



Fundamentals of Cyberspace and Software

INTRODUCTION:

This publication constitutes a Broad Agency Announcement (BAA) as contemplated in Federal Acquisition Regulation (FAR) 6.102(d)(2) and the Department of Defense Grants and Agreements Regulations (DoDGARS) 22.315(a). A formal Request for Proposals (RFP), other solicitation, 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 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:

SPECIAL NOTICE: All Grant Applications submitted under this BAA shall be submitted via the Grants.Gov "APPLY" function. No other form of paper or electronic submission will be accepted unless the prospective grantee organization applies for and receives a waiver in accordance with Section IV, Application and Submission Information, Paragraph 5 entitled 'Submission of Grant Proposals to Grants.gov' below. White Papers are not submitted via Grants.gov; instructions for White Papers are provided below in Section IV.

All attachments to grant applications submitted through Grants.Gov must be in Adobe Portable Document Format. Proposals with attachments submitted in word processing, spreadsheet, or any format other than Adobe Portable Document Format will not be considered for award.

Be advised that Grants.gov applicants have been experiencing system slowness and validation issues which may impact the time required to submit proposals. Due to a large increase in the volume of grant proposals received by the federal government, the Grants.gov portal is struggling to handle the number of proposals being submitted. In addition, after proposals are uploaded to Grants.gov, the applicant receives an e-mail indicating the proposal has been submitted and that Grants.gov will take up to two days to validate the proposal. Grants.gov may reject the proposal during the validation process. Therefore, applicants are strongly encouraged to submit their proposals electronically at least **THREE** days before the date and time proposals are due so that it will not be received late and be ineligible for award consideration. Early submission will allow an applicant time to submit its proposal to ONR through an alternative electronic method in the event the proposal is not accepted by Grants.gov. See the special notice on alternate submission under section IV.5 below in this BAA.

- 1. Agency Name - Office of Naval Research**
- 2. Research Opportunity Title - Fundamentals of Cyberspace and Software**
- 3. Program Name - Software and Systems Research Program**
- 4. Research Opportunity Number - BAA 09-029**
- 5. Response Date -**

White Papers:
Full Proposals: 8/27/2009

6. Research Opportunity Description -

ONR is interested in receiving proposals for basic scientific research that will forge major advances in software, software engineering, networks, cyber-physical systems, social networks and critical infrastructures, all of which are profoundly interrelated. The research supported under this program will address new and emerging challenges for the future naval information infrastructure, which is expected to be a federated enterprise that is highly mobile, extremely heterogeneous, dynamic, non-stop, large-scale, globally connected, supporting world wide operations, and operating over many different networks. This infrastructure is vast and extends across networks of interacting systems, defined as cyber-physical systems for the purposes of this BAA.

The foundations of computational sciences and software technologies of the past are insufficient to support the future interaction spaces. Current technologies are already buckling under the challenge as evidenced by the necessary global distribution of daily patches to major commercial software systems, delays in acquisition programs, and program cancellations arising from software problems. The Internet itself has also become a global vector for malware on host computers. New perspectives on current and emerging foundations and new avenues of inquiry are needed.

The convergence of advances in networking and software-enabled devices has lead to cyber-physical interaction spaces that are not well understood. Current technology will be hard pressed to meet the challenges of the future, which include: increasing sensing of everything with multitudes of sensor feeds; ubiquitous knowledge of physical locations; ubiquitous association of entities with information about those entities; autonomous operations enabled by networks of sensor-rich, information-rich, and computationally intelligent devices; emergence of social networks and integration of humans with cyber devices; and fluidity of collaborations and free-form interactions among dynamic layers and players of all kinds at all levels in all locations. These new network-enabled interaction spaces alter the notion of what is computable and of what constitutes a computation. For example, a number of questions in which we broadly interpret "network" to include interaction spaces arise including:

- What network models, architectures and policies offer the greatest flexibility to exercise cyber power and cyber defense in a federated cyberspace where the cyber "global commons" has significant economic value that must be protected and strategic risk that must be managed?
- When network computations increasingly resemble interacting dynamical systems, what controls in the computation and the network can ensure desirable phenomena on the critical infrastructures and social infrastructures affected by the computation?
- What descriptions of network computations capture their essential characteristics in interaction space that reveal mathematical, categorical, and interactive structures in theory and practice?
- What qualities, properties, and measurements characterize network algorithms as computations on networks of computing devices and where the algorithm and the network might have attributes that are deterministic, non-deterministic, or probabilistic?
- As remote programmable controls are adapted to systems of all sizes and kinds, what architectures, associated languages, and algorithms provide the functionality, agility, accountability and manageability needed to meet application system demands?
- How best to discover, present, and interpret a common operational picture of the network environment with sufficient fidelity to be useful for cyber-physical situation awareness despite shortcomings such as from partial and inconsistent information and disruptions because of failures and errors?
- What theories best describe computations over the new interaction spaces and what semantics should be assigned to these computations?

- What models of trust are appropriate for the new interaction spaces, and what level of trust can be assured using these models from untrusted components and data?
- What identification can be inferred from observation of network computation that can be used for verification and authentication?

Today's systems lack the fundamental principles necessary to build future systems needed for naval operations. New technologies and technological convergence have provided for the Navy and will continue to provide new opportunities, present new challenges, and change our view of software, computational sciences and interaction spaces. ONR believes that significant fundamental advances can be achieved through research at the intersection of computer science, the natural sciences, and social sciences. There are many research opportunities and challenges we anticipate in this area. For this basic research program the following issues are of particular interest:

Topics of highest interest:

- Control and management of computational resources facilitating desired activities; new models of computation and system architectures for cooperative defense at all scales of the computational environment including software, network, host, embedded systems, federated, and even critical infrastructures and more broadly interaction spaces;
- Stability for network computation that have multiple dependencies and often exhibit dynamic properties; new insights for effective control of systems to produce trustworthy results; well-behaved, robust, and secure performance as expected despite the presence of disruptions, such as asynchronous computation, latent communications, and computation on platforms with large numbers of faults;
- Metrics that enable comparison of computation in networked environments that go beyond FLOP count/rates, power, memory, bandwidth, and traditional complexity measures to address trust and security, and that would enable engineering of trustworthy cyber-physical systems;
- Automated methods that define architectures for embedded real time systems that provide maximal performance for a given algorithm/application or family thereof with regard to run-time, power, memory, or combination of metrics with homogenous and heterogeneous computational components;
- Fundamental principles for new host architectures across the entire stack whose synergies enable security proofs and minimize by-passing operating systems and application policies, with special attention to information assurance, manageability, usability and agility;

Other topics of interest:

- Methods to map the topology and activity of networks (including dark webs and social networks), particularly that involve geo-location and correlation with other infrastructures;
- Properties of computations, defined on networks (e.g., search on the Internet, maps on process calculi), properties of spaces of these computations, and their measurements;
- Verification and model checking that augment probability with real-time and that enable counter-example driven refinement and more realistic analysis of embedded network systems behaviors;
- Mechanisms to support various assurances despite the presence of malicious, erroneous, partly trusted, and uncertain information; characterizations of trust in reputation systems for social networking;
- Identification through activity patterns; determination of measures of certainty for each method.

Proposals that do not place problems and goals within the context of the broad perspective outlined in the overall program will be considered noncompetitive. Similarly, proposals that seek incremental improvements over current technology are discouraged.

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 26 June 2008. As defined therein, the definition of "contracted fundamental research", in a DoD contractual context, includes 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 or by industry. ATD is funded through Budget Activity 3. In conformance with the USD(AT&L) guidance and National Security Decision Directive 189, ONR will place no restriction on the conduct or reporting of unclassified fundamental research, except as otherwise required by statute, regulation or Executive Order. 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. The funds available under this BAA are 6.1 (Basic Research) funds.

7. Point(s) of Contact -

Questions of a technical nature should be submitted to:

Primary:

Ralph Wachter
Office of Naval Research
875 North Randolph Street - Suite 1102B
Code: ONR 311
Arlington, VA 22203-1995
Email: ralph.wachter@navy.mil

Secondary:

Kim McCormick
Office of Naval Research
875 North Randolph Street - Suite W1105C
Code: ONR 311
Arlington, VA 22203-1995
Email: kim.mccormick@navy.mil

Questions of a business nature should be submitted to:

Primary:

Jennifer Williams
Office of Naval Research
875 North Randolph Street - Suite W1269A
Code: ONR251
Arlington, VA 22203-1995
Email: jennifer.williams4@navy.mil

Secondary:

Vera Carroll
Office of Naval Research
875 North Randolph Street - Suite 1279
Code ONR 0251
Arlington, VA 22203-1995
Email: vera.carroll@navy.mil

Note: All communications shall be submitted via e-mail. All questions to the Technical Point of Contact (POC) shall be sent via e-mail with a copy to the designated Business POC. Questions submitted

within 2 weeks prior to a deadline may or may not receive a response.

8. Instrument Type(s) - Contracts and Grants

Awards may take the form of Contracts and Grants as appropriate. ONR reserves the right to award a different instrument type if deemed to be in the best interest of the Government.

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 -

This announcement is restricted to basic research. Contract and grant awards made under this BAA are for scientific study and experimentation directed toward 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

The amount and period of performance of each selected proposal will vary depending on the research area and the technical approach to be pursued by the selected offeror.

Estimated Total Amount of Funding Available (\$K):*

FY2010	FY2011	FY2012	FY	FY	Total
\$4580	\$5000	\$5000	\$0	\$0	\$14580

ONR plans to issue multiple awards that represent the best value to the Government in accordance with the evaluation criteria stated in Section V. entitled "Evaluation Information". ONR is seeking participants for this program that are capable of supporting the goals described in this announcement. Offerors have the opportunity to be creative in the selection of the technical and management processes and approaches to address the areas of interest described above.

The period of performance of the awards will range from 12 to 35 months. ONR anticipates a budget of approximately \$14,580,000 for the Discovery and Invention (D&I) Program for the total award period, subject to budget availability. ONR plans to fund \$100,000 to \$450,000 lump-sum awards per year. However, lower and higher cost proposals will be considered. The estimated start date is of 01 November 2009, subject to date of final award and the availability of funds.

Awards with a period of performance of 35 months will be funded as three periods of performance, 11 months, 12 months, and 12 months.

*In recent years Congress has placed limits on the percentage of facilities and administrative (F&A) costs that can be paid by the government using basic research (6.1) funds. Currently F&A costs paid under contracts and grants for the performance of basic research may not exceed 35 percent. It is unknown at present whether a similar indirect cost restriction will apply to 6.1 funds in FY 2010 or thereafter.

The award(s) will be made for the full performance period requested. Options will not be utilized.

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.

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.

IV. APPLICATION AND SUBMISSION INFORMATION

1. Application and Submission Process - Full Proposals

The Application and Submission Process consists of full proposals only. Full proposals must be submitted electronically via grants.gov if a grant award is sought. Full proposals must be submitted hard copy via United States Postal Service (USPS) or a commercial carrier if a contract award is sought. NOTE: Full Proposals sent by fax or e-mail will not be considered.

2. Content and Format of Full Proposals -

Full Proposals submitted under the BAA are expected to be unclassified .

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. The full proposal shall include a severable, self-standing Statement of Work, which contains only unclassified information and does not include any proprietary restrictions.

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

The proposal format and content identified below are applicable to the submission of proposals for contracts. As noted in Paragraph 5 below, proposals selecting grant awards are to be formatted as required by Standard Form 424 (R&R), which is available via the internet at <http://www.grants.gov/>.

Unclassified Full Proposals shall be submitted directly to the appropriate Technical Point of Contact (TPOC).

As noted in Paragraph 5 below, submissions for grant awards are to be formatted as required by Standard Form 424 (R&R), which is available via the internet at <http://www.grants.gov/>.

FULL PROPOSALS

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 - The Technical Volume (Vol. 1) shall not exceed more than 15 pages. The cover page, table of contents, personnel resumes, and bibliographies shall not be included in the page limit. There are no page limitations to the Cost Proposal, Volume 2. Full Proposals exceeding the page limit may not be evaluated.
- Copies - one (1) original, five (5) copies, and one (1) electronic copy on CD-ROM (in Microsoft® Word or .PDF format). If a grant is sought, the full proposal shall be submitted electronically on Standard Form 424 (R&R) at <http://www.grants.gov/> as delineated below.

Full Proposal Content

Volume 1: Technical Proposal

- **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
- **Table of Contents:** An alphabetical/numerical listing of the sections within the proposal, including corresponding page numbers.
- **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, the proposals must include a severable, self-standing SOW, without any proprietary restrictions, which can be attached to the contract or agreement award. Include a detailed listing of the technical tasks/subtasks organized by year.

Submission of the SOW without restrictive markings is your company's affirmation that the SOW is non-proprietary and releasable in response to Freedom of Information Act (FOIA) requests.

- **Technical Approach and Justification:** The major portion of the proposal should consist of a clear description of the technical approach being proposed. This discussion should provide the technical foundation / justification for pursuing this particular approach / direction and why one could expect it to enable the objectives of the proposal to be met.
 - **Future Naval Relevance:** A description of potential Naval relevance and contributions of the effort to the agency's specific mission.
- **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.

If it is determined that data rights are not applicable, indicate no assertions are being made in the proposal submission.

- **Deliverables:** A detailed description of the results and products to be delivered inclusive of the timeframe in which they will 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/subrecipient relationships; government research interfaces; and planning, scheduling and control practice. Identify which personnel and subcontractors/subrecipients (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, by version and/or configuration.
- **Current and Pending Project and Proposal Submissions:** Offerors are required to provide information on all current and pending support for ongoing projects and proposals, including subsequent funding in the case of continuing contracts, grants, and other assistance agreements. Offerors shall provide the following information of any related proposal submissions from whatever sources (e.g., ONR, Federal, State, local or foreign government agencies, public or private foundations, industrial or other commercial organizations). The information must be provided for all proposals already submitted or submitted concurrently to other possible sponsors, including ONR. Concurrent submission of a proposal to other organizations will not prejudice its review by ONR:
 - 1) Title of Proposal and Summary;
 - 2) Source and amount of funding (annual direct costs; provide contract and/or grant numbers for current contracts/grants);
 - 3) Percentage effort devoted to each project;
 - 4) Identity of prime Offeror and complete list of subcontractors, if applicable;
 - 5) Technical contact (name, address, phone/fax, electronic mail address)
 - 6) Administrative/business contact (name, address, phone/fax, electronic mail address);
 - 7) Duration of effort (differentiate basic effort);
 - 8) The proposed project and all other projects or activities requiring a portion of time of the PI and other senior personnel must be included, even if they receive no salary support from the project(s);
 - 9) The total award amount for the entire award period covered (including indirect costs) must be shown as well as the number of person-months per year to be devoted to the project, regardless of source of support; and
 - 10) State how projects are related to the proposed effort and indicate degree of overlap.
- **Qualifications:** A discussion of the qualifications of the proposed Principal Investigator and any other key personnel. Include resumes for the Principal Investigator and other key personnel and full curricula vitae for Principal Investigators and consultants. The resumes and curricula vitae shall be attached to the proposal and will not count toward the page limitations.

VOLUME 2: Cost Proposal

INSTRUCTIONS FOR CONTRACTS

Although not required and provided for informational purposes only, adhering to the instructions delineated below may expedite contract placement. 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

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 Government 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.

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

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

- Direct Labor - Individual labor categories or persons, with associated labor hours and unburdened direct labor rates. Provide escalation rates for out years;
- Indirect Costs - Fringe Benefits, Overhead, G&A, COM, etc. and their applicable allocation bases. If composite rates are used, provide the calculations used in deriving the composite rates.
- Travel - The proposed travel cost should include the following for each trip: the purpose of the trip, origin and destination if known, approximate duration, the number of travelers, and the estimated cost per trip must be justified based on the organizations historical average cost per trip or other reasonable basis for estimation. Such estimates and the resultant costs claimed must conform to the applicable Federal cost principles.
- Subcontracts - 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 may be sent directly to the Government. Subcontractor proposals must be received and reviewed prior to contract award. The prime contractor should perform and provide a cost/price analysis of each subcontractor's cost proposal.*
 *Note: DoD Federal Acquisition Regulation provision 252.215-7003 (48 CFR §252.215-7003) is incorporated into this solicitation by reference. The offeror is to exclude excessive pass-through charges from subcontractors. The offeror must identify in its proposal the percentage of effort it intends to perform and the percentage to be performed by each of its proposed subcontractors. If more than 70 percent of the total effort will be formed through subcontractors, the offeror must include the additional information required by the above-cited clause.
- Consultant - Provide a breakdown of the consultant's hours, the hourly rate proposed, any other proposed consultant costs, a copy of the signed Consulting Agreement or other documentation supporting the proposed consultant cost, and a copy of the consultant's proposed statement of work if it is not already separately identified in the prime contractor's proposal.
- Materials & Supplies - Provide an itemized list of all proposed materials and supplies including quantities, unit prices, proposed vendors (if known), and the basis for the estimate (e.g., quotes, prior purchases, catalog price lists).
- Contractor Acquired Equipment or Facilities - Equipment and/or facilities are normally furnished by the Contractor. If acquisition of equipment and/or facilities is proposed, a justification for the purchase of the items must be provided. Provide an itemized list of all equipment and/or facilities costs and the basis for the estimate (e.g., quotes, prior purchases, catalog price lists).
- Other Directs Costs - Provide an itemized list of all other proposed other direct costs and the basis for the estimate (e.g., quotes, prior purchases, catalog price lists).
- Fee/profit ("CONTRACT PROPOSALS ONLY") - Profit or fee is not allowed on direct costs for facilities or in cost-sharing contracts.

Note: Indicate if you have an approved Purchasing/Estimating System and/or describe the process used to determine the basis of reasonableness (e.g., competition, market research, best value analysis) for subcontractors, consultants, materials, supplies, equipment/facilities, and other direct costs.

Part 2 Cost breakdown by task/sub-task corresponding to the same task breakdown in the proposed Statement of Work.

INSTRUCTIONS FOR GRANTS

The offeror must use the Grants.Gov forms from the application package template associated with the BAA on the Grants.Gov web site located at <http://www.grants.gov/> . Elements of the budget should include:

- Direct Labor - Individual labor categories or persons, with associated labor hours and unburdened direct labor rates or percentage of effort or total man-years. Provide escalation rates for out years. Justify in Field K
- Indirect Costs - Fringe Benefits, Overhead, F&A, G&A etc. and their applicable allocation bases. If composite rates are used, provide the calculations used in deriving the composite rates. Justify in Field K
- Travel - The proposed travel cost should include the following for each trip: the purpose of the trip, origin and destination if known, approximate duration, the number of travelers, and the estimated cost per trip must be justified based on the organizations historical average cost per trip or other reasonable basis for estimation. Such estimates and the resultant costs claimed must conform to the applicable Federal cost principles.
- Subawards - Cost proposal as detailed as the recipient's cost proposal will be required to be submitted by the subrecipient. The subawardee's or sub recipient's cost proposal can be provided in a sealed envelope with the recipient's cost proposal or may be sent directly to the Government. Subawardee's proposals must be received and reviewed prior to award.
- Consultants - Provide a breakdown of the consultant's hours, the hourly rate proposed, any other proposed consultant costs and a copy of the consultant's proposed statement of work if it is not already separately identified in the prime recipient's proposal. Strong justification must be provided, and consultants are to be used only under exceptional circumstances where no equivalent expertise can be found at a participating university. Justify in Field K.
- Materials & Supplies - Provide an itemized list of all proposed materials and supplies including quantities, unit prices, proposed vendors (if known), and the basis for the estimate (e.g., quotes, prior purchases, catalog price lists). Justify in Field K.
- Recipient Acquired Equipment or Facilities - Equipment and/or facilities are normally furnished by the Recipient. If acquisition of equipment and/or facilities is proposed, a justification for the purchase of the items must be provided. Provide an itemized list of all equipment and/or facilities costs and the basis for the estimate (e.g., quotes, prior purchases, catalog price lists). For computer/laptop purchases include a statement indicating the computer/laptop will be integrated into the program or used as an integral part of the research effort. Justify in Field K.
- Other Direct Costs - Provide an itemized list of all other proposed other direct costs such as Graduate Assistant tuition, laboratory fees, report and publication costs, and the basis for the estimates (e.g., quotes, prior purchases, catalog price lists). Justify in Field K.
NOTE: If the grant proposal is for a conference, workshop, or symposium, the proposal should include the following statement: "The funds provided by ONR will not be used for food or beverages."
- Fee/Profit - Fee/profit is unallowable.

3. Significant Dates and Times -

Event	Date	Time
Full Proposal Due Date	8/27/2009	4:00 PM Eastern Daylight Time
Notification of Selection: Full Proposals*	9/20/2009	
Awards*	11/1/2009	

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

NOTE: Due to changes in security procedures since September 11, 2001, the time required for hard-copy written materials to be received at the Office of Naval Research has increased. Materials submitted through the U.S. Postal Service, for example, may take seven days or more to be received, even when sent by Express Mail. Thus any hard-copy proposal should be submitted long enough before the deadline established in the solicitation so that it will not be received late and thus be

ineligible for award consideration.

4. Submission of Late 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:

- 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
- 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
- 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. Submission of Grant Proposals through Grants.gov

(NOT APPLICABLE TO PROPOSALS FOR CONTRACTS)

Detailed instructions entitled "Grants.Gov Electronic Application and Submission Information" on how to submit a grant proposal through Grants.gov may be found at the ONR website listed under the 'Acquisition Department - Contracts & Grants Submitting a Proposal' link at: http://www.onr.navy.mil/02/how_to.asp

Grant proposals shall be submitted through Grants.Gov using the Grants.gov forms from the application package template associated with the BAA on the Grants.Gov website. To be considered for award, applicants must include the ONR Department Code in Block 4 entitled 'Federal Identifier' of the Standard Form (SF) 424 R&R.

By completing Blocks 18 and 19 the Grant Applicant is providing the certification on lobbying required by 32 CFR Part 28. Refer to Section VI, 'Award Administration Information' entitled "Certifications" for further information.

For electronic submission of grant full proposals, several one-time actions must be completed in order to submit an application through Grants.gov. These include obtaining a Dun and Bradstreet Data Universal Numbering System (DUNS) number, registering with the Central Contract Registration (CCR), registering with the credential provider, and registering with Grants.gov. See www.grants.gov, specifically www.grants.gov/GetStarted.

Use the Grants.gov Organization Registration Checklist at http://www.grants.gov/applicants/register_your_organization.jsp which will provide guidance through the process. Designating an E-Business Point of Contact (EBiz POC) and obtaining a special password called 'MPIN' are important steps in the CCR registration process. Applicants who are not registered with CCR and Grants.gov should allow at least 21 days to complete these requirements. The process should be started as soon as possible. Any questions relating to the registration process, system requirements, how an application form works, or the submittal process must be directed to Grants.gov at 1-800-518-4726 or support@grants.gov.

Special Notices Relative to Grant Applications to be submitted through Grants.Gov:

All attachments to grant applications submitted through Grants.Gov must be in Adobe Portable Document Format (i.e., .PDF files). Proposals with attachments submitted in word processing, spreadsheet, or any format other than Adobe Portable Document Format will not be considered for award.

Process to Obtain a Waiver from the Use of Grants.Gov for Submission of Full Grant Proposals: If a prospective grantee is unable to comply with the requirement to use Grants.Gov "APPLY" for submission of a grant application under this BAA or finds it would be an excessive burden to comply with this requirement, a waiver request may be submitted not less than 30 calendar days prior to the closing date for receipt of Full Proposals. Such request should be submitted by the Electronic Business Point of Contact listed in the CCR for the organization and should contain the Organization/Individual's name, address, telephone number, and email address. The request should state the reason for the request in sufficient detail so a decision can be made. The Waiver Request should be submitted to the ONR Acquisition Department point of contact or Grants Officer listed in the BAA. Such request can be sent by registered mail or email. The "postmark" stamp on the envelope or the time annotated on the email will be used to determine timeliness of the request. A decision and response will be issued within 14 calendar days of receipt of the request by ONR. Foreign Grantees who are not registered in CCR may request a waiver on that basis since CCR registration is integral to the Grants.Gov application process.

Special Notice on Alternate Submission

The following alternative to submitting proposals to the grants.gov website is provided for use under this BAA. Proposals using the alternative submission process will be accepted only if grants.gov is not accepting the proposal and the offeror has called the grants.gov helpline and received a case ticket number. If grants.gov has not within two days by return email validated your proposal submission, call Grants.gov (1-800-518-4726) to obtain a case ticket number. An email from Grants.gov indicating rejection of the grant proposal will not be accepted in place of a Grants.gov case ticket number.

a. Upload the proposal using the form on the following website:

<http://onroutside.onr.navy.mil/aspprocessor/BAAPE/>

b. Use this form to upload your grant proposal directly to the Office of Naval Research. All fields in the form are required to be completed, including the assigned Grants.gov case ticket number. Your completed package should also include a signed, scanned proposal cover sheet with the signature of your authorized organizational representative as part of the 'Attachments Form'. Submit one file per proposal in PDF format. DO NOT submit any parts of the proposal separately. Technical proposals, endorsements, etc. should be on the Grants.Gov ATTACHMENTS form.

c. Use the naming convention below for all uploaded proposals.

*Convention: (ONRBAA09-XXX_Topic_LeadPI_University.pdf)

*Example: ONRBAA09-012_NOPP_MSMITH_UNIVRESEARCH.PDF

d. Once a document has been submitted, a "Thank You" page will appear and an email will be sent to the address provided. If you do not receive an email confirmation, your file has not been properly

received. You should immediately contact the business point of contact listed in the BAA or the ONR Grants BAA Administrator.

6. Address for the Submission of Full Proposals .

White Paper Submission	Full Proposal Submission
	Hard Copy & Electronic
Hard copies and electronic copy of the proposal should be mailed in together.	

Full Proposals for Contracts should be sent to the Office of Naval Research at the following address:

Primary Contact	Secondary Contact
Office of Naval Research Attn: Ralph Wachter ONR Department Code: 311 875 North Randolph Street Arlington, VA 22203-1995	Office of Naval Research Attn: Kim McCormick ONR Department Code: 311 875 North Randolph Street Arlington, VA 22203-1995

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:

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

Overall, the technical factors 1 - 4 above are more important than the cost factor, with the technical factors all being of equal value. 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.

For proposed awards to be made as contracts to other than small 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 for small businesses, small disadvantaged businesses, woman-owned small businesses, HUBZone small businesses, veteran-owned small businesses, service disabled veteran-owned small businesses, historically black colleges and universities, and minority institutions.

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. Cost proposals will be evaluated by Government business professionals. Restrictive notices notwithstanding, one or more support contractors may be utilized as subject-matter-expert technical consultants. Similarly, support

contractors may be utilized to evaluate cost proposals. 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.

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 "541712" with a small business size standard of "500 employees".
- Central Contractor Registry (CCR) - Successful Offerors not already registered in the 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>.
- Subcontracting Plans - Successful contract proposals that exceed \$550,000, submitted by all but small business concerns, will be required to submit prior to award a Small Business Subcontracting Plan in accordance with FAR 52.219-9.
- Certifications - Proposals for contracts and assistance agreements should be accompanied by a completed certification package.

Contracts

For contracts, in accordance with FAR 4.1201, prospective contractors shall complete and submit electronic annual representations and certifications at <http://orca.bpn.gov>. In addition to completing the Online Representations and Certifications Application (ORCA), proposals must be accompanied with a completed DFARS and contract specific representations and certifications. These "DFARS and Contract Specific Representations and Certifications", i.e., Section K, may be accessed under the Contracts and Grants Section of the ONR Home Page at http://www.onr.navy.mil/02/rep_cert.asp.

Grants

Grant awards greater than \$100,000 require a certification of compliance with a national policy mandate concerning lobbying. Grant applicants shall provide this certification by electronic submission of SF424 (R&R) as a part of the electronic proposal submitted via Grants.gov (complete Blocks 18 and 19); The following certification applies to each applicant seeking federal assistance funds exceeding \$100,000:

CERTIFICATION REGARDING LOBBYING ACTIVITIES

(1) No Federal appropriated funds have been paid or will be paid by or on behalf of the applicant, to any person for influencing or attempting to influence an officer or employee of an agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with the awarding of any Federal contract, the making of any Federal grant, the making of any Federal loan, the entering into of any cooperative agreement, and the extension, continuation, renewal, amendment, or modification of any Federal contract, grant, loan, or cooperative agreement.

(2) If any funds other than Federal appropriated funds have been paid or will be paid to any person for influencing or attempting to influence an officer or employee of any agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with the Federal contract, grant, loan, or cooperative agreement, the applicant shall complete and submit Standard Form-LLL, "Disclosure Form to Report Lobbying," in accordance with its instructions.

(3) The applicant shall require that the language of this certification be included in the award documents for all sub awards at all tiers (including sub contracts, sub grants, and contracts under grants, loans, and cooperative agreements) and that all sub recipients shall certify and disclose

accordingly.

This certification is a material representation of fact upon which reliance was placed when this transaction was made or entered into. Submission of this certification is a prerequisite for making or entering into this transaction imposed by Section 1352, title 31, U.S.C. Any person who fails to file the required certification shall be subject to a civil penalty of not less than \$10,000 and not more than \$100,000 for each such failure.

Grants not through Grants.gov:

Proposers seeking grants or cooperative agreements who have received Grants.gov waiver approval for awards greater than \$100,000 shall complete and submit electronic representations and certifications at the Contracts and Grants Section of the ONR Home Page at http://www.onr.navy.mil/02/rep_cert.asp.

2. Reporting -

The following are sample data deliverables that are typically required under a research effort:

- Technical and Financial Progress Reports
- Presentation Materials
- Final Report

Additional data deliverables may be proposed and finalized during negotiations. Research performed under contracts may also include the delivery of software, prototypes, and other hardware deliverables.

VII. OTHER INFORMATION

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

Reserved

2. Security Classification

Reserved

3. Use of Animals and Human Subjects in Research

Reserved

4. Recombinant DNA

Reserved

5. Department of Defense High Performance Computing Program

The DoD High Performance Computing Program (HPCMP) furnishes the DoD S&T and RDT&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, grant or other assistance agreement resulting from this BAA, the recipient 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 recipient 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 recipient 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 recipient personnel who do not need to know the contents thereof for the performance of the contract/agreement. Recipient 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.

7. 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.

8. Submission of Questions

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

Questions regarding **full proposals** must be submitted by **4:00 PM Eastern Time on 13 August 2009**. Questions after this date and time may not be answered, and the due date for submission of the proposals will not be extended.

Answers to questions submitted in response to this BAA will be addressed in the form of an Amendment and will be posted to one or more of the following webpages:

- Federal Business Opportunities (FEDBIZOPPS) Webpage - <https://www.fbo.gov/>
- Grants.gov Webpage - <http://www.grants.gov/>
- ONR Broad Agency Announcement (BAA) Webpage - <http://www.onr.navy.mil/02/baa/>

9. Other Guidance, Instructions, and Information

None