ONR BAA Announcement # 07-026

BROAD AGENCY ANNOUNCEMENT (BAA)

FORCEnet Science and Technology (S&T)

Large Tactical Sensor Networks II

INTRODUCTION

This publication constitutes a Broad Agency Announcement (BAA) as contemplated in Federal Acquisition Regulation (FAR) 6.102(d) (2) and Department of Defense Grant and Agreement Regulations (DODGARS) 22.315. A formal Request for Proposal (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. ONR reserves the right to select for award all, some or none of the proposals in response to this announcement. 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

2. Research Opportunity Title -

Technology for FORCEnet Science and Technology (S&T) - Large Tactical Sensor Networks II

3. Program Name -

FORCEnet Science and Technology (S&T) - Large Tactical Sensor Networks

4. Research Opportunity Number -

BAA 07-026

5. Response Date -

White Papers:	12 June 2007
Oral Presentations:	31 July – 2 Aug 2007
Full Proposals:	21 September 2007

6. Research Opportunity Description -

Synopsis: Last year, the first Large Tactical Sensor Networks (LTSN) BAA 06-015 was issued with seven product areas. To continue the development of new technologies under this program, this second BAA having five product areas will highlight specific technologies for development. The goal of the Large Tactical Sensor Networks program is to develop and demonstrate measurable advances to enable sensor networks of unmanned vehicles and unattended ground sensors to rapidly respond to small unit intelligence requirements, automatically sense the tactical environment and perform automated translation, fusion, and dissemination of sensor data into actionable intelligence. This will be accomplished through technology development and algorithms that can directly support expeditionary warfighting forces in the Global War on Terrorism (GWOT). Large Tactical Sensor Networks are envisioned to operate in a net centric environment[1] providing support to expeditionary forces to carry out the warfighting philosophies of the Marine Corps[2], Special Operations, and the Naval Expeditionary Combat Command (NECC). ONR seeks both to automate processes that provide small tactical units with an automated understanding of relationships among battlespace objects and events and to automate management of multiple hypotheses about the intent of these objects and groupings. Data analysis and fusion algorithms resulting from this research will be integrated into emerging net-centric Navy and Marine Corps Command & Control and Intelligence, Surveillance, and Reconnaissance (C2 and ISR) acquisition programs and Distributed Common Ground System (DCGS) through a Service Oriented Architecture (SOA) [3]. Sensor network management and human interface technologies will also be designed to be integrated with relevant naval unmanned vehicle systems such as the Marine Corps Tier II UAV.

6.1 Operational Requirements

In today's asymmetric threat environment, it is critical that small units be able to rapidly and reliably task sensor networks to provide actionable intelligence. Expeditionary fighting forces are highly trained fighting forces. This force needs the direct support of tactical sensor feeds that can automatically alert and warn the Naval forces of impending dangers. Fusing the broad spectrum of sensor data at the lowest tactical level and providing tools to visualize the threat is the desired outcome. Data must be fused and visualization provided through use of the limited computational capability available at the lowest tactical levels.

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[1] Netcentricity based programs and concepts include FORCEnet, Distributed Common Ground System (DCGS), DoD ISR Enterprise, MCISRE, etc.

[2] Marine Corps' warfighting philosophy is Distributed Operations (DO). DO is based on decentralized command and control, decentralized decision-making and execution, highly trained small unit leaders, and empowered decision makers at all levels down to the small unit leader.

[3] The SOA that is applicable to technology development of the Program is the Navy (PEO C4I and Space) and Air Force Electronic Systems Command Netcentric Enterprise Solutions for Interoperability (NESI). NESI provides implementation guidance, technical criteria and reusable software components that can facilitate the design, development and usage of information systems that support Net-Centric Warfare. These are available at http://nesipublic.spawar.navy.mil/

The requirement for a large networked sensor field comes from the need to support persistent surveillance, multi-INT fusion for Expeditionary Operations. Persistent surveillance is needed for operations against an asymmetric threat that requires the effective monitoring of activity everywhere at once, all the time. The enemy may appear anywhere at any time; therefore, expeditionary forces must monitor a large area continuously in order to identify potential threats and take action to prevent them. Due to the dynamic nature of the battlefield, small units will need to be able to rapidly re-allocate and re-task unmanned platforms and ground sensors to support time-critical intelligence needs. Technology sought in this BAA will enable sensor networks to rapidly and reliably respond to small unit intelligence needs through user friendly human interfaces. It will also enable existing fusion algorithms, operating in the SOA described in the Synopsis paragraph above, to fuse data and produce useful information. After attacks, a record of the previous minutes, hours, or days may indicate where the enemy came from and where they went. Expeditionary forces will use this data to track down persons of interest. No one sensor-type can be everywhere at once, and a small number of mobile and static sensors will leave inevitable gaps in coverage. Therefore, a large number of sensors must be networked together at the tactical level to achieve persistent surveillance over a large area. A large number of autonomous sensor modalities can assist expeditionary force warfighters in investigating suspicious activity when it occurs.

Today's asymmetric threat drives the need for multi-INT fusion of data from many modalities of sensing. Cold war fusion algorithms could usually identify a T-72 tank with a single type of sensor modality. However, a terrorist cannot be identified with a single type of sensor. More modalities are needed to identify the threat and that means more sensors and sensor types. The development of these new sensors and sensor types are addressed under the related ONR BAA 07-014 GWOT Focused Tactical Persistent Surveillance posted on 16 May 2007. Further, the multi-INT data needs to be brought together (networked) in the SOA in order to fuse it for timely battlefield awareness. ONR is seeking new fusion algorithms; ONR seeks to make fusion available to expeditionary forces at low tactical echelons through use of tactical SOA. Intelligence *must* be a key enabler for the flexible, distributed, combined arms force packages of the future.

This program will address the current shortfalls summarized by the following:

- Tactical sensor systems are not networked to each other or to small units of expeditionary force warfighters in the environment
- A divide exists between receiving timely and useful tactical sensor data and the delivery of actionable intelligence to the Marine Expeditionary Force (MEF) and subordinate expeditionary force units
- Software applications do not exist to automatically translate and fuse data into tactical situational awareness (SA) and indications and warning (I&W)
- Tactical units now receive little or no intelligence of value because they have very few organic ISR assets under their control

- Algorithms do not exist to fuse tactical data (level 2 fusion for a GWOT asymmetric environment) in the expeditionary forces' tactical environment using tactically available computing capabilities
- Fielded sensor modalities (operating modes or types of sensors, such as acoustic or imaging) have not been optimized against mission requirements
- Sensor planning and management is personnel intensive -- exploiting sensor data requires people and skills not available at the tactical level
- Current C2 backbones do not integrate forward deployed tactical sensor systems

This program will provide the data analysis and sensor control enablers for evolving Naval/Marine Corps persistent ISR programs of record.

6.2 Program Goals

The goal of the Large Tactical Sensor Networks program is to develop software technologies to manage available sensor assets to provide battlespace awareness (BA) through all levels of fusion of data [4] from multiple distributed intelligence sources (multi-INT). The data will be consistent with DoD standards and formats which may be extended for full interoperability of sensor data with other tactical systems, catalogs, and databases. The objective is to sort the multi-INT distributed tactical sensor data into standard structures that enable knowledge of the various relationships between:

- Entities/Individuals/Cells/Groups –identification of and relationships to others
- Metadata, time, space, association to events and entities
- Patterns vs. events
- Tracking histories
- Events – identification of what's 'normal' in the urban environment vs. changes to that environment
- Buildings/facilities/places

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4 ***Level one*** data fusion performs "object refinement", which is an iterative process of combining data from multiple sensors/sources to determine the position, kinematics, identity or attributes of objects (e.g. vehicles) or events (e.g. emissions). Key functions include: a) Data alignment - Normalization of data with respect to time, space, and units to permit common data processing; b) Data association - Determination of whether or not newly received observations relate to existing tracks, other contacts, or data in the database; c) Object position/kinematic estimation. ***Level two*** data fusion performs "situation refinement" process. Key functions include a) aggregate entities, b) capture events and interpret them in contest with entities, c) develop hypotheses about current behavior. ***Level three*** data fusion performs "Threat Refinement" process that a) projects current situation into the future, b) draws inferences on threat and vulnerabilities, c) predicts intent and strategy.

The capability transitioned to evolving and current programs of record (PoR) will provide automatic generation of indications and warnings (I&W) for tactical forces based on rules, formulae, and patterns that are automatically formulated by the technology.

The research will develop software technologies to perform in the NESI SOA environment, when applicable, to provide users with automation for intelligent management of sensing resources, and timely processing of multiple sources and sensors to support user's mission needs.

Government data structures and standards will be leveraged, such as DoD metadata standards, for optimal information sharing and exposure to FORCEnet and other users.

Three separate layers are envisioned: applications layer, data/metadata layer, and a visualization layer. All data layer products must be provided to the Government with at least Government-purpose rights. Application and visualization executables must be conveyed with at least Government-purpose rights.

6.3 Program Thrusts

The Large Tactical Sensor Networks program has a primary focus to develop and demonstrate software algorithms and technologies that will function with current and evolving PoRs that field capabilities utilized by units at the tactical level. These sensor algorithms and technologies will function in a net-centric enterprise Service Oriented Architecture environment, when applicable, to provide users with automation for the intelligent management of sensing of multi-INT resources and fusion of data in near real-time (NRT) to support the user's mission needs against an asymmetric threat. The program will develop software tools that will work with the sensors for smart sensor data processing and enable sensor tagging and tracking of entities.

This program began under ONR BAA 06-015 Large Tactical Sensor Networks, and is continuing with yearly updates. The program is structured around the following thrust areas:

1. Designing tools for mission specific tactical sensor fields capable of fulfilling specific mission objectives
2. Developing smart tactical sensors, platforms and algorithms capable of forwarding information/knowledge vice raw data
3. Creating a service oriented sensor network (SOA) for expeditionary forces' current and future tactical sensors
4. Creating fusion tools capable of translating tactical sensor data into appropriate situational awareness for expeditionary forces in near real-time. This includes developing knowledge discovery engines and automatic alerts that enable the 'right information' to be pushed/pulled and creating alerts for time sensitive warning
5. Designing autonomous platforms and automatic sensor planning and management tools to ensure that the right data is collected by the right sensor in support of intelligence requirements

6. Developing tailored tactical Human to Machine Interfaces aligned to primary operational functions and non-intrusive within the battlespace
7. Creating services for the tactical network that are fully operable with DCGS and the DCGS Integration Backbone (DIB)

The diagram below depicts the relationship of the original thrust areas:

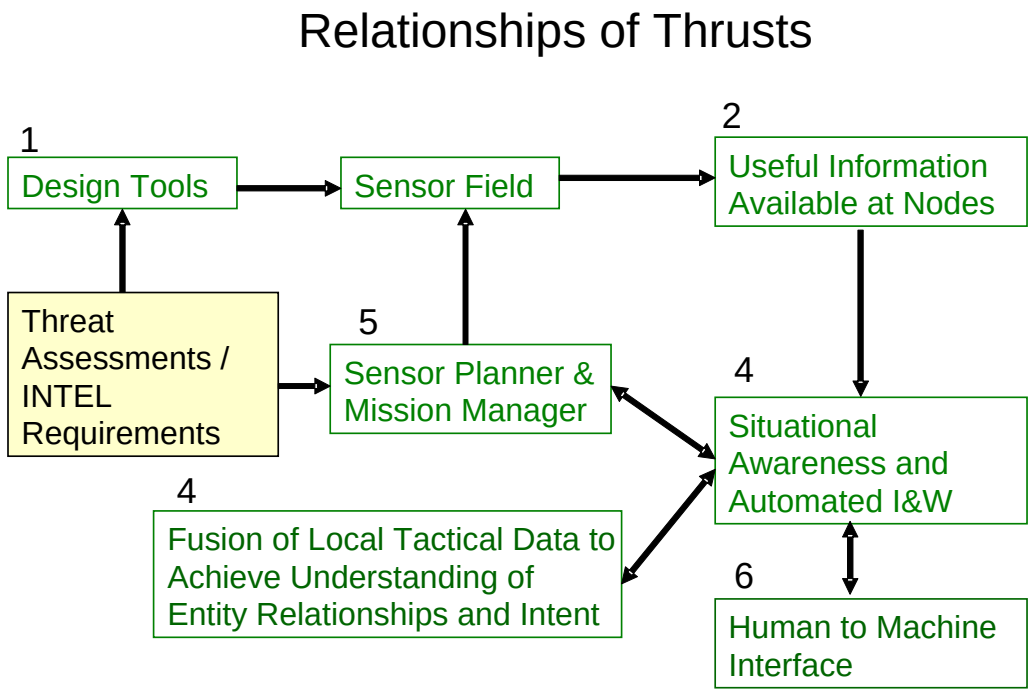

Figure 1 – Relationship of Thrusts.

Offerors should note that advanced sensors and communications hardware will NOT be designed or developed under this program, but may be used to demonstrate the technology products where relevant. These items are being developed under the related ONR BAA 07-014 GWOT Focused Tactical Persistent Surveillance. Also, specifically excluded is the development of platforms, such as airframes or ground vehicles.

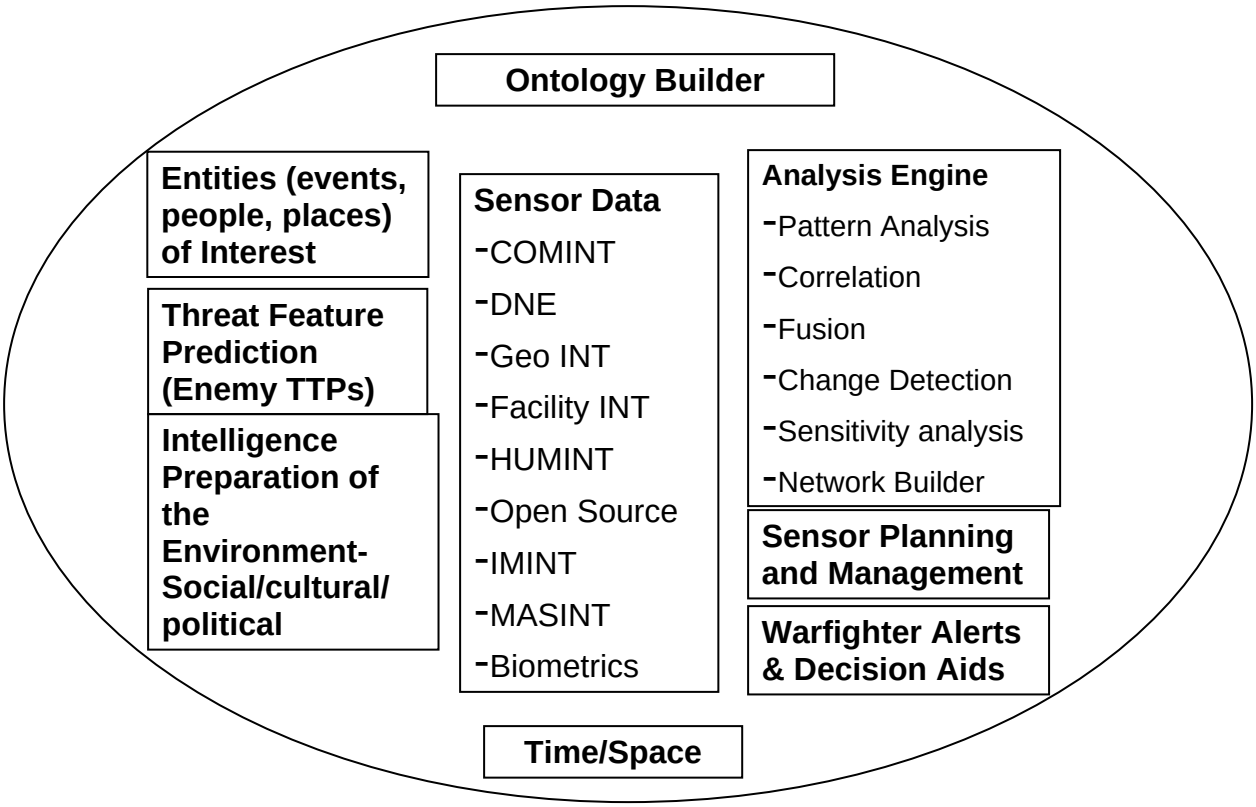

Figure 2 –ISR Analysis Architecture

6.4 Detailed Capability Areas

The following capabilities are listed to give potential offerors insight into the scope of the program gap areas and technical efforts needed to address them for this solicitation. The products may roll into Programs of Record (PoR) such as the Distributed Common Ground System (DCGS) - Marine Corps baseline in spirals for early transition. The detailed list of Thrust Descriptions can be found in a document link on http://www.onr.navy.mil/about/events/regdetail.asp?cid=315&code=4. The following sections describe the needs under this current BAA.

The ISR Analysis Architecture is depicted in Figure 2. This diagram shows the areas that constitute the ISR activities necessary to adequately inform the warfighter involved in Asymmetric Warfare. The following briefly describes each of these areas:

Ontology Builder: Agents that generate ontologies based on how data correlates with other pertinent data and how events correlate with data. These agents develop data structures and access methods for the efficient and effective use of data.
Events of Interest: Attacks and other activities (red, blue, green) in the battlespace or area of regard.
Threat Feature Prediction (Enemy TTPs): Agents that generate enemy Tactics Techniques and Procedures and define the detectable features of a threat based on the correlation of patterns to events.

Intelligence Preparation of the Environment – Social/cultural/political: Fundamental insights as to the nature of individuals and social clusters operating in specific regions during specified times (ground truth) that influence decision making.
Sensor Data: All relevant data (in a distributed sense) is stored against a common data/meta data structure. Obviously data layers that let us see "left of" information on people networks, man made structures and activities are key.
Time/Space: All data needs to be correlated to time and/or space.
Analysis Engines: Translates data to actionable intelligence.
Sensor Planning and Management: Agents that ensure that the sensor field is capturing the most interesting data (based on developed ontologies and threats).
Warfighter Decision Aids: Translates knowledge of enemy networks to alerts and own course of action recommendations, relevant to tactical command.

The architecture areas that correlate to desired capability gap filling efforts are shown in parenthesis in the following section headings.

All Capability Areas need to operate in a Service Oriented Environment, and comply with NESI standards with regard to services. All data and products should be accessible in this open environment.

An offeror must submit a separate proposal for each of the capabilities described below if they wish to propose in more than one capability area. Some areas deal with export controlled technology, and some will require performers to have access to and to share some classified information.

6.4.1 Smart Sensor Algorithms (Sensor Data)

Processing sensor data before communicating back to the initial users can have several advantages, including decreasing bandwidth for raw data exfiltration and an increase in the speed of getting the right information to the right individuals. This effort will provide smart sensor algorithms for a variety of sensors, both current and those under development. (See Table 1 for the lists of sensors addressed here.)

This effort will develop signal processing algorithms that are capable of maximizing knowledge extraction at the point of collection, which is wherever the sensor is deployed. Algorithms are desired that can associate a signal to a specific entity or an entity association. This capability will minimize the bandwidth needed to deliver information versus sending all raw data. Knowledge would be forwarded if deemed useful by the processing algorithm.

Smart sensor algorithms would enable:

a) Automatic target detection and classification
b) Automated execution of tactical goals with limited or no supervision
c) Minimize bandwidth use by forwarding processed information and knowledge vice raw data
d) Sensors that possess some level of operational situational awareness
e) Sensors capable of cross-cueing other sensors.

Another aspect of this effort is to analyze the utility or practicality of applying 'prior knowledge' or context at the point of collection for each sensor. For each sensor modality shown in Table 1, the research question is what intelligence context makes sense to reside at the sensor and why?

EO/IR
Electronic Support Measures (ESM)
Biometric/IO Exploitation Package
Acoustic Sensor Package - boats
Biologic-hosted Sensor/TTL
Multi-function Sensor Package: VIS, IR, UV optics
Multi-function Urban Sensor Package
Passive Terahertz (THz) Imager Package
Active Terahertz (THz) Imager Package
RF Sensor Package
Multi-biometric Sensor Package
Acoustic Sensor Package - speech tagging
Tactical Radar Package
Acoustic Counter-Sniper Package
Counter-Sensor Sensor Package
Biometric "Lie Detector" Sensor
Open Source Sensor Package
Magnetic Sensor Package
Seismic Sensor Package
Terahertz Wand Package
Sonar Sensor Package
Electro Magnetic ID (EMID) Sensors/Tags
Sensor Mobility/TTL
Sensor Mobility Capability
Mobile Combined Multi-INT Sensors

Table 1. GWOT Focused Tactical Persistent Surveillance (ONR BAA 07-014) Sensor Development Efforts

Deliverable: Software for Smart Sensors (those listed), and a study showing the optimum computing to be done at that sensor versus at a central node.

6.4.2 Multi-INT Sensor Data Preparation for Network Understanding (pre-Analysis Engine)

A multi-INT level one fusion engine is needed to maximize the confidence of network understanding analysis. Currently, network analysis is being developed using single streams of intelligence products. The following sources of data need to be prepared for use in the Network Understanding Analysis Engines in order to expand the data to enrich the event/space/time environment.

The following types of data need to be appropriately prepared:

- Biometrics – fingerprints, iris scans, photos, etc.

- Wide Area Surveillance – videos, images, GMTI, etc.
- Unstructured Text – Open source information, HUMINT
- Acoustics – conversations, vehicle signatures, background noise etc.
- COMINT – communications

Preparing data involves the processing of data to provide space/time correlated information about entities and entity associations.

Biometric data are currently gathered by various organizations and are used for various purposes. Addition of GIS and temporal information to the fingerprint and iris data would enrich the data for the formation of tracks. Being able to track individuals to determine suspicious activities would be beneficial to the understanding of the network intent.

Wide Area Surveillance (WAS) sensors are being proliferated throughout the battlefield for both Force Protection and Intelligence purposes, on both ground and air platforms. Several new sensors are under development (e.g. Angle Fire) and their data will need to be fused when possible. Smarter video search methods need to be developed for rapid selection of relevant clips to correlate to persons of interest and persons in areas of interest. Automatic translation of copious amounts of raw data into tracks that expose entities and entity associations are needed. Automating the translation of tracks to actionable intelligence is the focus of this effort. Examples of products of interest are motion analysis (GMTI), detection of behaviors of interest, and deviations from normal patterns of activity and association between suspicious entities.

In the area of unstructured text, effort is desired to be able to pull from audio files, newspapers, Microsoft Word documents, chat rooms, etc to an automated understanding of the content and recognition of entities of interest. In order of difficultly, the steps would be to automate the following:

- Find entities
- Determine the relationships between entities
- Understand the content of chat rooms and other open source or transcribed conversations
- Develop taxonomy of themes of interest in the text.

Work similar to the unstructured text effort is required in the area of acoustics. Analysis of the content and context of conversations needs to be done within the language being used. Cultural information should come in to play to recognize the inappropriate or unusual use of words or phrases to determine when a person is talking around something to avoid detection. Fusion is also needed to associate voice prints and vehicle signatures with the appropriate entities.

Deliverable: Software for pre-processing of multiple data streams (biometrics, WAS, unstructured text, acoustics) for use in network analysis tools.

6.4.3 Level One Data Fusion for Entities (pre-Analysis Engine)

A major step to performing analysis on multi-INT data is the fusion of disparate data on similar entities. Key identifiers such as email addressed, phone numbers, photos, voice prints

fingerprints, etc – all need to map to a single entities and entity aggregates and networks. Often there are multiple, time varying data items that should map to a single entity, but currently this can not be done in an automated manner. The extent of activity based networks is not possible without the effective binning of all data sources. The fusion of this type of data to entities needs to be responsive to the asymmetric threat.

Developed approaches should calculate the ontological distance between disparate data points and entities.

The developed distributed fusion engines should be supported by data indexing, and appropriate meta data. Meta data is the standardized characterization of data providing descriptors, as appropriate for the source and data type, location, geometries, and other relevant attributes. Meta data enables smart mission driven search capabilities of the sensor data and promotes information sharing at all levels.

Deliverable: Software for level 1 fusion of multi-INT data to entities and aggregates.

6.4.4 Automated Collection Planning Tool (Sensor Planning and Management)

Tactical sensor planning algorithms are needed to assist the teams in placement of sensor assets with regard to other available assets which are available, but not under their direct control. This effort will generate algorithms to provide a tasking plan which will rapidly meet the small unit's combat intelligence requirements utilizing the available sensor network and the newly developed human interface (see BAA 06-015 Large Tactical Sensor Networks, Section 6.4.6.) Automation is needed by expeditionary forces to support the dynamic employment of large multi-INT sensor fields having various ground and aerial sensors for persistent surveillance. Also of relevance in some missions will be avoiding detection by hostile forces or confusing hostile forces as to the intent of the sensor network's actions. Sensor types described in ONR BAA 07-014 need to be considered (see Table 1), as should the potential availability of statistically derived enemy TTPs.

For example, if the mission is to defend the border or monitor an area, the collection plan should show where the unit's sensors should optimally be placed. The collection plan would also provide a 'level of confidence' for each scenario for the amount and type of sensors that are available to fulfill the task.

An automated collection planning tool should be able to:

a) Translate intelligence requirements into tactical collection plans using multiple types of sensors (see Table 1)
b) Automatically generate the optimal collection plan based on the Commander's intent (This includes both the ability to sense the data and communicate it to the user)
c) Interface with DCGS collection planning tools
d) Post the collection plan on the DIB
e) Support rapid changes in collection requirements and force disposition
f) Invoke automatic sensor tasking
g) Identify collection gaps and provide the necessary data to the user to support rapid understanding of the available sensor capabilities

h) Reflect a level of confidence of collection given the mission and sensor availability
i) Drill down the capability of sensor to types of threat features it can collect
j) Identify each sensor modality collection capability in different environments (i.e., urban, desert, highway, etc)
k) Ensure robustness to uncertainties in collection plans
l) Account for loss of sensors and ad hoc addition of new sensors to the network

In order to maximize the use of valuable sensors, collection planning and sensor management become critical in successful sustained and phased operations. Automated tools will be user friendly and will be autonomous to the extent that the user interface for the small unit can be managed by as few inputs as possible and by operators with a mix of capabilities and skills. Similarly, the system must provide the required information to support user' situation awareness in being able to rapidly understand the available capabilities of the sensor network and to what extent their intelligence requirements can be met. Human factors should be taken into account in this task, and integrate with on-going Human Sensor Field Interface currently under development. Both control theory and artificial intelligence approaches are applicable to this effort, but the offeror should emphasize rigor in the development of the algorithms, minimize the use of heuristics, provide safeguards against infeasible solutions/divergences, and take into account validation and verification issues.

Deliverable: Software tools which perform adaptive tactical sensor planning for the tactical user.

6.4.5 Cultural Awareness at the Tactical Level (Intelligence Preparation of the Environment)

A key dimension to battlefield intelligence is the cultural aspect – what is known about entities and aggregates that influences decision making. Tools need to be developed which can prepare cultural information for entry into the common distributed data structure and shape current Indications and Warnings (I&W) in the correct way during a mission. While this information needs to reside in the data layers, part of this effort will be to determine how this tool should be developed and where it should reside to be best delivered in a timely fashion to the warfighter. What cultural information can become available and what is necessary to enhance the awareness of the warfighter during a mission? How can the information collected by the warfighter (through the newly developed HSI system) be interpreted through the correct cultural filters to make the best use of the information?

When the cultural aspects of an area are considered, the False Alarm Rate (FAR) can be significantly decreased. For example, can sensors be made aware of daily and weekly patterns to include local religious activities, to not send a warning when a church is full of people at the correct time of worship, but to send an urgent warning when more than a few people are gathered there at a different time of the week?

Deliverable: Software which is integrated into current analysis systems to account for cultural idiosyncrasies in various regions of activity.

7. Point(s) of Contact -

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

Mr. Martin Kruger
Program Officer
Command and Control and Combat System, ONR 30
Office of Naval Research
875 North Randolph Street – Suite 1425
Arlington, VA 22203-1995
E-mail Address: krugerm@onr.navy.mil

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

Ms. Julie DeStefano
Contract Specialist, ONR 253
Office of Naval Research
875 North Randolph Street – Suite 1425
Arlington, VA 22203-1995
E-mail Address: destefj@onr.navy.mil

Submission of Questions

Questions shall be submitted in writing by electronic mail. Questions and responses will be posted on the ONR web site at http://www.onr.navy.mil/about/events/regdetail.asp?cid=315&code=4 ; no e-mail response will be provided. Questions presented by telephone call, fax message, or other means will not be responded to. There will be no meetings between potential offerors and the Science and Technology Point of Contact.

Any questions regarding this solicitation must be provided to the Science and Technology Point of Contact and/or Business Point of Contact listed in this solicitation. Questions must be submitted by 4 p.m. EST on June 11, 2007. Questions submitted after this date and time may not be answered, and the due date for submission of proposals will not be extended.

8. Instrument Type(s) -

It is anticipated that all awards resulting from this announcement will be contracts, particularly cost plus fixed fee (CPFF). Contract awards will fall under the purview of the Federal Acquisition Regulation (FAR) and the Defense Federal Acquisition Regulation Supplement (DFARS).

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

N/A

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

N/A

11. Other Information-

Industry Information: ONR will post Industry Briefings for potential offerors on Wednesday 16 May 2007, at http://www.onr.navy.mil/about/events/regdetail.asp?cid=315&code=4. This will include information on the overall program and also one describing the Joint, Navy, and Marine Corps concepts supported by this Program, and the expected use of its anticipated technology. Interested offerors may register for access at the FORCEnet S&T website http://www.onr.navy.mil/about/events/regdetail.asp?cid=315&code=4. Offerors will be able to view the contact information for other registered interested parties for the facilitation of teaming. The FORCEnet S&T website at http://www.onr.navy.mil/about/events/regdetail.asp?cid=315&code=4 is dedicated to this BAA and will be the primary means of publicizing all information for this BAA.

II. AWARD INFORMATION

Award Information is as follows:

- Total Amount of Funding Available: $25M is available in FY08 for efforts over a 1-3 year timeframe. ONR plans to issue an annual BAA for this program. The total funding for the program is anticipated to be $84M during FY07-FY11.
- Anticipated Number of Awards: 2-5
- Average Award Range: $600,000-1,250,000 for one to three year periods
- Proposed work should be structured for a one to three year period. Multiple-year proposals shall include a base performance period of twelve months with one or two 12-month options.
- Approximately $5M of the $84M budget will be set aside for participation by government labs.

Proposals that build on current or previous DoD work are encouraged. Offerors enhancing work performed under other ONR or DoD projects must clearly identify the point of departure, what existing work will be brought forward, and what new work will be performed under this BAA.

III. ELIGIBILITY INFORMATION

Proposals from U.S.-owned or U.S.-based firms and U.S. colleges and universities will be considered for award under this solicitation. Privately managed Department of Energy (DOE)

laboratories and other Federally Funded Research and Development Centers (FFRDCs) may bid in areas where they are uniquely qualified and if permitted under their sponsoring agreements.

Historically Black Colleges and Universities (HBCU) and Minority Institutions (MI) 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 due to the impracticality of reserving discrete or severable areas of FORCEnet Science and Technology for exclusive competition among these entities.

Independent organizations and teams are encouraged to submit proposals in any or 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.

IV. APPLICATION AND SUBMISSION INFORMATION

1. Application and Submission Process

(A) White Papers: White Papers are encouraged prior to submitting a full proposal. The due date for white papers is no later than 2:00 p.m. (Eastern Daylight Time) on Tuesday 12 June 2007.

White papers will be evaluated to determine whether an offeror is encouraged to make an oral presentation of its white paper to a panel of government evaluators. The process for oral presentations is described below. Selection of white papers considered as being of "particular value" will be announced on or about Tuesday, 10 July 2007 by email. However, any such encouragement does not assure a subsequent award. Any offeror may submit a full proposal even if its white paper was not identified as being of "particular value".

White papers must be unclassified.

(B) Oral Presentations: Oral presentations are tentatively planned for 30 July – 2 August, 2007. The Office of Naval Research will schedule an oral presentation for those offerors who have been notified by e-mail that their white paper technologies appear to be of "particular value" to the Navy. Any offeror whose white paper was not determined to be of "particular value" to the Navy can contact the Program Officer (see paragraph 7) to arrange to make an oral presentation along with the other scheduled offerors.

A detailed format for the presentation will be provided in the e-mail invitation. Each presentation will be no longer than thirty (30) minutes in duration. An additional ten (10) minutes will be allowed for questions (if any) from the panel of government reviewers. Those offerors whose technology is still considered as having "particular value" to the Navy and Marine Corps will be encouraged to submit detailed technical and cost proposals. However, such encouragement after oral presentations does not assure a subsequent award. The Office of Naval Research will not reimburse travel costs and time for potential bidders to brief their proposals.

Oral presentations may be classified if the technology is sensitive and not releasable as unclassified or FOUO. Prior coordination with ONR's Program Office is required to present a classified presentation.

(C) Full Proposals: An offeror may submit a full proposal without submitting a white paper or making an oral presentation.

The due date for receipt of full proposals is 2:00 p.m. (Eastern Daylight Time) on Tuesday, 21 September 2007. It is anticipated that final selections will be made on or about Thursday, 29 October 2007. As soon as the final proposal evaluation process is completed, each offeror will be notified via e-mail of its selection or non-selection for an award. Proposals exceeding the page limit may not be evaluated.

2. Content and Format of White Papers/Full Proposals

The white papers, oral presentations, and full proposals submitted under this solicitation must be unclassified. However, a classified annex is permitted. Proposals will be protected from unauthorized disclosure in accordance with FAR 15.207, applicable law, and DoD/DON regulations. Offerors are expected to mark each page of their submission that contains proprietary information.

Classified proposal annexes must be submitted directly to the Technical Point of Contact (TPOC). Contracts resulting from the submission of a classified proposal will be 'unclassified.' An 'unclassified' Statement of Work (SOW) must accompany any classified proposal.

An offeror must submit a separate proposal for each of the capabilities described in Section 6.4 of this BAA if they wish to propose in more than one capability area. Some areas deal with export controlled technology, and some will require performers to have access to and to share some classified information.

White Paper Format

- Paper Size – 8.5 x 11 inch paper
- Margins – 1" inch
- Spacing – single or double-spaced
- Font – Times New Roman, 12 point
- White papers are limited to ten (10) pages in length, as described below in the "White Paper Content" section.
- Copies – one (1) original, five (5) hard copies, and one electronic copy on CD-ROM (in Microsoft® Word or Excel 97 compatible or .PDF format).

Full Proposal Format – Volume 1 - Technical and Volume 2 - Cost Proposal

- Paper Size – 8.5 x 11 inch paper
- Margins – 1 inch
- Spacing – single or double-spaced

- Font – Times New Roman, 12 point
- Number of Pages – Volume 1 is limited to no more than 39 pages. Volume 2 has no page limitations. Limitations within sections of the Technical Proposal are indicated in the individual descriptions shown below. The cover page, table of contents, abstract, executive summary, and resumes are excluded from the page limitations. Full Proposals exceeding the page limit may not be evaluated.
- Copies – one (1) original, 5 copies, and one electronic copy on a CD-ROM in either Microsoft Word or Adobe ".pdf" format.

White Paper Content

The White Paper should reference BAA 07-026 and identify the applicable program thrust area(s) by title.

- **Cover Page:** The Cover Page shall be labeled "PROPOSAL WHITE PAPER" and shall include the BAA number, proposed title, technology interest areas addressed, Offeror's administrative and technical points of contact, with telephone numbers, facsimile numbers, and e-mail addresses, and shall be signed by an authorized officer. This shall be one (1) page.
- **Abstract:** A very brief description of the technology including goals and objectives and technology areas to be addressed. This section shall be no more than one (1) page.
- **Technical Concept:** A description of the technology innovation, the Program thrusts addressed (described in Section I paragraph 6.4), and technical risk areas. This section may be six (6) pages or fewer. Include a detailed listing of the technical tasks/subtasks organized by year. Relate the product that results from the task/subtask and briefly state metrics that will be met as a result of the task/subtask. In addition, it should include a Statement of Operation Utility that clearly states what the proposed effort does for the warfighter. Not to exceed two (2) pages within the six (6) pages of the Technical Concept Section. A statement should also be made under each task where government facilities are proposed to be utilized.
- **Deliverables:** A detailed description of the results and products to be delivered. This section shall be no more than one (1) page in length.
- **Costs:** A one (1) page summary of costs segregated by both task and year. The research will begin on/about January 1, 2008.

Full Proposal Content

The Cost Proposal shall be separate and shall not be included with the Technical proposal. The Cost proposal CD-ROM shall be clearly labeled and separate from the Technical Proposal CD-ROM.

Volume 1: Technical Proposal

Volume 1 of the Full Proposal shall include the following sections, each starting on a new page. Sections not included in the page limitations are noted below. The page limit for those sections of the technical proposal that are constrained is thirty nine (39) pages.

• **Cover Page:** This should include the words "Technical Proposal" and the following:

1) BAA number;
2) Title of Proposal;
3) Identity of Prime Offeror and complete list of subcontractors, if applicable;
4) Technical contact (name, address, phone/fax, electronic mail address)
5) Administrative/business contact (name, address, phone/fax, electronic mail address) and;
6) Duration of effort (differentiate basic effort and from any proposed options)
7) Cover page must be signed and dated

• **Table of Contents:** This should address the contents of the proposal, generally by section.

• **Technical Approach** - The offeror shall provide a detailed plan that coherently describes the technical approach proposed for contract performance which demonstrates a technical understanding of the proposed Statement of Work (SOW). The technical approach should address each of the numbered task areas delineated in the SOW providing specific or unique techniques to be employed and anything else the offeror considers relevant in performing the SOW. The technical approach should indicate how the work will be performed, including the capabilities and resources which will be applied, what problem areas exist, the proposed solutions and a full explanation of the proposed disciplines, procedures and techniques to be followed. Emphasis should be placed upon the extent that the offeror's technical approach ensures timely delivery and successful completion of the tasks outlined by the SOW submission.

• **Statement of Work:** A Statement of Work (SOW) clearly detailing the scope and objectives of the effort and the technical approach. It is anticipated that the proposed SOW will be incorporated as an attachment to the resultant award instrument. To this end, such proposals must include a severable, self-standing SOW without any proprietary restrictions, which can be included as an attachment to any resultant contract. This SOW shall include a detailed listing of the technical tasks/subtasks organized by year and a section which lists all proposed deliverables. When options are contemplated, the SOW must clearly identify separate optional tasks.

• **Project Schedule and Milestones:** A summary of the schedule of events and milestones.

• **Assertion of Data Rights and/or Rights in Computer Software:** For a contract award an Offeror may provide with its proposal assertions to restrict use, release or disclosure of data and/or computer software that will be provided in the course of contract performance. The rules governing these assertions are prescribed in Defense Federal Acquisition Regulation Supplement

(DFARS) clauses 252.227-7013, -7014 and -7017. These clauses may be accessed at the following web address:

http://farsite.hill.af.mil/VFDFARA.HTM

The Government may challenge assertions that are provided in improper format or that do not properly acknowledge earlier federal funding of related research by the Offeror.

• **Deliverables:** A detailed description of the results and products to be delivered inclusive of the timeframe in which they are to be delivered.

• **Management Approach:** A discussion of the overall approach to the management of this effort, including brief discussions of the total organization, use of personnel; project/function/subcontractor relationships; government research interfaces; and planning, scheduling and control practice. Identify which personnel and subcontractors (if any) will be involved. Include a description of the facilities that are required for the proposed effort with a description of any Government Furnished Equipment/Hardware/Software/Information required.

• **Personnel -** The offeror shall provide resumes of proposed key personnel to be utilized by the contractor/subcontractor in the performance of this contract. The offeror shall ensure that the proposed personnel are fully capable of performing in an efficient, reliable and professional manner. Upon review of the resumes, if the Government questions the qualifications or competence of any person performing under this contract, the burden of proof to sustain that person's qualifications shall be upon the offeror.

• **Past Performance -** Past performance will consist of a description of the offeror's Government contracts (both prime and major subcontracts (those involving 25% or more of the effort)) received during the past three (3) years), which are similar to the effort being proposed. The offeror may describe any quality awards or certificates that indicate the offeror possesses a high quality process for providing desired research and development outcomes.

Volume 2: Cost Proposal

The Cost Proposal shall be separate and not included with the Technical Proposal. There is no page limitation on the cost proposal. The options must be separately priced.
The Cost Proposal shall consist of a cover page and two parts, Part 1 will provide a detailed cost breakdown of all costs by cost category by calendar or Gov't fiscal year and Part 2 will provide a cost breakdown by task/sub-task corresponding to the task numbers in the proposed Statement of Work. Options must be separately priced.

Although not required and provided for informational purposes only, detailed instructions, entitled "Instructions for Preparing Cost Proposals for Contracts and Agreements", including a sample template for preparing costs proposals for contracts may be found at ONR's website listed under the 'Acquisition Department – Contracts & Grants, Submitting a Proposal' link at: http://www.onr.navy.mil/02/how_to.asp

Cover Page: The use of the SF 1411 is optional. The words "Cost Proposal" should appear on the cover page in addition to the following information:

- BAA number
- Title of Proposal
- Identity of prime Offeror and complete list of subcontractors, if applicable
- Technical contact (name, address, phone/fax, electronic mail address)
- Administrative/business contact (name, address, phone/fax, electronic mail address) and
- Duration of effort (separately identify basic effort and any proposed options)

Part 1: Detailed breakdown of all costs by cost category by calendar or Government's fiscal year:

- Direct Labor – Individual labor category or person, with associated labor hours and unburdened direct labor rates
- Indirect Costs – Fringe Benefits, Overhead, G&A, COM, etc. (Must show base amount and rate)
- Travel – Number of trips, destination, duration, etc.
- Subcontract – A cost proposal as detailed as the Offeror's cost proposal will be required to be submitted by the subcontractor. The subcontractor's cost proposal can be provided in a sealed envelope with the Offeror's cost proposal or will be obtained from the subcontractor at a later date prior to award
- Consultant – Provide consultant agreement or other document which verifies the proposed loaded daily/hourly rate
- Materials should be specifically itemized with costs or estimated costs. An explanation of any estimating factors, including their derivation and application, shall be provided. Include a brief description of the Offeror's procurement method to be used (Competition, engineering estimate, market survey, etc.)
- Other Directs Costs, particularly any proposed items of equipment or facilities. Equipment and facilities generally must be furnished by the contractor/recipient. (Justifications must be provided when Government funding for such items is sought). Include a brief description of the Offeror's procurement method to be used (Competition, engineering estimate, market survey, etc.)
- Proposed fee/profit.

Part 2 : Cost breakdown by task/sub-task using the same task numbers in the Statement of Work.

3. Significant Dates and Times –

Significant dates and times associated with this BAA are show in the table below.

Event	Date	Local Time
BAA Release	17 May 2007*	1:00 PM EDT
White Papers Due	12 June 2007	2:00 PM
Notification of Initial Navy Evaluations of White Papers	10 July 2007*	N.A.
Oral Presentations of Proposals	30 July – 3 Aug 2007*	TBD
Notification of Navy Evaluations of Oral Presentations	30 August 2007*	N.A.
Full Proposals Due	21 September 2007*	2:00 PM EDT
Notification of Selection for Award	5 November 2007*	N.A.
Contract Awards	February 2008*	N.A.

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

4. Submission of Late Proposals

In accordance with FAR Subpart 15.208 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 extend 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, Oral Presentation Material, and Full Proposals

Offerors shall make submissions to the Office of Naval Research at the address specified below:

Office of Naval Research
875 North Randolph Street – Suite 1425
Room 1160
Arlington, VA 22203-1995
Attn: Mr. Martin Kruger, ONR Code 30

Important Notes Regarding Submission of White Papers and Proposals

If using United States Postal Service (USPS), please allow an additional five (5) business days for the package to be delivered to this address due to USPS mail being sent to a central location for special processing before it is delivered to this address. Commercial carriers such as FedEx and UPS may also encounter delays in delivery, so early submission is recommended to avoid late receipt of proposal.

WHITE PAPERS OR PROPOSALS SENT BY FAX OR EMAIL WILL NOT BE CONSIDERED

V. EVALUATION INFORMATION

1. Evaluation Criteria

The following evaluation criteria apply to the white paper, oral presentations and full proposal submissions. Proposals will be selected through a technical, scientific, and business decision process with technical and scientific considerations being more important than cost. Technical criteria A-D are listed in descending order of priority. Even though cost is of less importance than the technical factors combined, it will not be ignored. The degree of its importance 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 sub-criteria, i.e., the numbered items within each of the lettered factor paragraphs, are of equal importance.

A. Overall scientific and technical merits of the proposal

1. The degree of innovation and ability to deliver technology that will improve expeditionary force warfighting capabilities described in Section I, paragraph 6.4.

2. The soundness of technical concept.

3. The offeror's awareness of the state of the art and understanding of the scope of the problem and the technical effort needed to address it.

4. Risk management in demonstrating objectives including structuring of the overall demonstration approach to control risk.

B. Expeditionary warfighter and naval relevance, plus anticipated contributions of the proposed technology to Distributed Operations, FORCEnet, and network centric warfare operations. Also of importance is the extent to which the government will have at least government purpose technical data rights and similar rights to computer software in order to transition the technology.

C. Offeror's capabilities, related experience, and past performance, including the qualifications, capabilities and experience of the proposed principal personnel.

1. The quality of technical personnel proposed and their appropriateness for the work proposed.

2. The offeror's experience in relevant efforts with similar resources.

3. The ability to manage the proposed effort.

D. Management Plan. The Management Plan is not required in the white paper. The Management Plan is required for oral presentations and the Full Proposal and will be evaluated in accordance with the following criteria:

1. Plan is in milestone format with succinct factual description of how achievement of milestones will be managed.

2. Relationship between cost and milestone achievement is defined.

3. Estimate of technical, schedule and cost risk is stated with risk management plan provided.

E. The realism of the proposed cost.

Socio-Economic Merits - For proposed awards made as contracts to large businesses, the socio-economic merits of each proposal will be evaluated based on the extent of the offeror's commitment in providing meaningful subcontracting opportunities (to the maximum extent practicable) for small businesses, HUBZone small businesses, small disadvantaged businesses,

woman-owned small businesses, veteran-owned small businesses, service disabled veteran small businesses, historically black colleges and universities, and minority institutions.

Evaluation of 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. The evaluation of options will not obligate the Government to exercise the option(s).

2. Evaluation Panel

Technical and cost proposals submitted under this BAA will be protected from unauthorized disclosure in accordance with FAR 3.104-5 and 15.207. Government technical experts drawn from the Naval operational community, Office of Naval Research, the Naval systems commands, Navy warfare centers, the Naval Research Laboratory (NRL), and other Naval and Defense activities/agencies will evaluate the white papers, oral presentations, and full proposals.

The Government may use selected support personnel as subject-matter expert technical consultants to assist in providing both technical expertise and administrative support regarding white papers, presentations, and full proposals ensuing from this announcement. 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 agreement prior to receipt of any proposal submissions to protect proprietary and source-selection information.

VI. AWARD ADMINISTRATION INFORMATION

1. Administrative Requirements

- The North American Industry Classification System (NAICS) code – The North American Industry Classification System (NAICS) code for this announcement is 541710 with a small business size standard of 500.

- CCR - Successful offerors not already registered in the Central Contractor Registry (CCR) will be required to register in CCR prior to award of any grant, contract, cooperative agreement, or other transaction agreement. Information on CCR registration is available at **http://www.onr.navy.mil/02/ccr.htm**.

- Certifications – In accordance with FAR 4.1201, prospective contractors shall complete and submit electronic annual representations and certifications at http://orca.bpn.gov. The Online Representations and Certifications Application (ORCA) will be supplemented by DFARS which are contract specific representations and certifications. Proposals should be accompanied by a completed certification package which may be accessed on the ONR Home Page at Contracts & Grants entitled, "Representations and Certifications for Contracts" at http://www.onr.navy.mil/02/rep_cert.asp.

- Subcontracting Plans - Successful contract proposals that exceed $500,000.00, submitted by all but small business concerns, will be required to submit a Small Business

Subcontracting Plan in accordance with FAR 52.219-9, prior to award. This requirement also applies to non-profits, including educational institutions.

- This acquisition potentially involves technical data that is subject to U.S. export control laws and regulations. The following clause will be incorporated into any resultant contract where access to export-sensitive technical data is anticipated.

NAVAIR 5252.227-9507 NOTICE REGARDING THE DISSEMINATION OF EXPORT-CONTROLLED TECHNICAL DATA (JAN 1992)

(a) Export of information contained herein, which includes release to foreign nationals within the United States, without first obtaining approval or license from the Department of State for items controlled by the International Traffic in Arms Regulations (ITARS), or the Department of Commerce for items controlled by the Export Administration Regulations (EAR), may constitute a violation of law.

(b) For violation of export laws, the contractor, its employees, officials or agents are subject to:

(1) Imprisonment and/or imposition of criminal fines; and

(2) Suspension or debarment from future Government contracting actions.

(c) The Government shall not be liable for any use or misuse of the information, technical data or specifications in this contract. It shall not be liable for any patent infringement or contributory patent infringement. The Government neither warrants the adequacy nor the completeness of the information, technical data or specifications in this contract.

(d) The contractor shall include the provisions of paragraphs (a) through (c) above in any subcontracts awarded under this contract.

- Offerors should state that their proposals will be valid for 180 days from submission.

2. Deliverables

The following is a sample of deliverables that could be required under a research effort. The following deliverables, primarily in contractor format, are anticipated as necessary. However, specific deliverables should be proposed by each offeror.

- Software
- Algorithms with documentation
- Smart agents with documentation
- Source code
- Prototypes
- Tool design
- Analysis documents
- Design documents
- Working models

- Executable code
- Modeling and simulation tools
- Metadata
- Fusion tools
- Reports and technical items resulting from meetings.
- Execution plan
- Technical progress reports at regular time intervals (monthly or quarterly, but not both) as specified in the award document, including detailed technical data, algorithms and software as appropriate
- Financial progress reports at regular intervals as specified in the award document
- Presentation material(s)
- Other documentation or reports, such as publications
- Final technical report

VII. OTHER INFORMATION

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

Each offeror must provide a very specific description of any equipment/hardware that it needs to acquire to perform the work. This description should indicate whether or not each particular piece of equipment/hardware will be included as part of a deliverable item under the resulting award. Also, this description should identify the component, nomenclature, and configuration of the equipment/hardware proposed to be purchased for this effort. It is the Government's desire to have the contractors purchase the equipment/hardware for deliverable items under their contract. The purchase on a direct reimbursement basis of special test equipment or other equipment that is not included in a deliverable item will be evaluated for allowability on a case-by-case basis. Maximum use of Government integration, test, and experiment facilities is encouraged in each of the Offeror's proposals.

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 the FORCEnet Science and Technology (S&T)-Large Tactical Sensor Networks program. The use of these facilities and resources will be negotiated as the program unfolds. Offerors should explain as parts of their proposals which of these facilities are critical for the project's success.

2. Security Classification

In order to facilitate intra-program collaboration and technology transfer, awardees will work at the unclassified level to the maximum extent possible. However, access to and storage of some classified information will be required for products described in 6.4.3 and 6.4.5.

If awardees use unclassified data in their deliveries and experimentation regarding a potential classified project, they should use methods and conventions consistent with those used in

classified environments. Such conventions will permit the various subsystems and the final system to be more adaptable in accommodating classified data in the transition system.

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 AAALAC accreditation and/or NIH OLAW Animal Welfare Assurance approval letter, IACUC approval, research literature database searches, and the two most recent USDA inspection reports) prior to award. Similarly, for any proposal for research involving human subjects the Offeror must submit prior to award: documentation of approval from an Institutional Review Board (IRB); IRB-approved informed consent form; IRB-approved research protocol; an executive summary of planned research (one-half to one page in length); proof of completed human research training (e.g., training certificate, institutional verification of training, etc.); an application for a DoD Navy Addendum to the Offeror's DHHS-issued Federalwide Assurance (FWA) or the Offeror's DoD Navy Addendum number. The forms for assurance applications can be found at http://www.onr.navy.mil/sci_tech/34/343/ . 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. [Note: for research involving human subjects that is greater than minimal risk, administrative procedures to protect human subjects from medical expenses (not otherwise provided or reimbursed) that are the direct result of participation in a research project must be addressed. Documentation describing those procedures may be requested. For additional information on this topic please email 343_contact@onr.navy.mil.] For assistance with submission of animal and human subject research related documentation, contact the ONR Animal/Human Use Administrator at (703) 696-4046.

4. Project Meetings & Reviews

Individual reviews between the ONR sponsor and the performer will be held as needed. Status reviews may also be held to provide a forum for reviews of the latest results from experiments and any other incremental progress. 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.

5. 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/.

6. **Protection of Proprietary and Sensitive Information**

The parties acknowledge that, during performance of the contract resulting from this BAA, the Contractor may require access to certain proprietary and confidential information (whether in its

original or derived form) submitted to or produced by the Government. Such information includes, but is not limited to, business practices, proposals, designs, mission or operation concepts, sketches, management policies, cost and operating expense, technical data and trade secrets, proposed Navy budgetary information, and acquisition planning or acquisition actions, obtained either directly or indirectly as a result of the effort performed on behalf of ONR. The Contractor shall take appropriate steps not only to safeguard such information, but also to prevent disclosure of such information to any party other than the Government. The Contractor agrees to indoctrinate company personnel who will have access to or custody of the information concerning the nature of the confidential terms under which the Government received such information and shall stress that the information shall not be disclosed to any other party or to Contractor personnel who do not need to know the contents thereof for the performance of the contract. Contractor personnel shall also be informed that they shall not engage in any other action, venture, or employment wherein this information will be used for any purpose by any other party.