



BROAD AGENCY ANNOUNCEMENT (BAA)

Assessing Total Ownership Cost

INTRODUCTION:

This publication constitutes a Broad Agency Announcement (BAA) as contemplated in Department of Defense Grant and Agreement Regulations (DODGARS) 22.315(a). A formal Request for Proposals (RFP), solicitation, and/or additional information regarding this announcement will not be issued. Request for same will be disregarded.

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

Potential offerors may obtain information on ONR programs and opportunities by checking the ONR website at <http://www.onr.navy.mil/Contracts-Grants/Funding-Opportunities/Broad-Agency-Announcements.aspx>. Specific information about BAAs and amendments and updates to this BAA will be found at that site under the heading "Broad Agency Announcements".

I. GENERAL INFORMATION

1. Agency Name -

Office of Naval Research
One Liberty Center

875 N. Randolph Street
Arlington, VA 22203-1995

2. Research Opportunity Title – Assessing Total Ownership Cost

3. Program Name - Total Ownership Cost

4. Research Opportunity Number – ONR BAA 11- 022

5. Response Date -

White Papers: August 29, 2011

Full Proposals: October 31, 2011

6. Research Opportunity Description -

The Office of Naval Research (ONR) is interested in receiving proposals to develop and drive implementation of the solution architecture necessary to significantly reduce the total ownership cost (TOC) of the current and future Fleet. At the macro level, TOC can be defined as the sum of all financial resources necessary to organize, equip, train, sustain, and operate military forces sufficient to meet national goals in compliance with all laws, all policies applicable to DoD, all standards in effect for readiness, safety, and quality of life, and all other official measures of performance for DoD and its components. Although the macro TOC definition bounds the problem, current tools cannot account for the complex interactions of all costs associated with a Naval weapons platform across its lifecycle at the micro level. The lack of quantitative and qualitative TOC data limits the Navy to objectively based predictions of future costs.

The tools resulting from this research will be used to estimate and refine TOC throughout the acquisition process, from Initial Conceptual Studies, through Development and Operating & Support efforts, and will reduce the uncertainty and risk associated with making platform design decisions. Successful proposals will also increase the fundamental understanding of TOC, Naval platform performance valuation, the relationship between them, and the decision trade space that researchers, system designers and acquisition decision-makers must balance to provide world-class weapons platforms. Innovative multi-disciplinary approaches that include, but are not limited to, areas such as operations research, economics, systems engineering, and human system integration are highly encouraged.

Introduction

Technology improvements and a growing Naval mission space have led to increasingly complex Naval weapons platforms with a corresponding increase in associated life cycle costs. The complexity of balancing platform performance against cost continues to challenge developers and acquisition decision-makers as they struggle to deliver improved performance against a backdrop of finite resources and increasing life-cycle

costs. Until recently cost estimation focused mainly on reducing system acquisition and procurement costs, without fully accounting for platform performance. Yet over 70% of a platform's total cost is established during the concept refinement and design stages, which accounts for less than 30% of total lifecycle cost and which is where many of the most critical cost and performance tradeoffs are determined. This suggests that significant efficiencies may be gained by adopting a cost assessment approach that accounts for all costs associated with a platform throughout its lifecycle, completing these valuations early in the lifecycle, while managing the risk associated with estimating certain cost and performance targets.

Navy acquisition design decisions can significantly impact subsequent maintenance, manning, and sustainment costs that are not emphasized during the acquisition decision process. These post acquisition maintenance, manning, and sustainment costs account for the great majority of the weapon platform life cycle costs and have a profound impact on areas such as, but not limited to, ship readiness, mission effectiveness, training effectiveness, FIT metric (Chief of Naval Personnel's objective to create a capability-driven, competency-based Navy workforce with the ability to place the right person in the right position at the right time), and sustainment costs.

The Navy does not have the means to quantify or measure TOC for war-fighting platforms as it pertains to the direct and indirect relationships between design decision on downstream maintenance, sustainment, and manning costs and performance. The Navy's acquisition, logistics, manpower, and training communities agree that rising TOC results in less buying power to procure future weapon systems, but there are no mathematical solutions as to how to capture the rich and complex interactions among all facets of the Navy enterprise that are impacted by, or contribute to TOC. However, it is often difficult to measure the impact of design decisions, as there are no standard definitions, metrics, and measurements that define let alone calculating the Return on Investment (ROI) of any design decision that impacts multiple aspects of the Navy enterprise.

Technical Areas

Navy platform design and acquisition typically overemphasizes acquisition costs at the expense of lifecycle costs despite common recognition that design and development (functionality, technology, etc.) decisions should include total ownership cost (TOC) considerations. In addition to cognitive tendencies to over emphasize near term outcomes, the focus on acquisition costs is often driven by:

- 1) Misalignment of incentives where those responsible for designing and delivering the asset are not responsible for lifecycle costs nor rewarded (in the purchase price) for lowering TOC, and,
- 2) Inability to evaluate the impact of design decisions on future lifecycle costs thus (a) technology and functionality decisions are made with limited understanding of cost implications, and (b) procurement decisions are biased towards acquisition costs and functionality (which are more visible) even when owners desire to take a TOC perspective.

The goal of this effort will focus on the second challenge to help advance fundamental understanding of TOC drivers and analysis methods to evaluate impacts of potential design changes on both acquisition and lifecycle costs and (to a lesser degree) performance. This BAA requests proposals that focus on four technical areas to overcome the limitations discussed above. Those four technical areas are discussed below:

Technical Area #1 - Discovery of issues, elements, measures, performance variables, and processes for a TOC architecture that could model and simulate acquisition design decisions impact on total ownership cost and characterizing intra- and inter- relationships and their impact on total ownership costs.

Scope

To develop an ontology (or a framework) that defines the important parameters and the relationships that exist between the different elements that make up TOC. TOC is comprised of cost to research, develop, acquire, own, operate, and dispose of weapon and support systems, other equipment and real property; the costs to recruit, train, retain, separate and otherwise support military and civilian personnel; and other cost of business operations in DoD.

From the human perspective, these variables include but are not limited to those that represent (1) cost in terms of selection, training, retention; and (2) performance in terms of cognitive, affective, and psychomotor metrics at the individual operator and aggregate-of-operators levels. From the system perspective, these metrics include but are not limited to those that represent (3) cost in terms of design, development and maintenance; and (4) performance in terms of mean time between failures, probability of failure, and a host of platform-specific measures. Complicating matters even more, these variables may not be independent of one another, requiring their interrelationship to be characterized as well. Lastly, the manner in which these variables impact TOC may vary with the specific mission contexts in which the platform being developed will be used. The complex relationships between performance variables, cost variables, mission readiness, mission contexts and TOC must also be characterized.

S & T Issues

- Develop approaches to quantifying cost and performance at the human, system and human-system levels
- Understand the inter and intra-relationships between variables and outcomes
- Define TOC in terms of human, system, and human-system interactions

Desired Outcome

A comprehensive TOC/Performance ontology, with associated variables database, that defines the relevant variables and the relationships between them, TOC and performance.

Technical Area #2 - Quantify the economic value of human and system performance in the context of complex interrelationships and trade-offs between human performance-related key cost elements and technology choices.

Scope

To emphasize the economic “value” of key human and system performance elements and how they apply to acquisition programs’ TOC and a system’s operational capability as well as complex decision environments. This includes estimating the costs associated with all users of the system and the negative repercussive costs of weakness in human-centered design or when humans do not perform as predicted or required. This effort should highlight the human component in TOC, by employing techniques to identify, define, analyze, and report on human performance and human factors considerations to ensure they are incorporated in systems acquisition investment decisions. Human-system performance and human factors technology trade-offs should be considered in the context of requirements analysis, baseline performance studies, alternative analyses, lifecycle cost estimates, cost-benefit analyses, risk assessments, supportability assessments, and operational suitability assessments.

Desired Outcome

To better assess human and system performance uncertainty and predict total cost of human and system performance relevant to acquisition of Navy technology systems.

S & T Issues

- Develop methodology to better assess and predict the total cost of human and system performance as it relates to complex systems
- Understand the economic “value” of key human performance elements and how they apply to complex systems
- Understand the relationship between economic “value” of a human and system performance

Technical Area #3 - Understanding key issues and questions and adapting a system dynamics approach to develop a top down conceptual framework that is consistent with bottom up knowledge of key TOC aspects.

Objective

Characterizing, developing and implementing the algorithm and modeling components, as well as an overarching architecture, for calculating the tradeoffs between TOC and performance.

Scope

TOC is typically estimated using one of four methods: by analogy to other, similar systems for which there is accurate cost and technical data; through parametric techniques, to develop an estimate based on system performance or design characteristics; using engineering methods to develop a ‘bottom-up’ estimate based on labor hours, raw materials and purchase part costs; or, using actual costs extrapolated

from the most current system's design plans. None of these methods are robust – or general - enough to account for the complexities of human performance, the relationship between human and system performance, their combined impact on TOC or the numerous possible tradeoffs that could be made between cost and performance. Moreover, current methods do not capture risk and uncertainty associated with each set of tradeoffs. Modeling and simulation techniques are therefore needed to estimate TOC across a wide parameter space. At the same time, a more comprehensive and generalizable TOC architecture must be developed to allow for the generation of multiple models from multiple, and different, data sets.

Desired Outcomes

Quantitatively evaluate the impact of program decisions on future lifecycle costs.

S & T Issues

- Calculate the tradeoffs between TOC and performance
- Understand the system level framework for synthesis of relevant capability information (e.g., direct costs, TOC costs, expected operational benefits) into a top down structure that will support capability decision making

Technical Area #4 - Provide an interactive visualization tool that will allow users to tailor the output of complex TOC calculations.

Objective

Developing intuitive user interfaces for analyzing and visualizing data and calculated outcomes, and for representing design specifications and tradeoffs.

Scope

A critical challenge with evaluating performance / TOC assessments is understanding the full range of implications for any projected outcome. This is due in part to the complexity of the tradespace underlying human systems design, as well as to the current state of decision support tools available for optimally representing this space. These challenges can be mitigated to a large extent by developing intuitive, interactive, collaborative and adaptable user interfaces that provide a range of analytic, visualization and hypothesis testing tools that each user can tailor to his own needs.

S & T Issues

- Understanding how users make decisions about complex tradespaces, and what the limits of human cognition are in understanding the range of possible outcomes
- Determining what information decision makers require for making optimal decisions between TOC and performance
- Developing tools for collaborative decision making and hypothesis testing
- Developing analysis and visualization techniques and tools to evaluate the consequences of design decisions and technology upgrades on performance and TOC
- Allowing users to test different platform decisions by varying one or more cost and /or performance metrics, as well as specifying different mission contexts

Desired Outcome

Methods for interactively displaying information, complex interactions or a visualization process that encourages designers to weigh the balance of improved performance versus the long-term cost consequences.

Summary

The results of this effort will increase acquisition program managers and policy makers' awareness of the true costs and value associated with technology insertion on war fighting capabilities. It will accelerate the understanding of the key issues of a program manager's acquisition decision trade space when inserting technology into the acquisition life cycle framework. The practical knowledge will facilitate the development of TOC theoretical model that could simulate acquisition design decisions' impact on maintenance, sustainment, and manning life cycle costs. For instance, the simulation could measure the design, maintenance, sustainment, and operation activities of specific submarine combat and weapon technologies embedded in the Virginia Block IV combat control room, including all personnel, departments, divisions, equipment, workloads, operating conditions, maintenance mean time between failures, and so on. By simulating the interactions between humans and certain key pieces of equipment, it is possible to identify "tipping points" and sensitivities that represent the most relevant factors contributing to monetary costs, performance, readiness, and so on. These outcomes will serve as the foundation for subsequent efforts, culminating in a set of best practices and analytical methodologies that will dramatically improve Navy-wide design and procurement, with reduced TOC and increased readiness.

References

Department of Defense. Instruction. *Operation of the Defense Acquisition System*. 12 May 2003. DoDI 5000.2.

Gansler, Jacques S. Office of the Secretary of Defense. *Memorandum: Definition of Total Ownership Cost (TOC), Life Cycle Cost, and the Responsibilities of Program Managers*. 13 November 1998.

7. Point(s) of Contact -

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

Office of Naval Research
ONR Code 342, Room 1045

ATTN: William K. Krebs, Ph.D.
875 N. Randolph Street
Arlington, VA 22203-1995
e-mail: william.krebs@navy.mil

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

Emily McLaughlin
Senior Contracting Officer
ONR Code BD 0254
One Liberty Center
875 North Randolph St.
Arlington, VA 22203-1995
Email Address: Emily.j.mclaughlin@navy.mil

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

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:

- Grants.gov Webpage - <http://www.grants.gov/>
- ONR Broad Agency Announcement (BAA) Webpage - <http://www.onr.navy.mil/Contracts-Grants/Funding-Opportunities/Broad-Agency-Announcements.aspx>

8. Instrument Type(s) -

Awards will take the form of grants.

9. Catalog of Federal Domestic Assistance (CFDA) Numbers - 12.300

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

DOD Basic and Applied Scientific Research

11. Other Information –

Work funded under a Broad Agency Announcement (BAA) may include basic research, applied research and some advanced technology development (ATD). With regard to any restrictions on the conduct or outcome of work funded under this BAA, ONR will follow the guidance on and definition of "contracted fundamental research" as provided in the Under Secretary of Defense (Acquisition, Technology and Logistics) Memorandum of 24 May 2010.

As defined therein the definition of "contracted fundamental research", in a DoD contractual context, includes [research performed under] grants and contracts that are (a) funded by Research, Development, Test, and Evaluation Budget Activity 1 (Basic Research), whether performed by universities or industry or (b) funded by Budget Activity 2 (Applied Research) and performed on campus at a university. The research shall not be considered fundamental in those rare and exceptional circumstances where the applied research effort presents a high likelihood of disclosing performance characteristics of military systems or manufacturing technologies that are unique and critical to defense, and where agreement on restrictions have been recorded in the contract or grant.

Pursuant to DoD policy, research performed under grants and contracts that are a) funded by Budget Category 6.2 (Applied Research) and NOT performed on-campus at a university or b) funded by Budget Category 6.3 (Advanced Research) does not meet the definition of "contracted fundamental research." In conformance with the USD(AT&L) guidance and National Security Decision Direction 189, ONR will place no restriction on the conduct or reporting of unclassified "contracted fundamental research," except as otherwise required by statute, regulation or Executive Order. For certain research projects, it may be possible that although the research being performed by the prime contractor is restricted research, a subcontractor may be conducting "contracted fundamental research." In those cases, it is the *prime contractor's responsibility* in the proposal to identify and describe the subcontracted unclassified research and include a statement confirming that the work has been scoped, negotiated, and determined to be fundamental research according to the prime contractor and research performer.

Normally, fundamental research is awarded under grants with universities and under contracts with industry. ATD is normally awarded under contracts and may require restrictions during the conduct of the research and DoD pre-publication review of research results due to subject matter sensitivity. As regards to the present BAA, the Research and Development efforts to be funded will consist of basic research. The funds available to support awards are Budget Activity 6.1.

FAR Part 35 restricts the use of a Broad Agency Announcements (BAAs), such as this, to the acquisition of basic and applied research and that portion of advanced technology development not related to the development of a specific system or hardware procurement. Contracts and grants and other assistance agreements made under BAAs are for scientific study and experimentation directed towards advancing the state of the art and increasing knowledge or understanding.

THIS ANNOUNCEMENT IS NOT FOR THE ACQUISITION OF TECHNICAL, ENGINEERING AND OTHER TYPES OF SUPPORT SERVICES.

II. AWARD INFORMATION

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

- Total Amount of Funding Program Office expects to Award through the Announcement: \$700,000.00
- Anticipated Number of Awards: 1-3 awards
- Anticipated Range of Individual Award Amounts per Annum: \$150,000 - \$200,000
- Anticipated Period of Performance: 2 years

In the case of proposals funded as basic research, ONR may utilize peer reviewers from academia, industry, and Government agencies to assist in the periodic appraisal of performance under the awards, as outlined in ONR Instruction 3966.1. Such periodic program reviews monitor the cost, schedule and technical performance of funded basic research efforts. The reviews are used in part to determine which basic research projects will receive continued ONR funding. Peer reviewers who are not U.S. Government employees must sign nondisclosure agreements before receiving full or partial copies of proposals and reports submitted by the basic research performers.

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.

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

For Grant applications:

The Federal Funding Accountability and Transparency Act of 2006 (Public Law 109-282), as amended by Section 6202 of Public Law 110-252, requires that all agencies establish requirements for recipients reporting information on subawards and executive total compensation as codified in 2 CFR 33.110. Any company, non-profit agency or university that applies for financial assistance (either grants, cooperative agreements or other transaction agreements) as either a prime or sub-recipient under this BAA must provide information in its proposal that describes the necessary processes and systems in place to comply with the reporting requirements identified in 2 CFR 33.220. An entity is **exempt** from this requirement **UNLESS** in the preceding fiscal year it received: a) 80 percent or more of its annual gross revenue in Federal contracts (and subcontracts), loans, grants (and subgrants), and cooperative agreements; b) \$25 million or more in annual gross revenue from Federal contracts (and subcontracts), loans, grants (and subgrants), and cooperative agreements; and c) the public does not have access to information about the compensation of the senior executives through periodic reports filed under section 13(a) or 15(d) of the Securities Exchange Act of 1934 or section 6104 of the Internal Revenue Code of 1986.

IV. APPLICATION AND SUBMISSION INFORMATION

1. Application and Submission Process -

White Papers:

The due date for white papers is provided in the Significant Dates and Times chart in Section IV. 3. of this BAA. Each white paper should state that it is submitted in response to this BAA. White papers shall be submitted by email to the Technical Point of Contact listed in Section I, paragraph number 7 of this BAA. The white paper must be submitted in a Microsoft Word or .PDF format. White papers submitted as hard copy and sent by FAX, regular U.S. mail, commercial carrier, or hand delivery will NOT be accepted.

Navy evaluations of the white papers will be issued via e-mail notification on or about the date provided in the Significant Dates and Times chart in Section IV. 3.

Full Proposals:

Full proposals will not be considered under this BAA unless a white paper was received before the white paper due date specified above.

Any offeror may submit a full proposal even if its white paper was not identified as being of “particular value” by the Navy reviewers. However, the Navy's initial evaluation of the white papers should give proposers some indication of whether a later full proposal

would likely result in an award. The due date and time for receipt of Full Proposals are provided in the Significant Dates and Times chart in Section IV. 3. The only acceptable method for submission of full proposals is via www.grants.gov, as outlined below. Full proposals sent by FAX, e-mail, commercial carrier, regular U.S. mail, or hand carried will NOT be accepted.

It is anticipated that final selections will be made within twenty (20) days after proposal submission. As soon as the final proposal evaluation process is completed, each offeror will be notified via email from the Program Officer of its selection or nonselection for an award. Proposals exceeding the proposed page limit may not be evaluated.

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

The proposals submitted under this BAA are expected to be unclassified.

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

a. WHITE PAPERS

White Paper Format

- Paper Size – 8.5 x 11 inch paper
- Margins – 1 inch
- Spacing – single or double-spaced
- Font – Times New Roman, 12 point
- Number of Pages – No more than 9 single-sided pages (excluding cover page and resumes). White Papers exceeding the page limit may not be evaluated.
- Copies – Electronic (email) submissions should be sent to the attention of the TPOC at william.krebs@navy.mil. The subject line of the email shall read “ONR BAA 11-022 White Paper Submission.” The white paper must be a Microsoft Word or .PDF format attachment to the email.

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

White Paper Content

- Cover Page – The Cover Page shall be labeled “PROPOSAL WHITE PAPER”, and shall include the BAA number, proposed title, Offeror’s administrative and technical points of contact, with telephone numbers, facsimile numbers, and Internet addresses, and shall be signed by an authorized officer.
- Technical and Operational Concept – One page summary of the technical ideas for the proposed research, the project objectives, the concept of operation for the

new capabilities to be delivered, and the expected operational performance improvements.

- Deliverables – One page summary of the deliverables associated with the proposed research; grants and other agreements do not include the delivery of software, prototypes, and other hardware deliverables.
- Schedule and Milestones – One page summary of the schedule and milestones for the proposed research, including rough estimates of cost for each year of the effort and total cost.
- Key Personnel – One page listing of key personnel along with the approximate percentage of time to be expended by each person during each contract year.
- Qualifications – Two page concise summary of the qualifications of key personnel.
- Three page technical rationale and approach which contains arguments to substantiate claims made in the summary of technical ideas and is consistent with the summary of deliverables and the summary of the schedule and milestones for the proposed research. A plan for demonstrating and evaluating the operational effectiveness of the Offeror's proposed products or processes in field experiments and/or tests in a simulated environment should be included.

b. FULL PROPOSALS

Grants.gov Full Proposal Submission: Content and Format of Applications

NOTE: Full Proposals must be submitted electronically through grants.gov.

Application forms and instructions are available at Grants.gov. To access these materials, go to <http://www.grants.gov>, select "Apply for Grants", and then select "Download Application Package". Enter the CFDA for the respective agency to which you are directing the application (ONR – 12.300), as found on page two of this announcement) and the funding opportunity number, designated as “research opportunity number” on page two of this announcement.

The following information must be completed as follows in the SF 424 to ensure that the application is directed to the correct individual for review: Block 4a, Federal Identifier: Enter the previous ONR award number, or N00014 if the application is not a renewal or expansion of an existing award; Block 4b, Agency Routing Number, Enter the three (3) digit Program Office Code (i.e., 331) and the Program Officer's name, last name first, in brackets (i.e., [Krebs, William]).

Applicants who fail to provide a Department code identifier may receive a notice that their proposal will be rejected.

Please note that Volume I, Technical Proposal should be submitted as an attachment to the SF 424 rather than being inserted into Block 7, Project Narrative. Block 7 should be completed with a statement that Volume 1 is attached. To attach the Technical Proposal, open the Attachment Form in the Optional Documents box of the application package, scroll down to the Attachment page, and follow the instructions. The file should be titled “Volume I – Technical Proposal.”

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

- Paper Size – 8.5 x 11 inch paper
- Margins – 1 inch
- Spacing – single-spaced
- Font – Times New Roman, 12 point
- Discuss the limit on the number of pages for Volume I with the cognizant Program Officer. There are no page limitations to the Cost Proposal, Volume 2.
- Copies – the full proposal should be submitted electronically at <http://www.grants.gov/> as delineated in paragraph 5 below.

Volume 1: Technical Proposal

Cover Page: This should include the words “Technical Proposal” and the following:

- 1) BAA number 11-022;
- 2) Title of Proposal;
- 3) Identity of prime Offeror and complete list of subawards, 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) Proposed period of performance (identify both the base period and any options, if included).

Table of Contents: An alphabetical/numerical listing of the sections within the proposal, including corresponding page numbers.

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. Offerors should limit the number of pages for this section to 15 pages.

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

• **Reports:**

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

Technical and Financial Progress Reports
Final Report

Grants and other agreements do not include the delivery of software, prototypes, and other hardware deliverables.

• **Management Approach:** Identify which personnel and subcontractors/subrecipients (if any) will be involved. Include a description of the facilities that are required for the proposed effort, along 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 or complementary 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) Period of performance (differentiate basic effort);
- 8) The proposed project and all other projects or activities requiring a portion of time of the Principal Investigator 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 or labor hours 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 or curricula vitae for the Principal Investigator, other key personnel and consultants. The resumes/curricula vitae shall be attached to the proposal.

Volume 2: Cost Proposal

The offeror must use the Grants.gov forms from the application package template associated with the BAA on the Grants.gov website located at <http://www.grants.gov/>. If options are proposed, the cost proposal must provide the pricing information for the option periods; failure to include the proposed costs for the option periods will result in the options not being included in the award. Assume that performance will start no earlier than three (3) months after the date the cost proposal is submitted. A separate Adobe .pdf document should be included in the application that provides appropriate justification and/or supporting documentation for each element of cost proposed.

Part 1: The itemized budget must include the following

Direct Labor – Individual labor categories or persons, with associated labor hours and unburdened direct labor rates. Provide escalation rates for out years.

Administrative and clerical labor – Salaries of administrative and clerical staff are normally indirect costs (and included in an indirect cost rate). Direct charging of these costs may be appropriate when a major project requires an extensive amount of administrative or clerical support significantly greater than normal and routine levels of support. Budgets proposing direct charging of administrative or clerical salaries must be supported with a budget justification which adequately describes the major project and the administrative and/or clerical work to be performed.

Fringe Benefits and Indirect Costs (F&A, Overhead, G&A, etc) – The proposal should show the rates and calculation of the costs for each rate category. If the rates have been approved/negotiated by a Government agency, provide a copy of the memorandum/agreement. If the rates have not been approved/negotiated, provide sufficient detail to enable a determination of allowability, allocability and reasonableness of the allocation bases, and how the rates are calculated. Additional information may be requested, if needed. 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 principals.

Subawards – Provide a description of the work to be performed by the subrecipients. For each subaward, a detailed cost proposal is required to be submitted by the subrecipient(s).

The proposed subawardee's or subrecipient's cost proposal can be provided in a sealed envelope with the recipient's cost proposal or via e-mail directly to both the Program Officer and the business point of contact at the same time the prime proposal is submitted. The e-mail should identify the proposal title, the prime Offeror and that the attached proposal is either a subcontract or a sub-agreement. A proposal and supporting documentation must be received and reviewed before the Government can complete its cost analysis of the proposal and enter negotiations. Fee/profit is not allowable on any subawards made through assistance agreements.

Consultants – 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 rate/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).

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). Allowable items normally would be limited to research equipment not already available for the project. General purpose equipment (i.e., equipment not used exclusively for research, scientific or other technical activities, such as personal computers, laptops, office equipment, and furnishings) should not be requested unless they will be used primarily or exclusively for the project. For computer/laptop purchases and other general purpose equipment, if proposed, include a statement indicating how each item of equipment will be integrated into the program or used as an integral part of the research effort.

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 estimate (e.g., quotes, prior purchases, catalog price lists).

Fee/Profit – Fee/profit is unallowable under assistance agreements at either the prime or subaward level but may be permitted on any subcontracts issued by the prime awardee.

Part 2: Cost breakdown by Government fiscal year and task/sub-task corresponding to the same task breakdown in the proposed Statement of Work. When options are contemplated, options must be separately identified and priced by task/subtask.

3. Significant Dates and Times -

Anticipated Schedule of Events		
Event	Date (MM/DD/YEAR)	Time (Local Eastern Time)
White Papers Due Date	August 29, 2011	2:00 pm
Notification of Initial Navy Evaluations of White Papers*	September 29, 2011	N/A
Full Proposals Due Date	October 31, 2011	2:00 pm
Notification of Selection for Award *	November 30, 2011	N/A
Contract Awards*	January 9, 2012	N/A
Kickoff Meeting*	January 23, 2012	N/A

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

4. Submission of Late Proposals (Applicable to Full Proposals)

Any full proposal submitted and validated through Grants.gov where the time and date for submission (e-mail Number #2) is after the deadline for proposal submission in Section IV entitled, “Application and Submission Information” paragraph number 3 entitled, “Significant Dates and Times” will be late and will not be evaluated unless the Grants.gov website was not operational on the due date and was unable to receive proposal submissions. If this occurs, the time specified for the receipt of proposals through Grants.gov will be extended to the same time of the day specified in this BAA on the first workday on which the Grants.gov website is operational.

5. Submission of Grant Proposals through Grants.gov

Detailed instructions entitled “Grants.Gov Electronic Application and Submission Information” on how to submit a Grant proposal through Grants.gov are under the Acquisition Department — Submitting a Proposal section of the website at <http://www.onr.navy.mil/Contracts-Grants/submit-proposal/grants-proposal/grants-gov.aspx>

Grant proposals shall be submitted through [Grants.gov](http://www.grants.gov) using the mandatory Grants.gov form(s) from the application package template associated with the BAA on the Grants.gov website. The use of the optional forms from the application package template associated with the BAA is highly encouraged. 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. The proper Department Code is Code 342 – the code of the Program Officer identified earlier in Paragraph I.7.

By completing Block 17 of the grant, the 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.

Registration Requirements for Grants.gov: There are several one-time actions you must complete in order to submit an application through Grants.gov (e.g., obtain a Dun and Bradstreet Data Universal Numbering System (DUNS) number, register with the Central Contract Registry (CCR), register with the credential provider, and register with Grants.gov). See www.grants.gov/GetStarted to begin this process. Use the Grants.gov Organization Registration Checklist at www.grants.gov/assets/OrganizationRegCheck.doc to guide you through the process. Designating an E-Business Point of Contact (EBiz POC) and obtaining a special password called an 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 completing these requirements. It is suggested that the process be started as soon as possible.

Questions: 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. Proposals with attachments submitted in word processing, spreadsheet, or any format other than Adobe Portable Document Format will not be considered for award.

Proposal Receipt Notices:

After a full proposal is submitted through Grants.gov, the Authorized Organization Representative (AOR) will receive a series of three e-mails. It is extremely important that the AOR watch for and save each of the e-mails. You will know that your proposal has reached ONR when the AOR receives e-mail Number 3. You will need the Submission Receipt Number (e-mail Number 1) to track a submission. The three e-mails are:

Number 1 – The applicant will receive a confirmation page upon completing the submission to Grants.gov.

Number 2 – The applicant will receive an e-mail indicating that the proposal has been validated by Grants.gov within two days of submission (This means that all of the required fields have been completed).

Number 3 – The third notice is an acknowledgment of receipt in e-mail form from ONR within ten days from the proposal due date, if applicable. The e-mail is sent to the authorized representative for the institution. The e-mail for proposals notes that the proposal has been received and provides the assigned tracking number.

6. Address for the Submission of White Papers

White Papers must be submitted via e-mail. These e-mail submissions are not to exceed 5MB and must be submitted to the following address: william.krebs@navy.mil.

V. EVALUATION INFORMATION

1. Evaluation Criteria –

Award decisions will be based on a competitive selection of proposals resulting from a scientific and cost review. Evaluations will be conducted using the following evaluation criteria:

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

Overall, the technical factors (1-4 above) are significantly more important than the cost factor (5), 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.

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

2. Evaluation Panel -

Technical and cost proposals submitted under this BAA will be protected from unauthorized disclosure in accordance with FAR 3.104-4 and 15.207. The cognizant Program Officer and other Government scientific experts will perform the evaluation of technical proposals. Restrictive notices notwithstanding, one or more support contractors may be utilized as subject-matter-expert technical consultants. 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 –

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

Central Contractor Registration: All Offerors submitting proposals or applications must:

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

2. Certification for Grants:

Grant awards greater than \$100,000 require a certification of compliance with a national policy mandate concerning lobbying. Grant applications shall provide this certification by electronic submission of SF424(R&R) as a part of the electronic proposal submitted via Grants.gov (complete Block 17). 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 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 subawards at all tiers (including subcontracts, subgrants, and

contracts under grants, loans, and cooperative agreements) and that all subrecipients 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.

2. Reporting -

The following is a sample of deliverables that could be required under a typical research effort:

- Technical and Financial Progress Reports
- Presentation Material
- Other Documents or Reports
- Final Report

VII. OTHER INFORMATION

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

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

2. Security Classification

Reserved

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 assurance, IACUC approval, research literature database searches, and the two most recent USDA inspection reports) prior to award. For assistance with submission of animal research related documents, contact the ONR Animal Use Administrator at (703) 696-4046.

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

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

4. Recombinant DNA

Reserved

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. Organizational Conflicts of Interest

All Offerors and proposed subcontractors must affirm whether they are providing scientific, engineering, and technical assistance (SETA) or similar support to any ONR technical office(s) through an active contract or subcontract. All affirmations must state which office(s) the offeror supports and identify the prime contract numbers. Affirmations shall be furnished at the time of proposal submission. All facts relevant to

the existence or potential existence of organizational conflicts of interest (FAR 9.5) must be disclosed. The disclosure shall include a description of the action the offeror has taken or proposes to take to avoid, neutralize, or mitigate such conflict. In accordance with FAR 9.503 and without prior approval, a contractor cannot simultaneously be a SETA and a research and development performer. Proposals that fail to fully disclose potential conflicts of interests or do not have acceptable plans to mitigate identified conflicts will be rejected without technical evaluation and withdrawn from further consideration for award. If a prospective offeror believes that any conflict of interest exists or may exist (whether organizational or otherwise), the offeror should promptly raise the issue with ONR by sending his/her contact information and a summary of the potential conflict by e-mail to the Business Point of Contact in Section I, item 7 above, before time and effort are expended in preparing a proposal and mitigation plan. If, in the sole opinion of the Contracting Officer after full consideration of the circumstances, any conflict situation cannot be effectively avoided or mitigated, the proposal may be rejected without technical evaluation and withdrawn from further consideration for award under this BAA.

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.