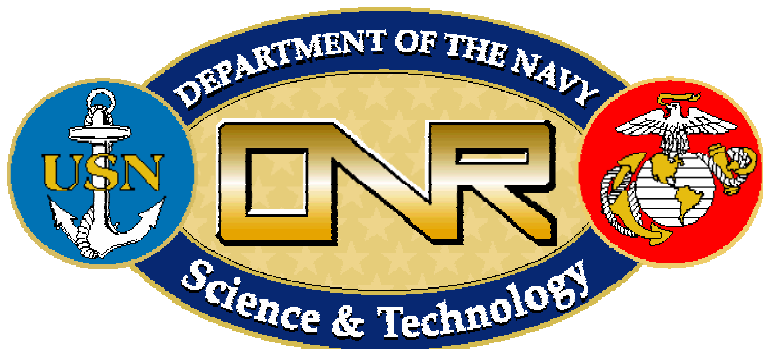


ONR BAA Announcement # 07-005



BROAD AGENCY ANNOUNCEMENT (BAA)

Human Performance Training and Education

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 (DoDGARS) Subpart 22.315(a). A formal Request for Proposals (RFP), solicitation, and/or additional information regarding this announcement will not be issued.

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

I. GENERAL INFORMATION

1. Agency Name

Office of Naval Research

2. Research Opportunity Title

Human Performance, Training and Education

3. Program Name

Human Performance, Training and Education

4. Research Opportunity Number

BAA 07-005

5. Response Date

Full Proposals: February 26, 2007

6. Research Opportunity Description

The 2006 Quadrennial Report identifies two fundamental requirements for our nation to successfully engage the Long War: The ability to be agile and quick to adapt to chaotic, dynamic and asymmetric challenges and the alignment of DoD structures, processes and procedures to effectively support strategic direction. The Human Performance, Training & Education (HPT&E) program seeks to address this first requirement by enhancing the combat capability of the world's pre-eminent, fighting force – the U.S. Marine Corps. HPT&E is motivated by the Naval Research Advisory Committee's (NRAC) Distributed Operations (DO) Summer Study's recommendation to the Assistant Secretary of Navy (RD&A) and the United States Marine Corps (USMC) Commandant to direct the Chief of Naval Research (CNR) to establish a "DO Marine as a System" Science and Technology (S&T) program. The envisioned program is also responsive to NRAC's

determination that training and education could be a significant obstacle for Distributed Operations. HPT&E addresses these high level requirements through a range of focused Research and Development (S&T) Pillars and scientific anchor points.

The HPT&E program is divided into two main focus areas: Human Performance (HP) and Training & Education (T&E). This split allows for the in-depth examination that each of these S&T domains demands. HPT&E S&T efforts are predicated on the principal hypothesis that success in combat is optimized by application of cutting-edge technologies, techniques and methodologies across a comprehensive range of Warfighting domains. A key program strategy is to leverage S&T opportunities where possible and to fund original solutions where needed. The ultimate product of the HPT&E vision is to develop S&T to support a scalable Marine infantry unit, acting in concert with the commander's intent, able to exercise initiative to locate, close with and destroy enemies in both conventional and distributed/asynchronous combat conditions.

The HP Focus Area involves all aspects of cognition and decision-making, physiology and ergonomics, and the technologies needed to integrate these aspects to support a fully optimized, capable Marine, acting within asynchronous/distributed operational settings. Realizing that Marines must complete four tasks in combat operations—plan, move, act, and communicate—the HP Focus Area will augment conventional S&T approaches such as behavioral observations and self reports by including the impact of physiological demands and information processing enhancements to cognition. The goal of the HP Focus Area is the optimization of individual and team performance in asynchronous/distributed operations combat environments using a range of solutions, scaleable across all leadership levels and command echelons. HP emphasizes the need to expand Warfighter capabilities while mitigating Warfighter limitations as they apply to the combat arena. The three HP S&T Pillars – Warfighter Cognition (WC), Warfighter Physiology (WP), and Combat Human Factors & Ergonomics Technologies (CHFET) – provide a lens through which these capabilities can be explored, assessed, and improved. While each S&T Pillar can stand alone as a conceptual topic, they are not independent; their products are integrated in the HPT&E program plan to generate solutions that span the broad needs of human performance.

Similarly, the Training & Education (T&E) Focus Area advances current technology and traditional didactic theories for improving human effectiveness with those that emphasize a more holistic approach. The T&E Focus Area will provide the fundamental Knowledge, Skills and Abilities (KSAs) that make up the complete Warfighter. T&E includes a continuum of methods that generate and maintain combat effectiveness, from basic knowledge and skills acquisition, to consolidation in mission-specific scenario based training, to targeted education in specialties such as critical thinking to prepare for complex ambiguous situations (“Train for certainty.....educate for uncertainty”). T&E is a continual process that begins long before Marines enter a combat situation by reinforcing general principles of combat decision making that can reliably support them across a wide range of mission situations. Optimized training and education is the edge that enables Marines to respond quickly and to “think on their feet.” The three T&E S&T Pillars – Warfighter Assessment, Classification and Selection (WACS), Accelerated

Learning Science (ALS) and Experiential Learning Technologies (ELT) – provide the T&E Focus Area with a comprehensive set of approaches for identifying Warfighter skill and knowledge requirements, and for developing the appropriate instructional vehicles for satisfying each.

6.1 HPT&E Research Pillars:

Proposals are desired to develop scientific- and technology-based ***products*** to address one or more of the following capability gaps. Proposals that span more than one pillar are encouraged.

6.1.1: Research Pillar 1 “Warfighter Cognition”

Challenge: Technological advances in the information sciences have produced increased opportunities for quickly providing combat related information to the Warfighter. The Warfighter in turn needs to rapidly perceive, comprehend and translate this information into actions. A critical challenge is determining what information a Warfighter needs and how to provide it in a way that it can be understood and exploited quickly. The Commanding General of the USMC considers “...full situational awareness....critical to mission accomplishment and an essential building block for the discipline standards essential for force protection”. To ensure mission superiority the information must be successfully understood while the Warfighter’s cognitive capacity is stressed by fatigue, heat, altitude, interruptions, etc. This challenge is further magnified when a team or multiple teams are required to act together on the same mission. Methods and processes need to be explored that enhance peer-to-peer collaboration, shared situation awareness, and rapid decision making.

Gaps: There is a need for 1) sufficient comprehension of individual cognition *in situ* leading to an improved understanding of how to augment and enhance human attention, situation awareness, and more broadly information processing and decision-making in complex operational environments, 2) sufficient comprehension of mission relevant group cognition *in situ* resulting in an improved understanding of how to augment decision performance and enhance team shared situation awareness, collaboration, and information management and distribution interaction among team members in complex, distributed operational environments, 3) an advanced understanding of the interaction between physical environments and cognitive demands upon combat performance, 4) better characterization of the role of communications on individual Warfighter and team decision making during operational missions, with further support and focus on decision outcomes of individuals and teams, 5) development of a flexible capability for automating the necessary stages of human information processing when cognitive overloading is anticipated.

Desired Outcomes:

Outcome 1: Enhance individual and team (small unit) situational awareness attainment and maintenance in asynchronous/distributed combat environments.

Outcome 2: Develop human attention augmentation strategies for enhanced individual and team information management capabilities in complex, asynchronous/distributed combat environments

Outcome 3: Develop a broader knowledge domain of individual and team information processing and decision making in complex, operational environments, with support and focus on decision outcomes.

Outcome 4: Generate advanced methods for understanding the interaction between physical combat environments and cognitive demands.

Outcome 5: Develop metrics for assessing these interaction effects on combat performance.

Outcome 6: Develop mitigation strategies to reduce negative interaction effects on combat performance.

Outcome 6: Improve Warfighter information processing through the application of automation technologies, leading to reduced time to make decisions and increased situation awareness.

Specific Gaps:

Gap 1: Individual information management:

- How to augment and enhance human attention, situation awareness.
- Broader domain of information processing and decision-making in complex operational environments.
- Insufficient understanding of individual cognition *in situ*.

Gap 2: Team information management:

- How to augment; decision performance and enhance team shared situation awareness, collaboration, and information management
- Supporting distributed interaction among team members in complex, distributed operational environments.
- Insufficient understanding of mission relevant group cognition *in situ*.

Gap 3: Insufficient understanding of the interaction between physical environment (stress, noise, fatigue, and nutrition) and cognitive demands (workload, multitasking, interruptions) upon combat performance and how to use automation to support information gathering, analysis, and processing leading to more effective and timely decisions.

Product Goals:

Quantitative benchmarks for operational decision performance will be established and validated. Functional and physiological indicators of individual and team cognition will

also be identified and modeled. Finally, operational factors contributing to enhanced, as well as diminished, cognition in the field (e.g., sensor data quality, stress, fatigue, etc.) will be characterized and mapped to support strategies and implemented in adaptive technology prototypes.

6.1.2: Research Pillar 2 “Warfighter Physiology”

Challenge: In the field, Marines are exposed to a complex set of stressors affecting their physical abilities and often altering their physiological well being (e.g., sleep deprivation, biological rhythm changes, heavy equipment loads and demanding physical tasks, extreme weather/environmental conditions, and inadequate/improper nutrition). The impact of many of these stressors on performance is poorly understood and their combined effects on health and combat effectiveness are virtually unknown. Furthermore, what little is known about the mitigating effects of training and self-management on physical and physiological viability has not been rigorously applied to the challenge of enhancing Warfighter performance nor has it been demonstrated to be viable in the operational environment. If fielding the most physiologically capable Marines is a critical goal of the Marine Corps (Hilburn, M. 2006), significant advances in this domain must be made.

Gaps: There is a need for 1) assessment of current methods of physical training, the scientific validity of each, including training related injuries, their applicability to the operational environment and areas needed for further research and investigation, 2) exploration of performance effects and mitigation strategies for extreme environments combined with other stressors, 3) increased understanding of nutrient timing/nutritional efficiency and potential performance enhancement capabilities, 4) fatigue mitigation strategies for operational environment, 5) increased understanding of combat performance decrements related to sleep quality, sleep deprivation and sustained operations 6) monitoring and diagnostic tools for assessing operational limits and applying corrective regimens in the operational environment 7) increased understanding of how individual stress reactions effect performance on operational tasks and Warfighter health.

Desired Outcomes:

Outcome 1: Guidelines, strategies and technologies for improving combat performance (physical) and nutrition of Marines in asynchronous/distributed warfighting environments.

- Experimental platforms to be used for feasibility investigations of developed guidelines, strategies, and technologies.
- Technology prototypes that demonstrate integrated T&E strategies tailored to transition customer requirements that provide guidance for procuring full-scale systems and integrating them into their training pipelines.

Outcome 2: Identify and develop physical fitness/performance training regimens to best prepare the Warfighter to meet varying combat-related objectives.

Outcome 3: Automated performance measurement technologies (e.g. integrated behavioral and neurophysiological data sensing, which is collected by the simulation environment).

Outcome 4: Generate automated diagnosis algorithms that utilize products and techniques from the Warfighter Assessment, Classification and Selection Pillar to implement automated mitigation strategies derived in the Accelerated Learning Science projects.

Outcome 5: Develop and integrate approaches for measuring (in terms of cost and utility) and understanding the impact of T&E strategies and technologies on operational performance.

Outcome 6: Model the relationship of stress reactivity to performance, health and readiness.

Specific Gaps:

Gap 1: Further exploration of performance effects and mitigation strategies for extreme environments combined with other stressors. Examine how individual and team stress reactions, including those to fatigue, effect performance on operational tasks and Warfighter health and methods to mitigate.

Gap 2: Increased understanding of nutrient timing/nutritional efficiency and potential performance enhancement capabilities. Assessing long term approaches for boosting baseline and punctuated nutrition to provide immediate enhanced capabilities. Packaging and delivery are also critical.

Gap 3: Monitoring and diagnosis tools for assessing operational limits and applying corrective regimens in the operational environment (e.g., using time to next mission, physiological and cognitive workups etc. as inputs).

Product Goals:

A Marine whose combined cognitive, physical, and physiological readiness is optimized to meet any required mission and operating environment. A suite of technologies and practices that the Marine can apply to enhance their physiological readiness prior to, during and after combat or return their physiological readiness to baseline following heavy operational demands.

6.1.3: Research Pillar 3 “Combat Human Factors and Ergonomics Technologies”

Challenge: Today’s Marine is truly a symbiosis of technological equipment with the human element at the core. Collectively, the combination of these elements comprises the Warfighter system and should, in theory, provide an integrated human-system solution for maximizing performance. In practice, this has not been the case, with individual elements often times being added or subtracted *ad hoc* with little regard for how these

changes impact the Warfighter's abilities to meet mission objectives. The applied sciences of human factors and ergonomics offer powerful tools for optimizing physical and cognitive performance and the interactive effects among brain, body, and combat gear. New, integrated, and possibly iterative methods must be applied to optimize the combined Warfighter system.

Gaps: There is a need for broad and robust modeling capabilities that 1) support rapid prototyping and testing in realistically simulated military applications, 2) work across a wide range of parameters 3) capture the range of factors considered as 'boundary conditions' on Warfighter performance and equipment functioning 4) develop external environmental models that capture relevant factors like terrain, weather, and topography, 5) provide active representations of body movement in combat, and 6) support a dynamic coupling of all models into one fully adaptable model

Desired Outcomes:

Outcome 1: Develop human model hierarchies.

- Cognitive & physical components linked in a multifaceted dynamic environment.
- Integration, interfacing, and linkage of modeling components.

Outcome 2: Develop physically realistic models for combat performance simulation and field testing.

- External Environment models, representing combat environments, including terrain and weather.
- Warfighter Cognitive models: Mission appropriate representations of cognitive processes likely to impact Human Factors and Ergonomics issues.
- Anthropometry: Scalable and calibratable representations of static human musculo-skeletal relationships.
- Active representations of body movement and level of representation should be modular, depending on overall context.
- Dynamic couplings between these models.

Outcome 4: Develop user-definable Combat Gear modeling capability (e.g. for mobility, lethality, and survivability tradeoff analyses).

Outcome 5: Implement validated HP optimization models for in-development capabilities.

Specific Gaps:

Gap 1: Rapid prototyping and testing capabilities to facilitate the capabilities of the human and minimize human limitations, including the use of Broad and robust models applied to in-field military applications.

Gap 2: Development of a dynamic and interactive toolkit that couples models of the

user, the environment and gear/weaponry in real time and outputs metrics like survivability, impact on cognition and physical health .

Product Goals:

A suite of tools, developed through merging the science of human factors with the engineering power of advanced anthropometric, behavioral and cognitive modeling and simulation, that enables rapid, simultaneous prototyping and testing of multiple technology solutions to a desired system/component. These solutions would include system specifications and form factor analyses, bounded by the multi-factor aspects of the Marine System, to ensure a smoothly integrable capability.

6.1.4: Research Pillar 4 “Warfighter Assessment, Classification and Selection”

Challenge Within the USMC, there is an evolving doctrine of leveling down responsibility and authority and ensuring that every Marine is cross-trained on a range of combat capabilities. The greatest challenge with this approach is that it requires a never-before required level of flexibility both in the training infrastructure that is tasked with imparting combat skills and in the individual Marines who will need to manage information demands of increasing import and perform a broad range of tasks. The lynchpin with this approach is identifying the degree to which individual Marine’s are capable of rising to this challenge (i.e., what core combat knowledge skills and abilities do they possess that lend themselves to successfully addressing this challenge) and of being risen to this challenge (i.e., how capable they are of being trained to meet these evolving demands). Identifying those Marines who possess this unique set of attributes, a mixture of innate combat capabilities and ability to quickly internalize new Tactics, Techniques, and Procedures (TTPs), requires developing new approaches for efficient, targeted assessment and selection methods.

Gaps There is a need for 1) efficient, continual, and real-time methods for definition and assessment of task and domain specific KSAs, 2) techniques for mapping and modeling these KSAs to individual physical and mental capabilities that will enable accelerated training and career progression by 3) driving classification, selection, training and education systems with identified individual and team strengths, weaknesses, and general potential (P).

Desired Outcomes:

Outcome 1: Research-based theory and methods for identifying individual Warfighter capabilities in terms of KSAPs including:

- Ability/Aptitude testing and performance prediction.
- Non-cognitive/non-ability testing.
- Integrate and exploit findings from the Warfighter Physiology research on individual stress reactivity.
- Neurophysiologic markers to predict job capabilities and skill potential.

Outcome 2: Theory based methods for identifying and modeling task-specific mission competencies and mapping them to mission and role requirements including potential ability, specific combat capabilities and level of expertise of required skills.

Outcome 3: Strategies for non-intrusive, real-time diagnostic assessment of KSA&Ps to drive HPT&E systems including the adaptive instructional architecture.

Specific Gaps:

Gap 1: Ability/Aptitude testing and the prediction of performance. Traditional tests account for relatively small amounts of the variance on outcome variables and therefore do not provide significant capability for determining future KSA-based predictions of Marine success.

Gap 2: Non-cognitive/non-ability testing. Other, often overlooked factors play a role in job performance. These must be identified, quantified and integrated into comprehensive predictive models.

Gap 3: Neurophysiologic markers are an as-yet untapped for predicting job performance and capability and could supplement traditional approaches.

Gap 4: Techniques for eliciting KSAs and approaches for modeling these are primitive and brute force. There must be an integrated approaches for combining various KSA assessment techniques into a single model, and using the output from this model to Mappings between current KSAs, Potential ability, specific combat proficiencies and deficiencies.

Product Goals:

Executable model for defining both individual Warfighter capabilities in terms of KSAPs and task-specific mission competencies, and deriving a mapping between the two that includes:

- Learning Requirements Matrix: Set of KSA's that ensure optimal mission performance, bounded by individual's predicted Potential
- Learning Architecture: Course delivery protocols
- Whole Marine Sustainment: Method for determining in the field, continuous training and readiness requirements

The resultant *Infantry Calculus* will be applicable at all stages in a Marine's development, including initial accession, during which Marine recruits will be selected based in part on this assessment; recruit training, by defining the critical KSAs each Marine will require to successfully complete various schoolhouse segments; sustainment training, through the delivery of targeted training throughout a Marine's career to ensure peak performance and combat readiness.

6.1.5: Research Pillar 5 “Accelerated Learning Science”

Challenge The constant push to master more material in less time requires the development of strategies and systems that can accelerate learning. Rapid training, in

turn, requires methods for providing Marines with the tools to quickly process information and solve problems. Ideally, a training curriculum would be designed to suit each Marine's training needs and learning style to maximize the amount of information gleaned and to minimize the amount of time spent learning. This requires instructional systems that can rapidly prepare Marines for deployment by establishing the trainee's needs during learning and developing instructional delivery methods tailored to these needs. Achieving these goals requires two inter-related efforts. The first focuses on advanced performance diagnosis methods that consider neurophysiology of the trainee during learning, using specific neural markers of cognitive performance to diagnose learning deficiencies. The second focuses on using this information to develop and deliver appropriate instruction based on the states indicated by these markers. Merging these two efforts will provide the capability to determine at a basic level never-before used markers of performance in order to rapidly diagnose learning deficiencies and to trigger particular learning mitigations.

Gaps There is a need for 1) identification of optimal learning strategies for individuals and teams, 2) which are informed by neurophysiological, as well as, conventional behavioral methods that are 3) driven by assessment and diagnosis of task and domain specific expertise to accelerate learning.

Desired Outcomes:

Outcome 1: Foundations of learning applied to complex tasks. State-of-the-art theories must be extended to complex task learning:

- Cognitive Load Theory
- Instructional Efficiency

Outcome 2: Training interventions triggered by neurophysiological markers of learning and cognition.

Outcome 3: Principles of expertise development and strategies tailored to continual proficiency models, beyond today's simplified novice or expert techniques.

Specific Gaps:

Gap 1: The ability to assess the initial state of a trainee. This includes defining neurophysiological, cognitive, and behavioral measures and developing correlations and mappings between these to obtain a comprehensive *learning landscape*.

Gap 2: Techniques for comparing initial trainee states with desired end state and determine what strategies must be implemented to move the initial state to the desired end state.

Gap 3: Ability to derive specific strategy content, monitor progress in real time and correct as necessary

Product Goals:

Significantly-increased training efficiency, training completion, and training effectiveness rates based on neuro-cognitive and psychologically-driven instructional strategies. Relaxed student candidate selection requirements for specialty training through more versatile instruction strategies. Accelerated learning science will significantly enhance mission rehearsal, qualification and sustainment, and cross-domain training capabilities.

6.1.6: Research Pillar 6 “Experiential Learning Technologies”

Challenge Marines need to “train like they fight” and be prepared for fluctuating mission circumstances. Current training and education solutions, however, are developed for the “standard” student Marine in ideal conditions; programs therefore require substantial dedicated time to complete, and success rates are not ideal. This uniform approach does not allow for adaptation of training solutions across employment situations (i.e. schoolhouse, in garrison pre-, during- or after- deployment and/or on-the-job/embedded) to the students’ or team’s needs, learning styles, current proficiency or expertise levels. The result is often inefficient and ineffective training. Likewise, the current state of simulation prevents true “train like they fight” capability as representation of crucial visual and multi-spectral sensor devices is significantly inferior to the sensory-perceptual fidelity used in operations. Improvements are required to sufficiently couple operational fidelity to simulated fidelity and enable efficient transfer of training. Finally, the current approach to training requires a vast number of people to conduct an exercise, many of whom participate primarily as role players who derive little training value. These exercises can only be run infrequently due to the extensive coordination required to create a heavily-peopled exercise. Exercises run with virtual role players could be conducted with much greater frequency with training objectives tailored to the live entities truly maximizing the human capital investment.

Gaps There is a need for 1) adaptive experiential learning environments, 2) tailored to individual and team measures, 3) operating in realistic simulated environments, 4) populated with virtual role players, 5) driven by continual assessment and diagnosis which will result in 6) measurably more efficient and effective training technologies and methodologies for task and domain specific learning, and 7) The Marine Corps Center for Lessons Learned stated in a recent report that there is a need for, “Development of realistic scenarios reflecting operating conditions in Afghanistan or other deployment destinations...”

Desired Outcomes

Outcome 1: *Constructive AIs* capable of exhibiting genuine tactics, realistic (speech production and recognition) and safe interaction with live training assets, and rapid integration into training and mission rehearsal events.

Outcome 2: Technologies and architectures for actively modifying and consolidating knowledge in domain specific live and/or virtual *adaptive experiential learning environments* including:

- Experimental platforms to be used for HPT&E concept feasibility investigation.
- Demonstration platforms for simulation based assessment for selection.
- Transitionable technology prototypes that integrate and demonstrate T&E strategies tailored to transition customer requirements.

Outcome 3: *Automated performance measurement technologies* including integrated behavioral and neurophysiological data sensing to be collected by the simulation environment.

Outcome 4: *Automated diagnosis algorithms* that utilize products and techniques from the WACS initiatives to implement automated mitigation strategies derived in the ALS projects.

Outcome 5: *Integrated Training Effectiveness Evaluation approaches* for measuring (in terms of cost and utility) and understanding the longitudinal impact of T&E strategies and technologies on operational performance.

Specific Gaps

Gap 1: Closed-loop experimentation platforms to support WACS and ALS focused on required hooks/tools, i.e. reconfigurable tasks; automated measurement of neurophysiology and behavioral performance; and multi-modal, adaptive mitigations such as cuing and feedback.

Gap 2: Prototype T&E platforms to support future required training, i.e. DO.

Gap 3: Strategies for dynamic, tailored learning in both live and virtual training environments.

Gap 4: Marine Corps Center for Lessons Learned stated in a recent report that there is a need for, “Development of realistic scenarios reflecting operating conditions in Afghanistan or other deployment destinations...” (DO in Afghanistan July 2006)

Product Goals Closed-loop experimental platforms to be used for HPT&E concept feasibility investigation in collaboration with Accelerated Learning Science. Guidelines and strategies for actively modifying and consolidating knowledge in domain specific live and/or virtual experiential learning environments. Realistic virtual role players easily and rapidly integrated into training and mission rehearsal exercises. Transitionable technology prototypes that integrate and demonstrate T&E strategies i.e. adaptive instruction, tailored to transition customer requirements, including mechanisms to enable “reach back” techniques for evaluating lessons learned. Standards and technologies for multi-spectral simulation. Integrated approaches for measuring (in terms of cost and utility) and understanding the impact of T&E strategies and technologies on operational performance.

6.2. Transition Requirement

6.2.1 Technology Transition Plans

The HPT&E program is dedicated to the development and transition of products to USMC commands, Programs of Record, and/or to engineering-development or acquisition programs at MARCORSYSCOM. To help ensure this transition, a Technology Transition Agreement (TTA) will normally be required for each major product developed in an effort funded under this program. However, to encourage Discovery and Invention, an exception to this requirement would be a product whose value would be recognized widely throughout the Marine Corps. In this case, a Technology Transition Strategy (TTS) should be formulated. Each TTS should contain: (1) a description of the product(s) to be transitioned if the research and development is successful and (2) a description of the exit criteria the product(s) must meet in order to transition. In addition to the requirements for a TTS, if a TTA is pursued, it should contain the above and also include a statement of commitment by the receiving command or program office, should exit criteria be met, to fund further development or implementation, together with the Program Element and/or Budget Activity which will fund that transition. It is strongly recommended that offerors develop a Transition Plan; however, it is not a requirement for submission.

6.2.2 Emerging Concepts and USMC related efforts

Two recent developments in the Department of the Navy provide additional transition avenues. The first is the establishment of the Naval Expeditionary Combat Command (NECC). NECC was formally established on 13 January 2006 to serve as a single Functional Command to centrally manage current/future readiness, resources, manning, training, and equipping of the Navy's Expeditionary Forces. These forces will work in synchrony with forward deployed USMC units. Specific desired capabilities include:

- Providing Training to NECC sailors to enable them to support USMC forces
- Equipping NECC sailors with adequate gear
- Support command and control efforts

NECC is ideally poised to benefit from HPT&E product development.

The second new development is the emerging combat development initiative known as Distributed Operations (DO). DO is a new approach to maneuver warfare, predicated on the use of small, highly capable units spread across a large area of operations, able to sense an expanded battlespace, and equipped to use close combat or supporting arms, to disrupt the enemy's access to key terrain and avenues of approach. DO capabilities incorporate both cognitive and physical competencies.

Cognitive competencies include:

- Decision making: decentralized, consistent with commander's intent
- Situational awareness at platoon and squad levels over large area
- Electronic communications extended below company level

Physical competencies include:

- Potential increase/improvement in equipment, transported over greater distances
- Increased ability to withstand extended operations
- More sufficient MREs to support greater energy expenditure and extended performance

DO capabilities are fertile ground for assimilating the products of HPT&E.

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

CDR Dylan Schmorrow
 Program Officer
 Human Performance, Training and Education, ONR 30
 Office of Naval Research
 One Liberty Center
 875 North Randolph Street – Suite 1425
 Arlington, VA 22203-1995
 Telephone: (703) 696-0360
 Email: schmord@onr.navy.mil

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

Ms. Tia Belton
 Contract Specialist, ONR 253
 Office of Naval Research
 One Liberty Center
 875 North Randolph Street – Suite 1425
 Arlington, VA 22203-1995
 Telephone Number: (703) 696-0942
 Facsimile Number: (703) 696-0066
 E-mail Address: belton@onr.navy.mil

Questions shall be submitted in writing by electronic mail. **Questions and responses will be posted at <https://www.onr.navy.mil/hpte>**; no other e-mail responses will be provided. Responses will not be made to questions presented by other means, for example, telephone calls and fax messages. No meetings will occur between potential offerors and the Science and Technology Point of Contact. Any questions regarding this solicitation must be provided to the Business Point of Contact listed in this solicitation. Questions must be submitted by 2:00 p.m. EST on 02/20/2007. Questions submitted after this date and time may not be answered and the due date for submission of proposals will not be extended.

8. Instrument Type(s)

Awards may take the form of contracts, grants, cooperative agreements, and other transaction agreements, as appropriate.

9. Catalog of Federal Domestic Assistance (CFDA) Number

CFDA No.: 12.300

10. Catalog of Federal Domestic Assistance (CFDA) Title

CFDA Title: DoD Basic and Applied Scientific Research

II. AWARD INFORMATION

Award Information is as follows:

- **Period of Performance:** Proposed work should be structured for a one- to three-year period. Multiple-year proposals shall include a base period of twelve months with one or two 12-month options.
- **Anticipated Number of Awards under this BAA:** 2-6
- **Average Award Range:** \$100,000-\$750,000 per year
- **Total Amount of Funding Available:** \$600K - \$1.5M is available for FY07. Additional funding is anticipated for the out years, if applicable. ONR plans to issue biannual BAAs for this program. The total funding for the program is anticipated to be \$25M during FY07-FY11.

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

III. ELIGIBILITY INFORMATION

All responsible sources may submit a proposal, which shall be considered by the Government. Foreign companies/entities from The Technology Cooperation Program (TTCP) member-countries will be considered under this announcement. Historically Black Colleges and Universities (HBCU) and Minority Institutions (MI) are encouraged to submit proposals and join others in submitting proposals. However, no portion of this BAA will be set aside for HBCU and MI participation due to the impracticality of reserving discrete or severable areas of MPTE & HSI technologies for exclusive competition among these entities. Independent organizations and teams are encouraged to submit proposals in any or all capability-gap 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.

Industry-Academia-Government Partnering ONR highly encourages partnering among industry, academia, and/or Government with a view toward speeding the incorporation of new science and technology into fielded systems. Government partners may include naval systems commands, naval laboratories or centers, or fleet / force

commands. Proposals that use industry-academic-Government partnering which enhances the development of novel S & T advances will be given favorable consideration.

The Technology Cooperation Program (TTCP)

Under terms of the TTCP agreement among member nations (USA, United Kingdom, Canada, Australia, New Zealand), participation among member nations for collaborative Science and Technology is encouraged. See the <http://www.dtic.mil/ttcp/> web page for further information. While transition of products to USA Navy / Marine Corps customers is the main goal, collaboration with TTCP partners may often be beneficial. In general, such arrangements will likely involve agreements with a US government partner as described in the preceding section.

Teaming Arrangements

ONR encourages partnering or teaming arrangements, but only one entity should be designated the technical and business Point of Contact for a team/partnership. That entity will be responsible for proposal submission, communications, and subsequent negotiations (if any).

IV. APPLICATION AND SUBMISSION INFORMATION

1. Application and Submission Process

The due date for receipt of full proposals is 2:00 p.m. (Eastern Standard Time) on Monday, 26 February 2007. It is anticipated that final selections will be made on or about Friday, 16 March 2007. As soon as the final proposal evaluation process is completed, each offeror will be notified via e-mail of its selection or non-selection for an award. Proposals exceeding the page limit may not be evaluated.

2. Content and Format of Full Proposals

The full proposals submitted under this solicitation must be unclassified. Submissions will be protected from unauthorized disclosure in accordance with FAR 15.207, applicable law, and DoD/DON regulations. Offerors are expected to mark each page of their submission that contains proprietary information.

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
- Enclosures -- Each copy and the original should be free of any notebook or other enclosing material.
- Number of Pages – Volume 1 is limited to no more than 39 pages. Volume 2 has no page limitations. Limitations within sections of the Technical Proposal

are indicated in the individual descriptions shown below. The cover page, table of contents, abstract, executive summary, and resumes are excluded from the page limitations. Full Proposals exceeding the page limit may not be evaluated.

- Copies – one (1) original, five (5) hard copies, and one electronic copy on CD-ROM (in Microsoft® Word compatible or Adobe “.pdf” format). Alternatively, grant proposals may be submitted electronically to <http://www.grants.gov/> as delineated later in this BAA.

Full Proposal Content

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

Volume 1: Technical Proposal

Volume 1 of the Full Proposal shall include the following sections, each starting on a new page. Sections not included in the page limitations are annotated below. Please pay attention to the page limitations for each section as described. The page limitation for the technical proposal is thirty-nine (39) pages.

- 1) **Cover Page:** (Not included in page limitations.) This should include the words “Technical Proposal” and the following:
 - a) BAA number;
 - b) Title of Proposal;
 - c) Technology pillar to which the proposal is applicable and component of the Technology pillar if the proposal is limited to a Technology pillar component;
 - d) Identity of prime Offeror and complete list of subcontractors, if applicable;
 - e) Technical contact (name, address, phone/fax, electronic mail address);
 - f) Administrative/business contact (name, address, phone/fax, electronic mail address); and
 - g) Duration of effort and gross proposed cost by government fiscal year (differentiate basic effort and any options).

Note: The cover page must be signed and dated.

- 2) **Table of Contents:** (Not included in page limitations.) Section, title and page numbers are required.
- 3) **Abstract:** (Not included in page limitations.) A brief overview of the proposal including goals and objectives and technology pillars to be addressed.
- 4) **Executive Summary:** (Not to exceed three (3) pages.) A short summary of the proposal which describes each component of the document.
- 5) **Statement of Work:** (Not to exceed twenty-five (25) pages.) An unclassified Statement of Work (SOW) clearly detailing the scope and objectives of the effort and the technical approach. The proposed SOW will be incorporated as

an attachment to the resultant award instrument. To this end, each proposal must include a severable self-standing SOW without any proprietary restrictions, which can be attached to the contract award. Include a detailed listing of the technical tasks/subtasks organized by year. Identify the product that results from the task/subtask, and make reference to metrics that will be met as a result of the task/subtask. In presenting the technical concept, the proposal should explain how the technology proposed is relevant to the gaps described in Section 6.1 of the BAA. Optional tasks should be indicated separately.

- 6) **Project Schedule and Milestones:** (One (1) page) A summary of the schedule of events and milestones, with experimentation milestones clearly indicated.
- 7) **Assertion of Data Rights:** (Not included in page limitations.) 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. Data rights assertions are uncommon under assistance agreement proposals.

- 8) **Deliverables:** (Not to exceed two (2) pages.) A detailed description of the results and items to be delivered, including experimentation articles. A list of sample deliverables is contained in Section VI, paragraph 2.
- 9) **Statement of Operational Utility:** (Not to exceed two (2) pages.) A Statement of Operational Utility describes what the proposed effort does for the Warfighter. It includes a detailed plan for experimentation to assess the functionality and usefulness of the key products of this effort during experimentation. The offeror should provide specific information about its approach to experimentation in laboratory and operational environments, including both use of technology by military personnel and data collection and analysis in the context of experimentation hypotheses. Exit criteria should be stated in this section, and the plan should detail deliverables and how they meet exit criteria.
- 10) **Proposer Qualifications:** (Not to exceed two (2) pages.) A discussion of previous accomplishments and work in this, or closely related, areas, and the qualifications of the investigators. The proposal must clearly state the amount of time that is planned to be allocated by all key personnel to the proposed effort. Key personnel resumes shall be attached to the proposal. Resumes will not count toward the page limitations.

- 11) **Management Approach:** (Not to exceed three (3) pages.) The management plan should show the significant milestones of the technology development process. It should show Operational Utility assessment events. It should include obligation to provide reporting (Section VI, Para 2) and support meetings (Section VII, Para 3).
- 12) **Other Agencies:** (Not to exceed one (1) page.) Include the name(s) of any other agencies and points of contact to which the proposal has also been submitted.

Volume 2: Cost Proposal

The Cost Proposal shall be separate and not included with the Technical Proposal. There is no page limitation on the cost proposal. The options must be separately priced.

- **Cover Page:** The words “Cost Proposal” should appear on the cover page in addition to the following information:
 - 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);
 - 6) Duration of effort (separately price the basic effort and the option(s));
 - 7) Names, phone number and e-mail addresses of DCMA and DCAA Points of Contacts; and
 - 8) Whether the proposal includes DCAA-approved Forward Pricing Rate Agreement (FPRA) direct and indirect rates.
- **Part 1:** This part shall contain a detailed breakdown of all costs, by cost category, by calendar or fiscal year. The following costs shall be included:
 - 1) Direct Labor – Individual labor category or person, with associated labor hours and unburdened direct labor rates.
 - 2) Indirect Costs – Fringe Benefits, Overhead, G&A, COM, etc. (Must show base amount and rate.)
 - 3) Travel – Number of trips, destination, duration, etc.
 - 4) Subcontract – A cost proposal as detailed as the offeror’s cost proposal will be required to be submitted by the subcontractor. The subcontractor’s cost proposal can be provided in a sealed envelope with the offeror’s cost proposal or will be obtained from the subcontractor at a later date prior to award.
 - 5) Consultant – Provide consultant agreement or other document which verifies the proposed loaded daily/hourly rate.
 - 6) Materials – Specifically itemized by cost. An explanation of any estimating factors, including their derivation and application, shall be

provided. Where possible, indicate purchasing method (competition, engineering estimate, market survey, etc.)

- 7) Other Direct Costs, particularly any proposed items of equipment or facilities. Equipment and facilities generally must be furnished by the contractor/recipient. (Justifications must be provided when Government funding for such items is sought.) Include a brief description of the Offeror’s procurement method to be used (competition, engineering estimate, market survey, etc.)
- 8) Fee/Profit including fee percentage.

- Part 2: This part shall contain cost breakdown by task/sub-task using the same task numbers identified in the Statement of Work. When options are contemplated, options must be separately identified and priced by task/sub-task corresponding to the same task numbers in the Statement of Work.

3. Significant Dates and Times

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

Event	Date	Local Time
Full Proposals Due	26 February 2007	2:00 PM
Notification of Selection for Award	16 March 2007*	N.A.
Contract Awards	16 May 2007*	N.A.

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

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**:

(a) If it was transmitted through an electronic commerce method authorized by the announcement, it was received at the initial point of entry to the Government infrastructure not later than 5:00 p.m. one working day prior to the date specified for receipt of proposals; or

(b) There is acceptable evidence to establish that it was received at the Government installation designated for receipt of proposals and was under the Government’s control prior to the time set for receipt of proposals; or

(c) It was the only proposal received.

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

Acceptable evidence to establish the time of 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.

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. Thus it is recommended that any hard-copy proposal be mailed several days before the deadline established in the solicitation so that it will not be received late and thus be ineligible for award consideration.

5. Submission of Grant Proposals to Grants.gov

Grant proposals may be submitted through Grants.gov or by hard copy. Regardless of whether Grants.gov is used or “hardcopy” submission, the offeror must use 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 (ONR Code 30 for this BAA). **Please be sure to enter the Department Code that best relates to your proposal in Block 4 (Federal Identifier) of the SF 424 R&R to ensure that it is properly routed to the correct Program Office. Only one Department Code may be selected.** Please choose at the sub-Department level wherever possible (i.e., for parent ONR Code 30, you should select at the 301, 302 or 303 level if possible). A list of the Department Codes can be found at <http://www.onr.navy.mil/> on the right side of the screen. For those Applicants who fail to provide a Department Code identifier will receive notification that their proposal submission has been rejected.

For electronic submission, there are several one-time actions that must be completed 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, specifically www.grants.gov/GetStarted.

Use the Grants.gov Organization Registration Checklist at <http://www.grants.gov/assets/OrganizationRegCheck..doc> 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. It is suggested that the process be

started as soon as possible. Additionally, in order to download the application package, applicants will need to install PureEdgeViewer. This small, free program will allow applicants to access, complete and submit applications electronically and securely. For a free version of the software, visit the following website:

www.grants.gov/DownloadViewer. If any questions that may arise 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.

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

6. Address for the Submission of Full Proposals

Offerors shall make submissions to the Office of Naval Research at the address specified below. Also, if submitting hard copies instead of electronically through Grants.gov, send to the address below:

Office of Naval Research
875 North Randolph Street
Arlington, VA 22203-1995
Attn: CDR Dylan Schmorow, ONR Code 30, Rm. 1060

NOTE: PROPOSALS SENT BY FAX OR E-MAIL WILL NOT BE CONSIDERED.

V. EVALUATION INFORMATION

1. Evaluation Criteria

The following evaluation criteria apply to the full proposal submissions. Proposals will be selected through a technical, scientific, and business decision process with technical and scientific considerations being more important than cost. Criteria A-D are listed in descending order of priority. Even though cost is of less importance than the technical factors combined, it will not be ignored. The degree of its importance will increase with the degree of equality of the proposals in relation to the other factors on which selection is to be based, or when the cost is so significantly high as to diminish the value of the technical superiority to the Government. The sub-criteria, i.e., the numbered items within each of the lettered factor paragraphs, are of equal importance.

A. Overall scientific and technical merits of the proposal

- 1. The degree of innovation and ability to deliver technology that will improve expeditionary force warfighting capabilities.**
- 2. The soundness of technical concept.**

3. The offeror's awareness of the state-of-the-art and understanding of the scope of the problem and the technical effort needed to address it.
4. Risk management in demonstrating objectives including structuring of the overall demonstration approach to control risk.

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

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

1. The quality of technical personnel proposed is consistent with the work proposed.
2. The offeror's experience in relevant efforts with similar resources.
3. The ability to manage the proposed effort.

D. Management Plan. The Management Plan will be evaluated in accordance with the following criteria:

1. Plan is in milestone format with succinct factual description of how achievement of milestones will be managed.
2. Relationship between cost and milestone achievement is defined.
3. Estimate of technical, schedule and cost risk is stated with risk management plan provided.

E. The realism of the proposed cost.

1. Total cost relative to benefit.
2. Realism of cost levels for facilities and staffing.

Socio-Economic Merits - For proposed awards made as contracts to large businesses, the socio-economic merits of each proposal will be evaluated based on the extent of the offeror's commitment in providing meaningful subcontracting opportunities (to the maximum extent practicable) for small businesses, HUBZone small businesses, small disadvantaged businesses, woman-owned small businesses, veteran-owned small businesses, service disabled veteran small businesses, historically black colleges and universities, and minority institutions.

Evaluation of Options – The Government will evaluate 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 option(s).

2. Evaluation Panel

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

The Government may use selected support personnel as subject-matter expert technical consultants to assist in providing both technical expertise and administrative support regarding full proposals ensuing from this announcement. However, proposal selection and award decisions are solely the responsibility of Government personnel. Each support contractor's employee having access to technical and cost proposals submitted in response to this BAA will be required to sign a non-disclosure agreement prior to receipt of any proposal submissions to protect proprietary and source-selection information.

VI. AWARD ADMINISTRATION INFORMATION

1. Administrative Requirements

- The North American Industry Classification System (NAICS) code – The North American Industry Classification System (NAICS) code for this announcement is 541710 with a small business size standard of 500.
- CCR - Successful offerors not already registered in the Central Contractor Registry (CCR) will be required to register in CCR prior to award of any grant, contract, cooperative agreement, or other transaction agreement. Information on CCR registration is available at <http://www.onr.navy.mil/02/ccr.htm>.
- Certifications – Proposals should be accompanied by a completed certification package which can be accessed on the ONR Home Page at Contracts & Grants. For grant proposals and proposals for cooperative agreements or other transaction agreements (other than for prototypes), the certification package is entitled, “Certifications for Grants and Agreements”. For contract proposals the contractor must complete both the Online Representations and Certifications Application (ORCA) and DFARS and Contract Specific Representations and Certifications, which can be accessed at http://www.onr.navy.mil/02/rep_cert.asp.
- Subcontracting Plans - Successful contract proposals that exceed \$500,000.00, submitted by all but small business concerns, will be required to submit a Small Business Subcontracting Plan in accordance with FAR 52.219-9, prior to award. This requirement also applies to non-profits, including educational institutions.
- This acquisition potentially involves data that is subject to export control laws

and regulations. The following clause will be incorporated into any resultant contract:

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

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

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

- (1) Imprisonment and/or imposition of criminal fines; and
- (2) Suspension or debarment from future Government contracting actions.

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

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

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

2. Deliverables

The following is a sample of deliverables that could be required under a research effort. Some of the deliverable reports, primarily in contractor format, are anticipated as needed under each contract award. However, specific deliverables should be proposed by each offeror and finalized with the contracting agent:

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

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

VII. OTHER INFORMATION

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

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

Government research facilities and operational military units are available and should be considered as potential government furnished equipment/facilities. These facilities and resources are of high value and some are in constant demand by multiple programs. It is unlikely that all facilities would be used for the Human Performance Training and Education Program. The use of these facilities and resources will be negotiated as the program unfolds. Offerors should explain as parts of their proposals which of these facilities are critical for the project's success.

2. Security Classification

In order to facilitate intra-program collaboration and technology transfer, awardees will work at the unclassified level to the maximum extent possible.

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

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

3. Project Meetings & Reviews

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

4. 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/>.

5. Use of Animals and Human Subjects in Research

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

subject research related documentation, contact the ONR Animal/Human Use Administrator at (703) 696-4046.

6. Organizational Conflict of Interest

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

