees are required to pre-register by sending a notification of planned attendance to brigid.jacobs.ctr@navy.mil by 3:00 PM (EDT) on Friday, 03 August 2012. The message must include the following information: name of attendee(s), title(s), organization, department or company division, phone, fax, and email address. Pre-registration by email is mandatory; registration requests received after the deadline but prior to the industry day will be approved on an individual basis pending availability. Due to space constraints, no more than three (3) members from a given organization will be allowed to attend. If requested attendance exceeds capacity, it may be necessary to limit attendance, and organizations will be so notified. ONR will reply via email on or before Wednesday, 08 August 2012 to those parties who plan on attending the briefing with the specific location in the Arlington, VA area where the briefing will be conducted, directions, schedule, and any other appropriate information. Those not able to attend this briefing should consult the web page <http://www.onr.navy.mil/02/BAA/> after Friday, 24 August 2012 to see briefing slides and answers to questions submitted during the conference. This information will be posted where this BAA appears on the ONR web site.

White Papers: The due date for white papers is no later than 3:00 PM (EDT) on Monday, 10 September 2012. White papers are to be submitted as a searchable pdf file via electronic mail (email) only to brigid.jacobs.ctr@navy.mil. Each white paper should state that it is submitted in response to this BAA and cite the particular sub-section of the Research Opportunity Description that the white paper is primarily addressing. If an Offeror does not submit a white paper before the specified due date and time, they are not eligible to participate in the remaining Full Proposal submission process.

White Paper Evaluation/Notification: The initial evaluation of the White Papers should give Offerors some indication of whether a Full Proposal would likely result in an award. Initial evaluations of the White Papers will be issued via email notification on or about 12 October 2012. Those PIs whose white papers were identified as being of "particular value" to the Navy will be encouraged to deliver an oral presentation of their research concept prior to the submission of a full proposal. Any Offeror whose white paper technology was not identified as being of "particular value" is ineligible to make an oral presentation or to submit a full proposal under this

BAA.

Oral Presentations: ONR requests that Principal Investigators (PIs) provide expanded presentations of their submitted white paper concepts. The purpose of the oral presentation is to provide additional information and address how the proposed technology will affect military applications. Delivery of an oral presentation does not assure a subsequent award. ONR has dedicated the period between 05 November 2012 and 09 November 2012 for these presentations. Presentations will be delivered in or near the metro DC area. Specific time, location, and briefing format of the oral presentations will be provided at a later date via email notification. ONR reserves the right to cancel oral presentations and to have those PIs whose white papers were identified as being of "particular value" to the Navy simply complete and submit their full proposals.

Oral Presentation Evaluation/Notification: Navy evaluations of the oral presentations (if conducted) will be issued via email notification on or about 16 November 2012. Any Offeror whose technology was presented at the oral presentation and was not identified as being of "particular value" to the Navy will be ineligible to submit a full proposal under this BAA.

Full Proposals: The due date for receipt of Full Proposals is 3:00 PM (EDT) on Friday, 07 December 2012. Full proposals are to be submitted as a searchable pdf file via electronic mail (email) only to brigid.jacobs.ctr@navy.mil. It is anticipated that final selections will be made within eight (8) weeks after the full proposal submission. As soon as the final full proposal evaluation process is completed, PI's will be notified via email of their project's selection or non-selection for FY14 funding. Full proposals received after the published due date and time will not be considered for funding in FY14.

2. Content and Format of White Papers/Full Proposals -

White Papers and Full Proposals submitted under the BAA are expected to be unclassified; however, confidential/classified responses are permitted. If a classified response is submitted, the resultant contract will be unclassified.

Unclassified Proposal Instructions:

Unclassified White Papers and Full Proposals shall be submitted in accordance with Section IV. Application and Submission Information.

Classified Proposal Instructions:

Classified White Papers and Full Proposals shall be submitted directly to the attention of ONR's Document Control Unit at the following address:

OUTSIDE ENVELOPE (no classification marking):

“Office of Naval Research

Attn: Document Control Unit
ONR Code 43
875 N. Randolph St.
Arlington, VA 22203-1995”

The inner wrapper of the classified proposal should be addressed to the attention of CDR Joseph Cohn (cohnj@onr.navy.mil), ONR Code 341 and marked in the following manner:

INNER ENVELOPE (stamped with the overall classification of the material)

“Program: Unmanned Aerial Systems Interface, Selection, and Training Technologies (UASISTT)
Office of Naval Research
Attn: CDR Joseph Cohn
ONR Code: 341
875 N. Randolph St.
Arlington, VA 22203-1995”

An 'unclassified' Statement of Work (SOW) must accompany any classified proposal.

Proposal submissions will be protected from unauthorized disclosure in accordance with FAR Subpart 15.207, applicable law, and DoD/DoN regulations. Offerors are expected to appropriately mark each page of their submission that contains proprietary information.

IMPORTANT NOTE: Titles given to the White Papers/Full Proposals should be descriptive of the work they cover and not be merely a copy of the title of this solicitation.

a. WHITE PAPERS

White Paper Format

- Paper Size - 8.5 x 11 inch paper
- Margins - 1 inch
- Spacing - single spaced
- Font - Times New Roman, 12 point
- Max. Number of Pages permitted: 11 pages (excluding cover page, resumes, bibliographies, and table of contents)
- Copies – one (1) electronic copy, in Adobe PDF (electronically searchable) format. Electronic (email) submissions should be sent to the attention of brigid.jacobs.ctr@navy.mil. The subject line of the email shall read "ONR BAA12-011White Paper Submission." The white paper must be a Microsoft Word 2007 or .PDF format attachment to the email.

NOTE: 1) Do not send hardcopies of White Papers (including facsimiles) as only electronic submissions will be accepted and reviewed; 2) Do not send .ZIP files; 3) Do not send password protected files.

In order to provide traceability and evidence of submission, Offerors may wish to use the "Delivery Receipt" option available from Microsoft Outlook and other email programs that will automatically generate a response when the subject email is delivered to the recipient's email system. Consult the User's Manual for your email software for further details on this feature.

White Paper Content

NOTE: A SEPARATE WHITE PAPER MUST BE SUBMITTED FOR EACH TECHNICAL AREA IF THE OFFEROR IS PROPOSING WORK IN TWO OR MORE TECHNICAL AREAS.

- **Cover Page:** The Cover Page shall be labeled "WHITE PAPER", and shall include the BAA number, proposed title, Offeror's administrative and technical points of contact, with telephone numbers, facsimile numbers, and Internet addresses, and shall be signed by an authorized officer.

- **Technical Concept:** A description of the technology innovation and technical risk areas.
 1. One-half page executive summary
 2. One page summary of the technical ideas for the proposed research including objective
 3. Four page technical rationale and approach which contains arguments to substantiate claims made in the summary of technical ideas and is consistent with the summary of the deliverables and the summary of the schedule and milestones for the proposed research.
 4. One page summary of the deliverables associated with the proposed research;
 5. One page summary of the schedule and milestones for the proposed research, including detailed budget for each year of the effort and total cost;
 6. One page listing of key personnel along with the approximate percentage of time to be expended by each person during each contract year;
 7. No more than one and a half page concise summary of the qualifications of key personnel. (Note: This summary is separate from any resumes that the proposer may submit.)

- **Operational Naval Concept:** A description of the project objectives, the concept of operation for the new capabilities to be delivered, and the expected operational performance improvements.

- **Operational Utility Assessment Plan:** A plan for demonstrating and evaluating the operational effectiveness of the Offeror's proposed products or processes in field experiments and/or tests in a simulated environment.*Please note that both the Operational Naval Concept and the Operational Utility Assessment Plan have a one page maximum.

b. FULL PROPOSALS

NOTE: A SEPARATE FULL PROPOSAL MUST BE SUBMITTED FOR EACH TECHNICAL AREA IF THE OFFEROR IS PROPOSING WORK IN TWO OR MORE TECHNICAL AREAS.

INSTRUCTIONS FOR CONTRACTS

NOTE: Submission instructions for BAAs issued after FY 2010 have changed significantly from previous requirements. Potential Offerors are advised to carefully read and follow the instructions below. The new format and requirements have been developed to streamline and ease both the submission and the review of proposals.

All proposals must include the following three documents:

- (1) Technical Proposal Template (pdf)*
- (2) Technical Content (word)*
- (3) Cost Proposal Spreadsheet (excel)*

The documents can be found at: <http://www.onr.navy.mil/Contracts-Grants/submit-proposal/contracts-proposal/cost-proposal.aspx>

All have instructions imbedded into them that will assist in completing the documents. Also, both the Template and the Spreadsheet require completion of cost-related information. Please note that all the attachments listed can be incorporated into the Technical proposal template for submission.

The format requirements for any attachments are as follows:

- Paper Size- 8.5 x 11 inch paper
- Margins -1 inch
- Spacing- single or double spaced
- Font- Times New Roman, 12 point

NOTE: 1)Hardcopies (2) and electronic submissions are requested for full proposals; 2) Do

not send .ZIP files; 3) Do not send password protected files

The Cost Proposal Spreadsheet can be found by following this link:

<http://www.onr.navy.mil/Contracts-Grants/submit-proposal/contracts-proposal/cost-proposal.aspx>.

Click on the “proposal spreadsheet” link and save a copy of the spreadsheet. Instructions for completion have been embedded into the spreadsheet. Any proposed options that are identified in the Technical Proposal Template or Technical Content documents, but are not fully priced out in the Cost Proposal Spreadsheet, will not be included in any resulting contract or other transaction. If proposing options, they **must** be separately priced and separate spreadsheets should be provided for the base period and each option period. In addition to providing summary by period of performance (base and any options), the Contractor is also responsible for providing a breakdown of cost for each task identified in the Statement of Work. The sum of all costs by task worksheets **MUST** equal the total cost summary.

For proposed subcontracts or inter-organizational transfers over \$150,000, Offerors must provide a separate fully completed Cost Proposal Spreadsheet in support of the proposed costs. This spreadsheet, along with supporting documentation, must be provided either in a sealed envelope with the prime’s proposal or via e-mail directly to both the Program Officer and the Business Point of Contact at the same time the prime proposal is submitted. The e-mail should identify the proposal title, the prime Offeror and that the attached proposal is a subcontract, and should include a description of the effort to be performed by the subcontractor. Offerors should also familiarize themselves with the new subcontract reporting requirements set forth in Federal Acquisition Regulation (FAR) clause 52.204-10, Reporting Executive Compensation and First-Tier Subcontract Awards. The pertinent requirements can be found in Section VII, Other Information, of this document.

The electronic copy should be submitted in a secure, pdf-compatible format, except for the electronic file for the Cost Proposal Spreadsheet which should be submitted in a Microsoft Excel 2007 compatible format. All attachments should be submitted in a secure, pdf-compatible format.

The secure pdf-compatible format is intended to prevent unauthorized editing of the proposal prior to any award. A password should not be required for opening the proposal document, but the Government must have the ability to print and copy text, images, and other content. Offerors may also submit their Technical Proposal Template and Technical Content in an electronic file that allows for revision (preferably in Microsoft Word) to facilitate the communication of potential revisions. Should an Offeror amend its proposal, the amended proposal should be submitted following the same hard and electronic copy guidance applicable to the original proposal.

The electronic submission of the Excel spreadsheet should be in a “useable condition” to aid the Government with its evaluation. The term “useable condition” indicates that the spreadsheet should visibly include and separately identify within each appropriate cell any and all inputs, formulas, calculations, etc. The Offeror should not provide “value only spreadsheets” similar to a hard copy.

3. Significant Dates and Times -

Event	Date	Time
Notification of Attendance for Conference / Industry Day	8/3/2012	3:00 PM Eastern Daylight Time
Pre-Proposal Conference / Industry Day	8/17/2012	9:00 AM Eastern Daylight Time
White Paper Due Date	9/10/2012	3:00 PM Eastern Daylight Time
Notification of White Paper Evaluation*	10/12/2012	5:00 PM Eastern Daylight Time
Oral Presentations*	11/5/2012 - 11/9/2012	TBD
Notification of Oral Presentation Evaluation*	11/16/2012	5:00 PM Eastern Daylight Time
Full Proposal Due Date	12/7/2012	3:00 PM Eastern Daylight Time
Notification of Selection: Full Proposals*	2/4/2013	5:00 PM Eastern Daylight Time
Awards*	10/1/2013	

**These dates are estimates as of the date of this announcement.*

4. Submission of Late Proposals (Applicable to White Papers and Full Proposals) -

Any proposal, modification, or revision that is received at the designated Government office after the exact time specified for receipt of proposals is "late" and will not be considered unless it is received before award is made, the contracting officer determines that accepting the late proposal would not unduly delay the acquisition and:

- a. If it was transmitted through an electronic commerce method authorized by the announcement, it was received at the initial point of entry to the Government infrastructure not later than 5:00 P.M. one working day prior to the date specified for receipt of proposals; or
- b. There is acceptable evidence to establish that it was received at the Government installation designated for receipt of proposals and was under the Government's control prior to the time set for receipt of proposals; or
- c. It was the only proposal received.

However, a late modification of an otherwise timely and successful proposal that makes its terms more favorable to the Government will be considered at any time it is received and may be accepted.

Acceptable evidence to establish the time or receipt at the Government installation includes the

time/date stamp of that installation on the proposal wrapper, other documentary evidence of receipt maintained by the installation, or oral testimony or statements of Government personnel.

If an emergency or unanticipated event interrupts normal Government processes so that proposals cannot be received at the Government office designated for receipt of proposals by the exact time specified in the announcement, and urgent Government requirements preclude amendment of the announcement closing date, the time specified for receipt of proposals will be deemed to be extended to the same time of day specified in the announcement on the first work day on which normal Government processes resume.

The contracting officer must promptly notify any offeror if its proposal, modifications, or revision was received late and must inform the offeror whether its proposal will be considered.

5. Address for the Submission of White Papers and Full Proposals for Contracts -

White Papers and Full Proposals for Contracts must be emailed to Brigid Jacobs at the following email address: brigid.jacobs.ctr@navy.mil

V. EVALUATION INFORMATION

1. Evaluation Criteria -

Award decisions will be based on a competitive selection of proposals resulting from a scientific and cost review. Evaluations will be conducted using the following evaluation criteria. Criteria 1 through 4 are significantly more important than Criterion 5, and Criteria 1 through 4 are of equal value.

1. Overall scientific and technical merits of the proposal;
2. Potential Naval relevance and contributions of the effort to the agency's specific mission and
3. The offeror's capabilities, related experience, facilities, techniques or unique combinations of these which are integral factors for achieving the proposal objectives;
4. The qualifications, capabilities and experience of the proposed Principal Investigator (PI), team leader and key personnel who are critical in achieving the proposal objectives;
5. The realism of the proposed costs and availability of funds.

The degree of importance of cost will increase with the degree of equality of the proposals in relation to the other factors on which selection is to be based, or when the cost is so significantly high as to diminish the value of the proposal's technical superiority to the Government.

The ultimate recommendation for award of proposals is made by ONR's scientific/technical community. Recommended proposals will be forwarded to the contracts department which will perform costs analysis prior to any ensuing negotiations. Any notification received from ONR that indicates that the Offeror's full proposal has been recommended, does not ultimately guarantee an award will be made. This notice indicates that the proposal has been selected in accordance with the evaluation criteria above and has been sent to the contracting department to conduct cost

analysis, determine the offeror's responsibility, and take any other relevant steps necessary prior to commencing negotiations.

Industry-Academia Partnering - ONR highly encourages partnering among industry and academia with a view toward speeding the incorporation of new science and technology into fielded systems. Proposals that utilize industry-academic partnering which enhances the development of novel S&T advances will be given favorable consideration.

Industry-Government Partnering - ONR highly encourages partnering among industry and Government with a view toward speeding the incorporation of new science and technology into fielded systems. Proposals that utilize industry-Government partnering which enhances the development of novel S&T advances will be given favorable consideration

2. Evaluation Panel -

Technical and cost proposals submitted under this BAA will be protected from unauthorized disclosure in accordance with FAR 3.104-4 and 15.207. The cognizant Program Officer and other Government scientific experts will perform the evaluation of technical proposals. Restrictive notices notwithstanding, one or more support contractors may be utilized as subject-matter-expert technical consultants. However, proposal selection and award decisions are solely the responsibility of Government personnel. Each support contractor's employee having access to technical and cost proposals submitted in response to this BAA will be required to sign a non-disclosure statement prior to receipt of any proposal submissions.

3. Commitment to Small Business- (For Contract Awards Only)

The Office of Naval Research is strongly committed to providing meaningful subcontracting opportunities for small businesses, small disadvantaged businesses (SDBs), woman-owned small businesses (WOSBs), historically underutilized business zone (HUBZone) small businesses, veteran-owned small business (VOSBs), service disabled veteran-owned small businesses (SDVOSBs), historically black colleges and universities, and minority institutions, and other concerns subject to socioeconomic considerations through its awards.

a.) Subcontracting Plan - For proposed awards to be made as contracts that exceed \$650,000, large businesses and non-profits (including educational institutions) shall provide a Subcontracting Plan that contains all elements required by FAR 52.219-9, as supplemented by DFARS 252.219-7003. Small businesses are exempt from this requirement.

The Subcontracting Plan should be submitted as an attachment to the "Technical Proposal Template" and will not be included in the page count. If a company has a Master Subcontracting Plan, as described in FAR 19.701 or a Comprehensive Subcontracting Plan, as described in DFARS 219.702, a copy of the plan shall also be submitted as an attachment to the "Technical Proposal Template."

Plans will be reviewed for adequacy, ensuring that the required information, goals, and assurances are included. If a subcontracting plan is not submitted with the proposal package or the

negotiation of an acceptable subcontracting plan is required, there could be a delay in the issuance of an award. In addition, in accordance with FAR 52.219-9, failure to submit and negotiate a subcontracting plan may make an offeror ineligible for contract award.

Offerors shall propose a plan that ensures small businesses (inclusive of SDBs, WOSBs, HUBZone, VOSBs and SDVOSBs, etc...) will have the maximum practicable opportunity to participate in contract performance consistent with its efficient performance.

As a baseline, offerors shall to the best extent possible propose realistic goals to ensure small business participation in accordance with the current fiscal year subcontracting goals found on the Department of Defense Office of Small Business Program website at:

<http://www.acq.osd.mil/osbp/> If proposed goals are below the statutory requirements, then the offeror should provide a viable written explanation as to why small businesses are unable to be utilized and what attempts have been taken to ensure that small business were given the opportunity to participate in the effort to the maximum extent practicable.

b.) Small Business Participation Statement –

If subcontracting opportunities exist, all prime Offerors shall submit a Small Business Participation Statement regardless of size in accordance with DFARS 215.304 when receiving a contract for more than the simplified acquisition threshold (i.e., \$150,000). All offerors shall provide a statement of the extent of the offeror's commitment in providing meaningful subcontracting opportunities for small businesses and other concerns subject to socioeconomic considerations through its awards and must agree that small businesses, VOSBs, SDVOSBs, HUBZones, SDBs, and WOSBs concerns will have to the maximum practicable opportunity to participate in contract performance consistent with its efficient performance.

NOTE: Small Business Offerors may meet the requirement using work they perform themselves.

This assertion will be reviewed to ensure that it supports this policy by providing meaningful subcontracting opportunities. The statement should be submitted as a part of the proposal package and will not be included in the page count.

4. Options -

The Government will evaluate options for award purposes by adding the total cost for all options to the total cost for the basic requirement. Evaluation of options will not obligate the Government to exercise the options during the period of performance.

VI. AWARD ADMINISTRATION INFORMATION

1. Administrative Requirements -

- The North American Industry Classification System (NAICS) code - The NAICS code for this announcement is "541712" with a small business size standard of "500 employees".

- **Central Contractor Registration:** All Offerors submitting proposals or applications must:
 - (a) be registered in the Central Contractor Registration (CCR) prior to submission;
 - (b) maintain an active CCR registration with current information at all times during which it has an active Federal award or an application under consideration by any agency; and
 - (c) provide its DUNS number in each application or proposal it submits to the agency.

Access to your Contract Award

Effective 01 October 2011, hard copies of award/modification documents will no longer be mailed to Offerors. All Office of Naval Research (ONR) award/modification documents will be available via the Department of Defense (DoD) Electronic Document Access System (EDA).

EDA

EDA is a web-based system that provides secure online access, storage, and retrieval of awards and modifications to DoD employees and vendors.

If you do not currently have access to EDA, you may complete a self-registration request as a "Vendor" via <http://eda.ogden.disa.mil> following the steps below:

Click "New User Registration" (from the left Menu) Click "Begin VENDOR User Registration Process" Click "EDA Registration Form" under Username/Password (enter the appropriate data) Complete & Submit Registration form

Allow five (5) business days for your registration to be processed. EDA will notify you by email when your account is approved.

Registration questions may be directed to the EDA help desk toll free at 1-866-618-5988, Commercial at 801-605-7095, or via email at cscassig@csd.disa.mil (Subject: EDA Assistance

VII. OTHER INFORMATION

1. Government Property/Government Furnished Equipment (GFE) and Facilities

Government research facilities and operational military units are available and should be considered as potential government-furnished equipment/facilities. These facilities and resources are of high value and some are in constant demand by multiple programs. It is unlikely that all facilities would be used for any one specific program. The use of these facilities and resources will be negotiated as the program unfolds. Offerors submitting proposals for contracts, cooperative agreements and Other Transaction Agreements should indicate in the Technical Proposal Template, Section II, Blocks 8 and 9, which of these facilities are critical for the project's success. Examples of facilities and resources that are planned to be included as part of this

announcement include:

- a. Access to Government personnel for purposes of capturing data through interviews and/or experiments, subject to applicable Human Subjects Research requirements
- b. Access to program-relevant hardware and software necessary for understanding scientific and technical requirements and applications and for validating concepts and prototypes
 - 1) For Technical Area 1, access will include assistance in obtaining APEX software and related licenses; reasonable technical support for APEX including support integrating the developed algorithms into the APEX system. Access will also include reasonable Navy subject matter expertise necessary for developing and validating selection and classification tests appropriate for Naval Aviation.
 - 2) For Technical Area 2 access will include assistance in obtaining relevant Navy SAF generation software; reasonable technical support for developing solutions for integrating Offerors' software with Navy SAF generation software and, (in FY 16) access to the Navy's Family of Systems Lab, which provides a simulated mission operations environment with UAS training activities.
 - 3) For Technical Area 3 access will include, in FY 16, access to the Navy's Family of Systems Lab, which provides support for human performance behavior analysis and optimization of human-in-the-loop UAS control capabilities. Prior to that, access will include reasonable subject matter expertise necessary for understanding specific human-factors related challenges associated with the Navy's Common Control System.
- c. For all Technical Areas, access to program-relevant Government publications, documentation, and technical reports in accordance with appropriate distribution statements and requirements.

2. Security Classification

In order to facilitate intra-program collaboration and technology transfer, the Government will attempt to enable technology developers to work at the unclassified level to the maximum extent possible. If access to classified material will be required at any point during performance, the Offeror must clearly identify such need by completing Section II of the Technical Proposal Template, and Block 11, of the DD 254 – Security Classification Specification.

If it is determined that access to classified information will be required during the performance of an award, a Department of Defense (DD) Form 254 will be attached to the contract; and FAR 52.204-2 – Security Requirements will be incorporated into the contract.

3. Use of Animals and Human Subjects in Research

If animals are to be utilized in the research effort proposed, the Offeror must complete a DoD Animal Use Protocol with supporting documentation (copies of AALAC accreditation and/or NIH assurance, IACUC approval, research literature database searches, and the two most recent USDA inspection reports) prior to award. For assistance with submission of animal research related documentation, contact the ONR Animal Use Administrator at (703) 696-4046.

Similarly, for any proposal for research involving human subjects, the Offeror must submit or indicate an intention to submit prior to award: documentation of approval from an Institutional Review Board (IRB); IRB-approved research protocol; IRB-approved informed consent form; proof of completed human research training (e.g., training certificate or institutional verification of training); an application for a DoD-Navy Addendum to the Offeror's DHHS-issued Federal wide Assurance (FWA) or the Offeror's DoD-Navy Addendum. In the event that an exemption criterion under 32 CFR.219.101 (b) is claimed, provide documentation of the determination by the Institutional Review Board (IRB) Chair, IRB vice Chair, designated IRB administrator or official of the human research protection program including the category of exemption and short rationale statement. This documentation must be submitted to the ONR Human Research Protection Official (HRPO), by way of the ONR Program Officer. Information about assurance applications and forms can be obtained by contacting ONR_343_contact@navy.mil. If the research is determined by the IRB to be greater than minimal risk, the Offeror also must provide the name and contact information for the independent medical monitor. For assistance with submission of human subject research related documentation, contact the ONR Human Research Protection Official at (703) 696-4046.

For contracts and orders, the award and execution of the contract, order, or modification to an existing contract or order serves as notification from the Contracting Officer to the Contractor that the HRPO has approved the assurance as appropriate for the research under the Statement of Work and also that the HRPO has reviewed the protocol and accepted the IRB approval or exemption determination for compliance with the DoD Component policies. See, DFARS 252.235-7004.

4. Recombinant DNA -- RESERVED

Proposals which call for experiments using recombinant DNA must include documentation of compliance with Department of Human and Health Services (DHHS) recombinant DNA regulations, approval of the Institutional Biosafety Committee (IBC), and copies of the DHHS Approval of the IBC letter.

5. Use of Arms, Ammunition and Explosives -- RESERVED

Safety

The Offeror is required to be in compliance with DoD manual 4145.26-M, *DoD Contractor's Safety Manual for Ammunition and Explosives* if ammunitions and/or explosives are to be utilized under the proposed research effort. (See DFARS 223.370-5 and DFARS 252.223-7002) If ammunitions and/or explosives (A&E) are to be utilized under the proposed research effort, the Government requires a preaward safety survey in accordance with DFARS PGI 223.370-4(C)(iv) entitled *Preaward survey*. The Offeror is solely responsible for contacting the cognizant DCMA office and obtaining a required preaward safety survey before proposal submission. The Offeror should include required preaward safety surveys with proposal submissions.

If the Offeror proposes that the Government provide Government-furnished A&E containing any nitrocellulose-based propellants and/or nitrate ester-based materials (such as nitroglycerin,) or other similar A&E with a tendency to become chemically unstable over time, then NMCARS

5252.223-9000 will also apply to a resulting contract award. (See NMCARS 5223.370-5)

Security

If arms, ammunition and explosives (AA&E) are to be utilized under the proposed research effort, the Government requires a preaward security survey. The Offeror is solely responsible for contacting the cognizant DCMA office and obtaining a required preaward security survey before proposal submission. The Offeror should include a required preaward security survey with proposal submission. (See DoD manual 5100.76-M, *Physical Security of Sensitive Conventional Arms, Ammunition and Explosives*, paragraph C1.3.1.4)

If AA&E are to be utilized under the proposed research effort, the Government may require the Contractor to have perimeter fencing around the place of performance in accordance with DoD 5100.76-M, Appendix 2.

If AA&E are to be utilized under the research effort, the Offeror is required to provide a written copy of the Offeror's AA&E accountability procedures in accordance with DoD 5100.76-M. If the Offeror is required to provide written AA&E accountability procedures, the Offeror should provide the respective procedures with its proposal submission. See DoD 5100.76-M Appendix 2.12.

6. Department of Defense High Performance Computing Program

The DoD High Performance Computing Program (HPCMP) furnishes the DoD S & T and DT & E communities with use-access to very powerful high performance computing systems. Awardees of ONR contracts, grants, and assistance instruments may be eligible to use HPCMP assets in support of their funded activities if ONR Program Officer approval is obtained and if security/screening requirements are favorably completed. Additional information and an application may be found at <http://www.hpcmo.hpc.mil/>.

7. Organizational Conflicts of Interest

All Offerors and proposed subcontractors must affirm whether they are providing scientific, engineering, and technical assistance (SETA) or similar support to any ONR technical office(s) through an active contract or subcontract. All affirmations must state which office(s) the offeror supports and identify the prime contract numbers. 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 shall include a description of the action the offeror has taken or proposes to take to avoid, neutralize, or mitigate such conflict. In accordance with FAR 9.503 and without prior approval, a contractor cannot simultaneously be a SETA and a research and development performer. Proposals that fail to fully disclose potential conflicts of interests or do not have acceptable plans to mitigate identified conflicts will be rejected without technical evaluation and withdrawn from further consideration for award. Additional ONR OCI guidance can be found at <http://www.onr.navy.mil/About-ONR/compliance-protections/Organizational-Conflicts-Interest.aspx>. If a prospective offeror believes that any conflict of interest exists or may exist (whether organizational or otherwise), the offeror should promptly raise the issue with ONR by sending his/her contact information and a summary of the

potential conflict by e-mail to the Business Point of Contact in Section I, item 7 above, before time and effort are expended in preparing a proposal and mitigation plan. If, in the sole opinion of the Government after full consideration of the circumstances, any conflict situation cannot be effectively avoided, the proposal may be rejected without technical evaluation and withdrawn from further consideration for award under this BAA.

8. Project Meetings and Reviews

Individual program reviews between the ONR sponsor and the performer may be held as necessary. Program status reviews may also be held to provide a forum for reviews of the latest results from experiments and any other incremental progress towards the major demonstrations. These meetings will be held at various sites throughout the country. For costing purposes, offerors should assume that 40% of these meetings will be at or near ONR, Arlington VA and 60% at other contractor or government facilities. Interim meetings are likely, but these will be accomplished via video telephone conferences, telephone conferences, or via web-based collaboration tools.

9. Executive Compensation and First-Tier Subcontract Reporting (APPLIES ONLY TO CONTRACTS)

Section 2(d) of the Federal Funding Accountability and Transparency Act of 2006 (Pub. L. No. 109-282), as amended by section 6202 of the Government Funding Transparency Act of 2008 (Pub. L. 110-252), requires the Contractor to report information on subcontract awards. The law requires all reported information be made public, therefore, the Contractor is responsible for notifying its subcontractors that the required information will be made public.

Unless otherwise directed by the Contracting Officer, by the end of the month following the month of award of a first-tier subcontract with a value of \$25,000 or more, (and any modifications to these subcontracts that change previously reported data), the Contractor shall report the following information at <http://www.ftrs.gov> for each first-tier subcontract:

- (a) Unique identifier (DUNS Number) for the subcontractor receiving the award and for the subcontractor's parent company, if the subcontractor has one.

- (b) Name of the subcontractor.

- (c) Amount of the subcontract award.

- (d) Date of the subcontract award.

- (e) A description of the products or services (including construction) being provided under the subcontract, including the overall purpose and expected outcomes or results of the subcontract.

- (f) Subcontract number (the subcontract number assigned by the Contractor).

- (g) Subcontractor's physical address including street address, city, state, and country. Also include the nine-digit zip code and congressional district.

- (h) Subcontractor's primary performance location including street address, city, state, and country. Also include the nine-digit zip code and congressional district.

- (i) The prime contract number, and order number if applicable.

- (j) Awarding agency name and code.

- (k) Funding agency name and code.

- (l) Government contracting office code.

- (m) Treasury account symbol (TAS) as reported in FPDS.

- (n) The applicable North American Industry Classification System (NAICS) code.

By the end of the month following the month of a contract award, and annually thereafter, the Contractor shall report the names and total compensation of each of the five most highly

compensated executives for the Contractor's preceding completed fiscal year at <http://www.ccr.gov>, if -

- (a) In the Contractor's preceding fiscal year, the Contractor received -
 - (i) 80 percent or more of its annual gross revenues from Federal contracts (and subcontracts), loans, grants (and subgrants) and cooperative agreements; and
 - (ii) \$25,000,000 or more in annual gross revenues from Federal contracts (and subcontracts), loans, grants (and subgrants) and cooperative agreements; and

- (b) The public does not have access to information about the compensation of the executives through periodic reports filed under section 13(a) or 15(d) of the Securities Exchange Act of 1934 (15 U.S.C. 78m(a), 78o(d)) or section 6104 of the Internal Revenue Code of 1986. (To determine if the public has access to the compensation information, see the U.S. Security and Exchange Commission total compensation filings at <http://www.sec.gov/answers/execomp.htm>).

Unless otherwise directed by the Contracting Officer, by the end of the month following the month of a first-tier subcontract with a value of \$25,000 or more, and annually thereafter, the Contractor shall report the names and total compensation of each of the five most highly compensated executives for each first-tier subcontractor for the subcontractor's preceding completed fiscal year at <http://www.fsr.gov>, if -

- (a) In the subcontractor's preceding fiscal year, the subcontractor received -
 - (i) 80 percent or more of its annual gross revenues from Federal contracts (and subcontracts), loans, grants (and subgrants) and cooperative agreements; and
 - (ii) \$25,000,000 or more in annual gross revenues from Federal contracts (and subcontracts), loans, grants (and subgrants) and cooperative agreements; and

- (b) The public does not have access to information about the compensation of the executives through periodic reports filed under section 13(a) or 15(d) of the Securities

Exchange Act of 1934 (15 U.S.C. 78m(a), 78o(d)) or section 6104 of the Internal Revenue Code of 1986. (To determine if the public has access to the compensation information, see the U.S. Security and Exchange Commission total compensation filings at <http://www.sec.gov/answers/execomp.htm>).

If the Contractor in the previous tax year had gross income, from all sources, under \$300,000, the Contractor is exempt from the requirement to report subcontractor awards. Likewise, if a subcontractor in the previous tax year had gross income from all sources under \$300,000, the Contractor does not need to report awards to that subcontractor.

10. Other Guidance, Instructions, and Information

None