

**UNITED STATES ARMY RESEARCH INSTITUTE
FOR THE BEHAVIORAL AND SOCIAL SCIENCES (ARI)**

BROAD AGENCY ANNOUNCEMENT

FOR

**BASIC, APPLIED, AND ADVANCED
SCIENTIFIC RESEARCH**



W911NF-18-S-0005-0001
(as amended 19 December 2019)

30 April 2018 – 29 April 2023

ISSUED BY:
U.S. Army Contracting Command-Aberdeen Proving Ground
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A. FUNDING OPPORTUNITY DESCRIPTION:

INTRODUCTION:

This Broad Agency Announcement (BAA), which sets forth research areas of interest to the United States Army Research Institute for the Behavioral and Social Sciences (ARI), is issued under the provisions of paragraph 6.102(d)(2) and 35.016 of the Federal Acquisition Regulation (FAR), which provides for the acquisition of basic and applied research and that part of development not related to the development of a specific system or hardware procurement through the competitive selection of proposals, and 10 U.S.C. 2358, 10 U.S.C. 2371, and 10 U.S.C. 2371b, which provide the authorities for issuing awards under this announcement for basic and applied research. Proposals submitted in response to this BAA and selected for award are considered to be the result of full and open competition and in full compliance with the provisions of Public Law 98-369, "The Competition in Contracting Act of 1984" and subsequent amendments.

The ARI is the Army's lead agency for the conduct of research, development, and analyses for the improvement of Army readiness and performance via research advances and applications of the behavioral and social sciences that address personnel, organization, and Soldier and leader development issues. Programs funded under this BAA include basic research, applied research, and advanced technology development that can improve human performance and Army readiness.

Funding of research and development (R&D) within ARI areas of interest will be determined by funding constraints and priorities set during each budget cycle. Those contemplating submission of a proposal are encouraged to contact the ARI Technical Point of Contact (TPOC) identified in Section G of this BAA or the responsible ARI Manager noted at the end of the technical area entry (Part II Section A of this BAA) to determine whether the proposed R&D warrants further inquiry. If the proposed R&D warrants further inquiry and funding is available, submission of a white paper or proposal will be entertained. The recommended three-step sequence is (1) initial contact with the ARI TPOC or responsible ARI Manager, (2) white paper submission, (3) proposal submission.

This sequence allows earliest determination of the potential for funding and minimizes the labor and cost associated with submission of proposals that have minimal probability of being selected for funding. Costs associated with white paper or proposal submissions in response to this BAA are not considered allowable direct charges to any resulting award. These costs may be allowable expenses to normal bid and proposal indirect costs specified in FAR 31.205-18. Applicants submitting proposals are cautioned that only a Government Contracting or Grants Officer may obligate the Government to any agreement involving expenditure of Government funds.

To be eligible for an award under this announcement, a prospective awardee must meet certain minimum standards pertaining to financial resources and responsibility, ability to comply with the performance schedule, past performance, integrity, experience, technical capabilities, operational controls, and facilities. In accordance with Federal statutes, regulations, and

Department of Defense (DoD) and Army policies, no person on grounds of race, color, age, sex, national origin, or disability shall be excluded from participation in, be denied the benefits of, or be subjected to discrimination under any program or activity receiving financial assistance from the Army.

1. Agency Name:

U.S. Army Research Institute for the Behavioral and Social Sciences (ARI)

Issuing Acquisition Office:

U.S. Army Contracting Command-Aberdeen Proving Ground, Research Triangle Park Division

2. Research Opportunity Title:

U.S. Army Research Institute for the Behavioral and Social Sciences Broad Agency Announcement for Basic, Applied, and Advanced Research (Fiscal Years 2018-2023)

3. Announcement Type:

Initial Announcement

4. Research Opportunity Number:

W911NF-18-S-0005

5. Catalog of Federal Domestic Assistance (CFDA) Number and Title:

12.630 – Basic, Applied, and Advanced Research in Science and Engineering

6. Response Dates (Submissions):

This BAA is a continuously open five-year announcement valid throughout the period beginning **30 April 2018 and ending 29 April 2023**. New start awards are normally obligated early within each fiscal year. Amendments to this BAA will be posted to <https://www.fbo.gov> (FedBizOpps) and <http://www.grants.gov> when they occur. Interested parties are encouraged to periodically check these websites for updates and amendments.

7. Basic Research Areas of Interest

Basic Research is defined as systematic study directed toward greater knowledge or understanding of the fundamental aspects of phenomena and of observable facts without specific application of processes or products in mind. ARI's Basic Research Program maintains close contact with ARI's applied scientists and other relevant agencies within the

Army to ensure cutting edge research is executed in support of the Army through establishing relationships and transitions with ARI's Applied Research Program.

Topic areas of basic research interest include the following:

- **Understanding Team Dynamics:** Military organizations reflect a complex structure based on both formal hierarchy and informal social structures. Topics of interest in this area include understanding and predicting large and small group behavioral processes within and between teams, new measures and metrics for dynamic group constructs, and understanding cultural differences, norms, and cultural change.
- **Improving Leadership and Leader Development:** Effective Army performance relies on high quality leaders, which necessitates an understanding of how to identify, develop, and retain quality leaders over time. Topics of interest in this area include training and retention of quality leaders, development of leader identity, leader adaptability and flexibility, leadership teams, and leader assessment and feedback.
- **Identifying, Assessing, and Assigning Quality Personnel:** Maintaining readiness requires that the Army possess high quality personnel throughout the force. Topics of interest in this area include identifying and measuring the aptitudes and skills of the Future Force, understanding metrics for Soldier success, improving test theory, and the factors that influence recruitment, retention, and performance.
- **Enhancing Lifelong Learning:** The Army not only develops Soldiers for specific jobs, tasks, and roles, the Army develops Soldiers over the duration of a career. Thus, it is important to understand how to maximize opportunities for learning throughout a Soldier's career. Topics of interest in this area include longitudinal learning theory and measurement, innovative learning methods, and assessment of learning processes and learner performance.

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8. Applied Research and Advanced Technology Development Areas of Interest

ARI seeks Applied Research proposals that provide a systematic expansion and application of knowledge to design and develop useful strategies, techniques, methods, tests, or measures that provide the means to meet a recognized and specific Army need. Applied Research precedes specific technology investigations or development and should have high potential to transition into advanced technology.

The ARI Advanced Technology Development program includes the development of technologies, components, or prototypes that can be tested in field experiments and/or simulated environments. Projects in this category have a direct relevance to identified military needs. These projects should demonstrate the general military utility or cost reduction potential of technology in the areas of personnel selection, assignment, and retention; advanced data analytics and models applied to talent management; development of

higher-order competencies for Soldiers and Leaders; holistic assessment of unit readiness; and team and unit mission effectiveness. These projects should be focused on a more direct operational benefit and, if successful, the technology should be available for transition.

Topic areas of the applied research and advanced technology development include the following:

a. Holistic Personnel Assessments

The ARI personnel assessment program includes tools to attract, select, assign, promote, and retain enlisted and officer personnel, both Active and Reserve, whose abilities and interests will fit the Army's current and future organizational and job requirements. In order to best manage Soldier talent, Soldiers must be properly matched with the jobs and assignments that best fit their capabilities and interests, both at initial entry and as they progress in their careers. Advances in the development of new tools for personnel management must be coordinated with ongoing changes in Army policies, missions, and organization. Our understanding of enlisted and officer job performance reflects a "whole person" approach, incorporating both the ability to perform and the motivation to perform. Our selection and classification system must incorporate both elements in a holistic fashion.

a.1 Expanded Tools for Enlisted and Officer Selection

In recent years, the demands confronting enlisted Soldiers and officers have been changing. They must confront a more challenging, ambiguous, and uncertain environment. They must take on additional, more diverse responsibilities. These changes raise a number of challenges for our future research and development.

Topic areas of research interest include the following:

- Comprehensive assessment of Army enlisted and officer candidates to improve the identification and initial selection of individuals who will perform well in the Army, are less likely to wish to continue serving in the Army, and have strong potential for career advancement. Assessments may include the development and validation of new cognitive, situational judgement, knowledge, temperament, attitude/interest and social skill measures; and the development of new scoring methodologies for currently used assessments.
- Assessments that improve the efficiency and construct domain coverage beyond current military accessions testing (e.g., Armed Services Vocational Aptitude Battery, Scholastic Aptitude Test) while minimizing adverse impact.
- Development of tests which more accurately measure their intended constructs, both in research and in high-stakes operational conditions (e.g., resistant to deliberate faking).

- Identification and innovative use of compensatory methods of combining assessments to allow for more precise prediction of performance.

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a.2 Enhancing Job Classification and Assignment

New missions, equipment, and doctrine will impact the types of jobs and Soldiers needed for the Army of today and tomorrow. Current tools for classifying Soldiers into jobs will need to be refined to meet the changing needs of the Army. These tools need to reflect the multiple requirements of current and future jobs, the realignment of the current job structure, and a broader view of Soldier and officer performance which incorporates motivational, physical, and proficiency components.

Topic areas of research interest include the following:

- Development of improved job analysis methods which better support job clustering and generalization of validity findings across jobs.
- Development and validation of person-job match models that incorporate individual preferences, motivation, aptitudes, and other individual attributes.
- Development and validation of assessment tests for identifying the optimal initial job for Soldiers entering the Army; and the development and/or application of statistical/mathematical methods for achieving these objectives.
- Development and validation of assessment tests for selecting Soldiers for special in-service assignments and careers (e.g., Strategist, Special Forces, Cyber, Recruiter).

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a.3 Improved Performance Measurement

A more comprehensive individual Soldier assessment and assignment process will necessitate a more rigorous measurement of performance in training, on the job, and over the course of a Soldier's career, for both officers and enlisted personnel. Further, it is critical to develop a better understanding of the relationship between individual and team (or unit or organization) performance outcomes in the Army to better assess the utility of personnel assessments.

Topic areas of research interest include the following:

- Development of more realistic, practical and cost-effective measures of enlisted and officer individual job performance, propensity to stay in the Army, and promotion potential across the range of Army occupations and career paths.

- Exploration of the use of individual assessments (e.g., knowledge, skills, non-cognitive measures, physical capabilities, interest inventories) to determine optimal job assignment.
- Exploration of how individual Soldier performance relates to team (or unit or organization) performance, and the development of more realistic and cost-effective measures of team (or unit or organization) performance to support such analyses.
- New analytical techniques for identifying the relationships among and between indices of individual and team (or unit or organization) performance in the Army.

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a.4 New Strategies for Achieving Army Personnel Objectives

The Army must fully leverage the capabilities of an increasingly diverse population in the United States to meet its worldwide missions. Therefore it is critical for the Army to develop, collect, and analyze objective and verifiable indicators of the impact of new and proposed Army personnel practices on individual Soldier performance and advancement, team performance, unit morale and cohesion, and the propensity to stay in the Army across occupations and ranks.

Topic areas of research interest include the following:

- Development and/or identification of interdisciplinary measures, methodologies and analytical techniques to longitudinally evaluate individual differences (e.g., aptitudes, non-cognitive measures, physical capabilities, interest inventories) and early experiences on Army performance, morale, continuance, and other outcomes.
- Development and validation of early/midcareer selection and assessment tools (e.g., leadership, strategy, decision making) to evaluate career progression and other outcomes.
- Development and investigation of new measures for assessing the impact of new Army personnel practices, and new methods for collecting such data and conducting analyses in an efficient, cost-effective manner.

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b. Assessing and Developing Leader Competencies

The Army must be prepared to execute the potential range of future military operations. Thus, the Army must develop a bench of officers and non-commissioned officers (NCOs) who possess the competencies to perform well across a variety of contexts. Developing such competencies requires time and experience over a career, innate ability, and deliberate leader development and training interventions. Leaders at all levels in the

Army—including junior and senior NCOs, cadets, and junior and senior officers—must develop the critical cognitive skills that underlie tactical and technical expertise. Leaders also must possess refined interpersonal and communication skills to mentor subordinates, build teams comprised of diverse individuals, effectively cooperate with interagency and coalition partners, and appropriately influence a variety of individuals and groups (e.g., the media, local populations). Innovations in leader development and training require understanding the competencies required for effective performance in future operational contexts, as well as an understanding of how ability and experience help or hinder competency progression. This area of research addresses methods and techniques to identify, train, develop, and assess higher-order competencies and requisite skills for successful leader performance within the Army.

b.1 Strategic Leadership

The Army develops leaders over their careers, and invests significant time and effort to do so. One area of interest is how to better develop, identify, and assess individuals with the capacity for strategic leadership and higher-order cognitive competencies (e.g., systems thinking, innovative thinking). Research is required to identify competencies required for effective performance at the strategic level of leadership. Additionally, research is needed to identify how those competencies develop over time and across a career. Research also is needed to develop methods to improve, assess, and accelerate the acquisition of those competencies.

Topic areas of research interest include the following:

- Identification of the competencies, knowledge, skills, and abilities that must be developed over a career to build officers' capacity for strategic thinking and leadership.
- Methods to assess, develop, and accelerate acquisition of cognitive competencies at different phases in an officer's career. Cognitive competencies of interest include, but are not limited to, strategic thinking, systems thinking, decision-making, creativity and innovation, visualization, and related complex cognitive skills.
- On-the-job approaches to building cognitive competencies and expertise. Examples include examining the value of broadening opportunities to develop strategic leadership skills and methods to improve how leaders use mentoring to build strategic thinking in others.
- Methods to develop the competencies, knowledge, and skills to improve a leader's ability to perform well in a variety of operational and mission contexts (e.g., visualizing the operational environment).

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b.2 Leading Others

Deterring adversaries and winning the Nations' wars are accomplished through the coordinated actions of cohesive and effective teams working toward the same purpose. The leader's role in shaping and directing these teams is significant. Moreover, as leaders advance in their careers, the types of teams and organizations they lead grow in complexity. Army leaders advance from the direct level of leadership to leading organizations to leading the Army enterprise. At each stage, leaders are expected to continue learning and developing themselves, as well as developing the subordinates and organizations they lead. To be effective across different performance environments and across a career, leaders must therefore develop and improve a wide range of knowledge, skills, and abilities— both within themselves and within others. Research is needed to identify how leaders grow over time, as well as how leaders develop and mentor their subordinates. Research also is needed to identify how leaders influence the development and performance of teams, their organizations, and individuals outside their chain of command (e.g., in joint, interagency, intergovernmental, and multinational contexts [JIIM]).

Topic areas of research interest include the following:

- Development of innovative measures and models of leadership performance; leader competencies, knowledge, skills, abilities, and other attributes; and leader growth. This includes developing and validating methods to assess competency baselines and progression throughout Professional Military Education.
- Methods to develop leadership skills and competencies for the operational environment. These include, but are not limited to, methods to measure and improve leader performance in the following areas: leading teams, ethical leadership, mission command, and working in JIIM contexts.
- Developmental methods for training cross-cultural negotiation, communication, and collaboration skills outside formal education and training venues.
- Measures and methods to improve leader capability to develop his or her subordinates. This includes leader development interventions to improve knowledge and skills related to mentorship, methods to aid leaders in identifying subordinates' developmental needs, and methods to improve performance counselling and feedback.
- Methods to enable leaders to influence and improve the organizations they lead. This includes methods to develop leader skills and competencies related to promoting organizational effectiveness, as well as techniques or job aids to help leaders promote organizational performance (e.g., methods to support the diffusion of innovation, methods to set conditions for a learning environment).

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b.3 Assessing and Improving Leader Skills

The Army must produce trained and ready Soldiers and leaders for a wide spectrum of operations and missions. To ensure technical and tactical proficiency, research must examine how to accelerate learning while maintaining effectiveness, exploit new learning and simulation technologies, identify and integrate relevant lessons from operational and training units, and methods to produce more efficient and cost effective training. In conjunction with new approaches to improve leader technical and tactical performance, new methods to assess leader effectiveness and efficiency are required.

Topic areas of research interest include the following:

- Development of methods to address emerging human performance challenges and difficult to train skills and behaviors.
- Methods and measures to develop and maintain Soldiers' tactical and technical readiness to employ emerging technologies, particularly complex, integrated warfighting systems and information technologies.
- Development of innovative methods that assess, track, and provide feedback on critical cognitive, social, physical, and other attributes to optimize Soldier and leader performance across their careers.
- Scientifically-based skill-development strategies and tools for assessing and enhancing Soldiers' perceptual and cognitive performance on individual and collaborative tasks executed in complex multi-domain environments.

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b.4 Developing Noncommissioned Officers for the Future Force

Noncommissioned officers (NCOs) have always been responsible for leading, training, and taking care of Soldiers and equipment while enforcing standards. Thus, NCOs at every level play a critical role in ensuring the readiness and success of the Army. Junior NCOs play a particularly important role in preparing junior enlisted Soldiers to become the Army's future leaders. NCOs train their Soldiers in MOS skills and unit missions so that they will be prepared for what is expected to be an increasingly complex and uncertain future. Thus, it is important to develop junior NCO skills in leading, training, and taking care of Soldiers. Additionally, because the Army grows its NCOs over the course of a career, it is important to understand how junior NCOs develop into effective senior NCOs. Research is needed to identify, assess, and develop key NCO competencies across the career lifecycle. This research will develop science-based training, training

resources, and job aids to enable NCOs at every echelon to lead, train, and take care of Soldiers and to prepare those Soldiers to become the future NCO Corps. This research also will provide exemplar training and non-training interventions to promote positive behavior and positive attitudes among Soldiers.

Topic areas of research interest include the following:

- Identification of emerging challenges that Squad Leaders and Team Leaders will face when leading, training, and taking care of their Soldiers over the next decade, and identification of the knowledge, skills, abilities, and other attributes they will need to meet those challenges.
- Development of new models of Squads and Teams that capture insights from fields such as Evolutionary, Developmental, and Social Psychology that more accurately capture the unique characteristics of a small warfighting unit than current models do.
- Scientifically-based and empirically validated methods for developing Squad Leaders and Team Leaders to succeed in a variety of performance contexts.
- Identification and development of the best methods that Squad Leaders and Team Leaders can use to develop Soldiers on non-tactical behavior and cognitive skills.
- Development of new methods to improve Squad and Team Leader capability to address negative behaviors and attitudes occurring within their units.
- Methods and models that identify and describe how NCO competencies, knowledge, skills, and abilities change over the course of a career—from junior enlisted to senior NCO. Research also might include developing measures to assess and methods to develop NCOs competencies, knowledge, skills, and abilities across a career.

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c. Unit Performance and Cohesion

Performance in the current and future operational environments hinges not only on the performance of individuals, but on the performance of collectives. Soldiers and leaders operate within a variety of collective performance contexts: within their units, within new types of teams (e.g., military advisor teams or special working groups), and within teams of teams (e.g., within Joint, Interagency, Intergovernmental, and Multinational contexts). Collective performance and effective teamwork are important now and likely to become even more prominent in the future. The future teams of the Army must be prepared for a wide variety of performance contexts. For instance, future teams may operate as self-contained entities-- disaggregated, highly mobile, technologically savvy, and working in a multidimensional battlespace. Future teams must also be prepared for missions that involve working closely with foreign partners and in-and-around indigenous populations. Research is required to define and measure many variations of collective performance, as

well as develop methods to promote performance across a spectrum of collective contexts.

c.1 Collective Resilience, Readiness, and Performance

Traditionally, resilience programs and scientific research focus on resilience as an individual-level construct. However, this single-level focus fails to consider the interdependencies between the individual and collective levels of resilience. Additionally, little is known about how collective concepts, such as unit resilience, command climate, and collective performance impact unit readiness and other unit-level outcomes of interest. This research examines the relationships between multilevel constructs, such as unit resilience, climate, readiness, collective performance, and other unit-level outcomes. This research will provide holistic measures to better assess unit readiness and related collective constructs.

Topic areas of research interest include the following:

- Development and validation of innovative measures and models of collective constructs, such as performance, readiness, resilience, cohesion, and command climate.
- Theories and models that articulate relationships among resilience at different levels of analysis and other multilevel constructs of interest, such as collective performance, leadership, Soldier behaviors, social connections/connectedness, unit climate, and unit values/shared vision.
- New analytic techniques to assess and aggregate resilience at multiple levels of analysis.
- Identification and measurement of contextual factors that impact unit resilience, collective readiness, and collective performance.
- Methods to improve unit/collective resilience, collective performance and other collective constructs (e.g., cohesion, command climate).

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c.2 Multi-Layered Hierarchical Units

Multi-Domain Battle (MDB) is a quickly maturing concept for how Army could fight and operate with adversaries in the future. MDB requires a dynamic mix of U.S. Army forward presence and expeditionary forces and partner forces to deter and defeat the enemy. Future Army units are projected to operate as disaggregated, highly mobile, self-contained forces that will operate for extended periods in complex environments without fixed basing. Small units drawing from diverse personnel across a variety of units will be required to rapidly and organically aggregate to achieve particular missions, and then

easily disaggregate back into their previous state post-mission. Operational headquarters staff will need appropriate tools and techniques to optimally staff and assign personnel to these small units in order to achieve maximum effectiveness across the entire force or address specific needs for specific missions. These teaming arrangements are an adaptive response to the complexity of the problems encountered in the current global environment. Research efforts are needed to determine how to optimally staff and compose multiple teams simultaneously, develop tools and techniques for teams to be able to organically aggregate and disaggregate as the mission and operational environment demand, and understand how myriad individual characteristics combine to create highly effective teams.

Topic areas of research interest include the following:

- Tools and techniques to support the rapid, organic aggregation and disaggregation of small units into multi-team systems in response to task and environmental demands.
- Statistical and measurement methods to understand team and multi-team process and performance dynamics in field settings.
- Understanding of attributes and emergent states of teams related to robustness and a team's ability to continue to perform well under duress for extended time periods.
- Understanding the role of trust, cohesion, and other emergent states influence performance and effectiveness in multi-team systems; including the establishment and dynamics of these states in multi-team systems.
- Application or revision of concepts such as commander's intent, command intent, and unity of effort to train and support collaboration and decision-making by collocated and distributed teams.

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c.3 Team Staffing and Composition

As the Army shifts to the Multi-Domain Battle (MDB) operational paradigm, there will be an increased emphasis on ensuring effectiveness by Soldiers and small units. In order to maintain maximal effectiveness of the force in this paradigm, the Army will need to efficiently assign and utilize personnel throughout the formation. This concept is often articulated as “Right Soldier, Right Job, Right Time.” To achieve this vision, the Army requires the capability to shift to a team-based assignment paradigm from an individual-job based assignment model. The Army currently lacks the tools, methods, and algorithms for optimally assigning individuals to teams and small units to ensure the operational effectiveness of these units in future conflicts. Moreover, the current assessment systems used by the Army may not collect sufficiently deep or appropriate information on the individual attributes and capabilities of Soldiers to support a team-

based assignment paradigm. Research in this topic area will address both the methods and statistical tools, as well as the attributes and capabilities to be assessed in order to support team-based assignment in the future.

Topic areas of research interest include the following:

- Identifying characteristics that predict individuals' capacity of working effectively in the team environments.
- Statistical optimization algorithms and models for ensuring team effectiveness across a large number of teams and team assignment decisions.
- Understanding of team composition and compilation models for predicting team performance.
- Computational tools that embody scientific knowledge of team composition and compilation, team tasks and environmental conditions related to performance, and optimization algorithms for personnel officers to use to assign members to teams.

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c.4 Measuring Unit Performance and Readiness

Future operations will span multiple domains and require resilient and adaptable teams capable of conducting semi-independent operations. Thus, resilience and adaptability are essential for successful team performance and it is imperative to develop innovative means of measuring unit performance and unit readiness in training and operational contexts. The goal is for a holistic assessment of unit performance to shape training, leader skills, and team composition. In addition to innovative qualitative and quantitative measures of unit performance and readiness, innovative measures of unit climate and unit culture are also vital because of their strong link to building adaptable teams.

Topic areas of research interest include the following:

- Innovative methods of assessing unit performance at the company, squad, and platoon level, unit climate, culture, and unit readiness at appropriate time intervals to observe key dynamics in these phenomena.
- Understanding of how climate, culture and other aspects of readiness interact across different echelons and team compositions.
- Tools and techniques to better understand the development and maintenance of unit climate and culture.

- Tools, techniques, and assessment methods to better understand the relationship among, climate, culture, and unit performance and readiness.

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c.5 Improving Unit Performance and Cohesion in Complex Environments

In future operations, units will conduct missions in a multi-dimensional battlespace that includes traditional operational concerns, as well as urban terrain, distinct and nuanced cybersecurity challenges, and subterranean obstacles. A principal notion is that decentralized operations will be the norm rather than the exception. Preparation for such missions is challenging, and effectively measuring acquisition, performance and retention of critical skills is paramount. The goal of this research area is to develop novel methods and tools for enhancing skill acquisition, performance and retention by using an interdisciplinary approach from multiple areas of psychological science. This research will provide Soldier-driven, science-based measures, methods, and strategies to rapidly build, train, and sustain cohesion and performance in teams and units. The research will encompass performance in both traditional operational contexts and potential future operational contexts (e.g., multi-domain battle).

Topic areas of research interest include the following:

- Identify new individual and collective knowledge, skills, abilities, and other attributes to operate successfully in dynamic and complex environments with changing mission sets.
- Develop measurement and feedback tools for evaluating the acquisition, performance and retention of individual and collective skills.
- Develop collective skill-development methodologies that are best suited for unit performance on multidimensional battlefields.
- Develop methods to determine the impact of training and training enablers on individual and collective readiness and performance.
- Research to determine how to assess, develop, and sustain unit cohesion in hierarchical, multi-layered units, to identify and understand key threats to unit cohesion at the small unit level, and to develop mitigation strategies for sustaining unit cohesion during periods and environments of significant duress.
- Understand the factors related to the development or changes in unit cohesion across the unit lifecycle to include both home station and deployment environments.
- Tools and techniques for the development of collaborative capabilities for enhancing inter-organizational collaboration in coalition operations.

- Tools and techniques for the assessment and development of individual capabilities related to working in diverse, cross-organizational teams.

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d. Statistical Innovations in Talent Management

Existing and potential data sources relevant to human performance, readiness, and resilience are often stove-piped and underutilized. Maximizing Soldier and unit performance requires the ability to integrate data from many sources, investigate new sources and types of data, and extract useful information from data. To this end, continuing advances in statistics, computer science, machine learning, and other data sciences hold a great deal of promise for improving talent management in the Army. These advances can lead to new methods of Soldier testing and assessment, understanding and predicting leader development, and methods to maximize effectiveness over the course of a Soldier's career. However, such methods also present conceptual, technical, and operational challenges.

d.1 Improving Talent Management through Data Science

“Big Data” can be characterized by large sample sizes and high dimensionality, sparsity, noisy and irregular measurements, complex interdependencies (including social and temporal), and heterogeneity (e.g., of data types and structures). Legal or ethical considerations also may place restrictions on how data and models should be used (e.g., creating new forms of assessment that result in adverse impact). Finally, the utility of data and models for making decisions depends on getting the right kind of information to the right people. Leaders and Soldiers need information that is understandable, reliable, valid, and timely. Given these challenges, research is necessary to develop new ways of generating, analyzing, and using data for the purpose of talent management.

Topic areas of research interest include the following:

- New metrics and models for group and individual effectiveness in organizations. Examples include network effects associated with individual training and performance, as well as metrics to more accurately integrate the value, costs, and likelihood of relevant performance behaviors across contexts and careers.
- Novel or non-traditional data sources for behavioral/social science research in military contexts. Examples include archival, physiological, relational, sensor, and qualitative data -- especially data related to Soldier performance, staffing and personnel decisions, leadership development, attitude assessment, and group/organizational behavior.
- New statistical and computational methods for assessing individuals and groups. Examples include new methods for augmenting assessments with non-traditional

data; new approaches to generate, deploy, and score assessments; statistical innovations in addressing faking and response distortion; predictive models to improve talent management; and methods to reduce survey response burden.

- New methods to support timely, valid, and efficient data-based personnel management and leader decision-making. Examples include innovations in job analysis/competency modeling and statistical/computational methods to optimally assign individuals to specialties and units.
- Other applications of Big Data analytics, predictive modeling, or new computational methods to address talent management and personnel management. Examples include testing and assessment, counter-productive work behaviors, recruitment, retention, career development, promotions, improving person-job fit, enhancing readiness and resilience, and decision-support systems for leaders.

The ARI Manager is Dr. Andrew Slaughter, (703) 545-2353,
andrew.j.slaughter.civ@mail.mil

e. Conference and Symposia Grants

A. Introduction. Through the award of a grant, the Army supports conferences and symposia (as defined in the DoD Travel Regulations) in areas of science that bring experts together to discuss recent research or educational findings or to expose other researchers or advanced graduate students to new research and educational techniques. The Army encourages the convening in the United States of major international conferences, symposia, and assemblies of international alliances.

B. Eligibility. Notwithstanding the Army's authority to provide grant support for such events, only non-commercial scientific, technical, or professional organizations that qualify for tax exemption may receive a conference grant/symposia grant. Those who meet this requirement should also be aware that the DoD does not permit "co-sponsorship" (as defined in DoD 5500.07-R) absent additional high level staffing and approval. In other words, the conference grant support identified in this BAA is NOT DoD sponsorship or co-sponsorship since ARI is neither an organizer, nor provider, of any substantial logistical support for the conferences addressed in this section. The Applicant for a conference or symposia grant under this Broad Agency Announcement shall agree to offer no cost attendance by one or more Army representatives for grant monitoring purposes. The Applicant must state in their proposal the number of Army attendees that will be allowed to attend the conference or symposium.

C. Conference Support. Conference support proposals should be submitted a minimum of six (6) months prior to the date of the conference. It is anticipated that support for conferences and symposia may take multiple forms including financial support for the meeting, travel support for speakers, or travel support to allow attendance and participation by advanced graduate students and junior faculty.

D. Technical Proposal Preparation. The technical portion of a proposal for support of conference or symposium should include:

- (1) A one page or less summary indicating the objectives of the project,
- (2) The topics to be covered,
- (3) The location and probable date(s) and why the conference is considered appropriate at the time specified,
- (4) An explanation of how the conference and requested support will relate to the research interests of the Army as identified in Section A of this BAA and how it will contribute to the enhancement and improvement of scientific, engineering, and/or educational in general and activities as outlined earlier in the research areas of this BAA,
- (5) The name of chairperson(s)/(PI)(s) and his/her biographical information,
- (6) If applicable, a list of proposed participants,
- (7) The methods of announcement or invitation,
- (8) A summary of how the results of the meeting will be disseminated, and
- (9) A signed cover page.

E. Cost Proposal Preparation. The cost portion of the proposal should show:

- (1) Total project conference costs by major cost elements.
- (2) Anticipated sources of conference income and amount from each.
- (3) Anticipated use of funds requested.
- (4) A signed budget.

F. Support for Federal Employee Attendance. Funds provided cannot be used for payment to any federal government employee for support, subsistence, or services in connection with the proposed conference or symposium.

G. Cognizant POC. It is highly recommended that potential applicants contact the appropriate POC identified earlier in the research areas of this BAA for advice and assistance before preparation of a conference/symposia proposal.

B. FEDERAL AWARD INFORMATION:

The Army Contracting Command- Aberdeen Proving Ground, RTP Division has the authority to award a variety of instruments on behalf of ARI. Anticipated awards may be made in the form of procurement contracts, grants, cooperative agreements and technology investment agreements (TIAs), or other transactions for prototypes (OTAs). The ACC (APG) RTP Division reserves the right to use the type of instrument most appropriate for the effort proposed. Applicants should familiarize themselves with these instrument types and the applicable regulations before submitting a white paper or proposal. The following are brief descriptions of the possible award instruments:

1. **Procurement Contract:** A legal instrument, which consistent with 31 U.S.C. 6303, reflects a relationship between the Federal Government and a State, a local government, or other recipient when the principal purpose of the instrument is to acquire property or services for the direct benefit or use of the Federal Government.

This instrument is appropriate for awards of the acquisition of basic, applied, or advanced research and that part of development not related to the development of a specific system or hardware procurement when the principal purpose is to acquire property or services for the direct benefit or use of the Federal Government.

Procurement contracts awarded by the ACC (APG) RTP Division will contain, where appropriate, detailed special provisions concerning patent, rights in technical data and computer software, reporting requirements, equal employment opportunity, etc. Contracts are primarily governed by the following regulations:

- a. Federal Acquisition Regulations (FAR)
- b. Defense Federal Acquisition Regulations (DFAR)
- c. Army Federal Acquisition Regulation Supplement

No fee or profit will be allowed on travel and equipment.

2. **Grant:** A legal instrument, that consistent with 31 U.S.C. 6304, is used to enter into a relationship in which:
 - a. The principal purpose is to transfer a thing of value to the recipient to carry out a public purpose of support or stimulation authorized by a law or the United States, rather than to acquire property or services for the Department of Defense's direct benefit or use.
 - b. Substantial involvement is not expected between the Department of Defense and the recipient when carrying out the activity contemplated by the grant.
 - c. No fee or profit is allowed.
 - d. This instrument is appropriate for basic research awards when the principal purpose is to transfer a thing of value to the recipient to carry out a public purpose of support or stimulation authorized by a law or the United States, rather than to acquire property or services for the Department of Defense's direct benefit or use. No substantial involvement is expected between the Department of Defense and the award recipient when carrying out the grant activity.
3. **Cooperative Agreement:** A legal instrument which, consistent with 31 U.S.C. 6305, is used to enter into the same kind of relationship as a grant (see definition "grant"), except that substantial involvement is expected between the Department of Defense and the recipient when carrying out the activity contemplated by the cooperative agreement. The term does not include "cooperative research and development agreements" as defined in 15 U.S.C. 3710a. No fee or profit is allowed.

This instrument is appropriate for basic, applied, or advanced research awards when the principal purpose is to transfer a thing of value to the recipient to carry out a public purpose of support or stimulation authorized by a law or the United States, rather than to acquire property or services for the Department of Defense's direct benefit or use. Substantial

involvement is expected between the Department of Defense and the award recipient when carrying out the cooperative agreement activity.

Grants and cooperative agreements are currently governed by the guidance in 2 Code of Federal Regulations (CFR) Part 200, “Uniform Administrative Requirements, Cost Principles, and Audit Requirements for Federal Awards,” as modified and supplemented by the Department of Defense’s (DoD) interim implementation found at 2 CFR Part 1103, “Interim Grants and Cooperative Agreements Implementation of Guidance in 2 CFR Part 200”.

4. **Technology Investment Agreement (TIA) Assistance Transaction other than a Grant or Cooperative Agreement:** A legal instrument, consistent with 10 U.S.C. 2371 and as implemented by 32 CFR Part 37, which may be used when the use of a contract, grant, or cooperative agreement is not feasible or appropriate for basic, applied, and advanced research projects. The research covered under a TIA shall not be duplicative of research being conducted under an existing DoD program. To the maximum extent practicable, TIA’s shall provide for a 50/50 cost share between the Government and the Applicant. An Applicant’s cost share may take the form of cash, independent research and development (IR&D), foregone intellectual property rights, equipment, or access to unique facilities, as well as other types of in-kind contributions. Due to the extent of cost share, and the fact that a ‘TIA’ does not qualify as a “funding agreement” as defined at 37 CFR 401.2(a), the intellectual property provisions of a TIA can be negotiated to provide expanded protection to an Applicant’s intellectual property. No fee or profit is allowed.
5. **Other Transaction for Prototype (OTA).** A legal instrument, consistent with 10 U.S.C. 2371b, which may be used when the use of a contract, grant, or cooperative agreement is not feasible or appropriate for prototype projects directly relevant to enhancing the mission effectiveness of military personnel and the supporting platforms, systems, components, or materials proposed to be acquired or developed by the Department of Defense, or to improvement of platforms, systems, components, or materials in use by the armed forces. The effort covered under an OTA shall not be duplicative of effort being conducted under an existing DoD program (please refer to the “Other Transactions” OT Guide for Prototype Projects dated January 2017 (Version 1.2.0)). This document, along with other OTA resources, may be accessed at the following link:
<http://www.acq.osd.mil/dpap/cpic/cp/10USC2371bOTs.html>.
6. **Grants and cooperative agreements for institutions of higher education, nonprofit organizations, foreign organizations, and foreign public entities** are primarily governed by the following:
 - a. Federal statutes
 - b. Federal regulations
 - c. 2 CFR Part 200, as modified and supplemented by DoD's interim implementation found at 2 CFR Part 1103
 - d. 32 CFR Parts 21, 22, 26, and 28
 - e. DoD Research and Development General Terms and Conditions, September 2017

- f. Agency-specific Research Terms and Conditions
- g. ACC-APG-RTP Division Assistance, Research General Terms and Conditions dated August 2016
- h. Award-specific terms and conditions

7. Grants and cooperative agreements for for-profit and nonprofit organizations exempted from Subpart E - Cost Principles of 2 CFR Part 200, are primarily governed by the following:

- a. Federal statutes
- b. Federal regulations
- c. 32 CFR Part 34 - Administrative Requirements for Grants and Agreements with For-Profit Organizations
- d. 32 CFR Parts 21, 22, 26, and 28
- e. DoD Research and Development General Terms and Conditions, September 2017
- f. Agency-specific Research Terms and Conditions
- g. ACC-APG-RTP Division Assistance, Research General Terms and Conditions dated August 2016
- h. Award-specific terms and conditions

8. TIAs are primarily governed by the following:

- a. Federal statutes
- b. Federal regulations
- c. 32 CFR Part 37 – Technology Investment Agreements
- d. Agency-specific Research Terms and Conditions

9. OTAs are primarily governed by the following:

- a. Federal statutes
- b. Federal regulations
- c. Office of Secretary of Defense implementation guidance titled Other Transactions (OT) Guide for Prototype Projects

10. The following websites may be accessed to obtain an electronic copy of the governing regulations and terms and conditions:

- a. FAR, DFARS, and AFARS: <http://farsite.hill.af.mil/>
- b. Code of Federal Regulations: <http://www.ecfr.gov>
- c. DoD Research and Development General Terms and Conditions: <https://www.onr.navy.mil/Contracts-Grants/submit-proposal/grants-proposal/grants-terms-conditions>
- d. Agency-specific Research Terms and Conditions: <http://www.arl.army.mil/www/default.cfm?page=8>

C. ELIGIBILITY INFORMATION:

1. Eligible Applicants:

Proposals are sought from institutions of higher education, non-profit organizations, and for-profit organizations, domestic or foreign, for research and development (R&D) in those areas specified in SECTION A of this BAA. Foreign organization and foreign public entities are advised that security restrictions may apply that could preclude their participation in these efforts. Countries included on the U.S. State Department List of Countries that Support Terrorism are excluded from participation in these efforts.

Government Laboratories, Federal Funded Research and Development Centers (FFRDCs), and U.S. Service Academies are not eligible to participate as prime Contractors or Recipients under this BAA. If a proposal selected for award includes the involvement of a Government laboratory, Federally Funded Research and Development Center, or U.S. Service Academy, award funds allocated for the involvement of Government laboratories, FFRDCs, and/or U.S. Service Academies will be directly provided from ARI to the respective Government laboratory, FFRDC or U.S. Service Academy via a Military Interdepartmental Purchase Request (MIPR). No award funds will be channeled directly from a prime awardee (e.g., Contractor or Recipient) to a Government laboratory, FFRDC, or U.S. Service Academy.

2. Cost Sharing or Matching:

There is no required cost sharing, matching, or cost participation by an Applicant to be eligible under this BAA and cost sharing is not an evaluation factor used under this BAA. However, some of the legal instruments available for award do have cost sharing considerations which would need to be addressed prior to award. Applicants are encouraged to consider cost sharing schemes in cooperation with ARI.

Cost-sharing requirements may be found at 32 CFR 37 for TIAs. Cost-sharing requirements for OTAs may be found at Section C2.16 COST SHARING in the January 2017 document titled "Other Transactions" OT Guide for Prototype Projects.

3. Duns and Bradstreet Universal Numbering System (DUNS) Number and System for Award Management (SAM) Registrations:

Each applicant (unless the applicant is an individual or Federal agency that is exempt from those requirements under 2 CFR 25.110(b) or (c), or has an exception approved by the agency under 2 CFR 25.110(d)) is required to: (i) Be registered in the System for Award Management (SAM) <https://www.sam.gov> prior to submitting its application; (ii) provide a valid DUNS number in its application; and (iii) continue to maintain an active SAM registration with current information at all times during which it has an active Federal award or an application or plan under consideration by an agency. An award will not be made to an applicant until the applicant has complied with all applicable DUNS (call 1-866-705-5711 toll free or visit <http://fedgov.dnb.com/webform>) and SAM requirements.

D. APPLICATION AND SUBMISSION INFORMATION:

1. Address to View Broad Agency Announcement:

<https://www.fbo.gov>

<http://www.Grants.gov>

2. Content and Form of Application Submission:

Section 1 – General Information

Completeness of Information: Proposals must include all of the information specified in this BAA to prevent delays in evaluation. Be sure to specify the Commercial and Government Entity (CAGE Code), the DUNS Number, and the Taxpayer Identification Number (TIN) with your submission. Completion of the Representations and Certifications as well as registration in the System for Award Management (SAM) are prerequisites before receiving an award.

Classified Submissions: Classified proposals are not expected. However, in an unusual circumstance where an Applicant believes a proposal has the potential to be classified, contact the ARI Operations Security Officer, Ms. Pamela Butler, (703) 545-2418, pamela.l.butler8.civ@mail.mil prior to the proposal's submission.

Use of Color in Proposals: All proposals received will be stored as electronic images. Electronic color images require a significantly larger amount of storage space than black-and-white images. As a result, Applicant's use of color in proposals should be used only when necessary to convey specific information.

Government Property/Government Furnished Equipment and Facilities: Normally, title to equipment or other tangible property purchased with Government funds vests with nonprofit institutions of higher education or with nonprofit organizations whose primary purpose is conducting scientific research if vesting will facilitate scientific research performed for the Government. For-profit organizations are expected to possess the necessary plant and equipment to conduct the proposed research. Deviations may be made on a case-by-case basis to allow for-profit organizations to purchase equipment but regulatory disposition instructions must be followed.

Post-Employment Conflict of Interest: There are certain post-employment restrictions on former Federal officers and employees, including special Government employees (Section 207 of Title 18, U.S.C.). If an Applicant believes a conflict of interest may exist, the Applicant should discuss the situation with the Army legal counsel, Ms. Peggy Giesecking, (410) 278-6487, peggy.l.giesecking.civ@mail.mil, prior to expending time and effort in preparing a proposal.

Statement of Disclosure Preference: Please complete Form 52 or 52A stating your preference for release of information contained in your proposal. Copies of these forms are available at <http://www.arl.army.mil/www/default.cfm?page=218>. Additionally, proposals containing data that is not to be disclosed to the public for any purpose or used by the Government except for evaluation purposes shall include the following statement on their cover page:

This proposal includes data that shall not be disclosed outside the Government and shall not be duplicated, used, or disclosed, in whole or in part, for any purpose other than to evaluate this proposal. If, however, an award is made to this Applicant as a result of, or in connection with, the submission of this data, the Government shall have the right to duplicate, use, or disclose the data to the extent provided in the resulting award. This restriction does not limit the Government's right to use information contained in this proposal if the information has been obtained from another source without restriction. The data subject to this restriction are contained in sheets _____.

The Applicant shall also mark each sheet of data it wants to restrict with the following legend:

“Use or disclosure of data contained on this sheet is subject to the restriction on the title page of this proposal.”

Section 2 – Application Process Overview

The application process is in three stages as follows:

Stage 1- Verify the accuracy of your Dun & Bradstreet (D&B) registration at the D&B website <http://fedgov.dnb.com/webform> before registering with the System for Award Management (SAM) Registration at <https://www.sam.gov>. Prospective Applicants must be registered in SAM prior to award.

Stage 2 - Prospective Applicants are encouraged, but not required, to submit White Papers prior to the submission of a complete proposal. The purpose of submitting a White Paper is to minimize the labor and cost associated with the production of a detailed proposal that has little chance of being selected for funding. Feedback on a White Paper will be provided to the Applicant regarding the concept's scientific merit and potential contributions to the Army mission.

Stage 3 - Interested Applicants are required to submit a proposal. All proposals submitted under the terms and conditions cited in this BAA will be reviewed regardless of whether an Applicant submitted a White Paper.

Section 3 – White Paper Preparation

A White Paper should focus on describing details of the proposed research, including how it is innovative and how it could substantially advance the state of the science. Army relevance and potential impact should also be described, as well as an estimate of total cost for the proposed effort. White Papers should present the effort in sufficient detail to allow evaluation of the concept's technical merit and its potential contributions to the Army mission.

A White Paper must be limited to five (5) pages plus the cover page and an addendum in which the Applicant must include a biographical sketch (up to 300 words per individual) of all key personnel (i.e., Principal Investigators and Co-Principal Investigators) who will perform the research, highlighting their qualifications and experience as discussed below. All files and forms must be compiled into a single PDF file or MS Word document before submitting. Reviewers will be advised that they are only to review the cover page and up to five pages plus the addendum. Any pages submitted in excess of the five (5) page limit will not be reviewed or evaluated.

TECHNICAL INFORMATION FOR A WHITE PAPER:

1. Technical Approach: A detailed discussion of the effort's scientific research objectives, approach, relationship to similar research, level of effort, and estimated total cost; include the nature and extent of the anticipated results, and if known, the manner in which the work will contribute to the accomplishment of the Army's mission related to this request and how this would be demonstrated.
2. Requests for Government Support: The type of support, if any that the Applicant requests of the Government (such as facilities, equipment, demonstration sites, test ranges, software, personnel or materials) shall be identified as Government Furnished Equipment (GFE), Government Furnished Information (GFI), Government Furnished Property (GFP), or Government Furnished Data (GFD). Applicant shall indicate any Government coordination that may be required for obtaining equipment or facilities necessary to perform any simulations or exercises that would demonstrate the proposed capability.
3. Key Personnel Biographical Information: As an addendum to the White Paper, the Applicant must include a biographical sketch (up to 300 words per individual) of all key personnel (i.e., Principal Investigators and Co-Principal Investigators) who will perform the research, highlighting their qualifications and experience.

RESTRICTIVE MARKINGS ON WHITE PAPERS:

1. The Applicant must clearly identify and mark any proprietary data the Applicant intends to be used only by the Government. The Applicant must also identify any technical data or computer software contained in the White Paper that is to be treated by the Government as limited rights or restricted rights respectively. In the absence of such identification, the Government will assume to have unlimited rights to all technical data or computer software presented in the White Paper. Records or data bearing a restrictive

legend may be included in the White Paper, but must be clearly marked. It is the intent of the Army to treat all White Papers as procurement sensitive information before the award and to disclose their contents only to Government employees or designated support contractors for the purpose of procurement related activities only. Classified, sensitive, or critical information on technologies should not be included in a White Paper.

2. An Applicant is cautioned, however, that portions of a White Paper may be subject to release under terms of the Freedom of Information Act, 5 U.S.C. 552, as amended.

Section 4 – White Paper Submission

A White Paper of the proposed effort may be submitted electronically to the cognizant ARI Manager listed in Section A with e-mail subject line “ARI BAA W911NF-18-S-0005 White Paper” addressing specific technical area(s) and an estimate of proposed cost.

An Applicant preparing a White Paper for submission may follow any convenient format desired as long as the submission complies with guidance above in Section 3, “White Paper Submission.” **Please enclose an e-mail address and a telephone number where you can be reached.**

Section 5 – Preparation of Proposals

PROPOSAL PREPARATION INSTRUCTIONS:

General Information: The proposal is the only vehicle available to the Applicant for receiving consideration for award. The proposal must stand on its own merit; only information provided in the proposal can be used in the evaluation process leading to an award. The proposal should be prepared simply and economically, providing straightforward, concise delineation of capabilities necessary to perform the proposed work. The technical volume must be accompanied by a fully supported cost volume as cost and technical considerations are reviewed simultaneously; the cost volume should assume a start date of no earlier than 01 November 2018. In preparing proposals, it is important that the Applicant keep in mind the characteristics of a proposal acceptable for evaluation. A proposal must include all the information specified in this announcement in order to receive consideration. All proposals must include:

1. An Abstract, Background, Application Potential, Technical Approach, Reference List, Curriculum Vitae/Resumes of proposed researchers, and cost information, as described below.
2. Contact information such as e-mail addresses and telephone numbers for both the Principal Investigator and Institutional Representative to allow technical and contracting questions to be addressed.
3. Institutional endorsement, signature of the proposed Principal Investigator, time frames for all phases of the project, and detailed accounts of proposed work and cost by task.

4. Provide the name, address, and phone number of Applicant's cognizant Defense Contract Audit Agency (DCAA) office, if known. All Applicants must be registered in the System for Award Management (SAM) before an award can be made. Applicants must also provide their DUNS number (Duns and Bradstreet Data Universal Numbering System).

Proposals should be very well written, and Applicant's intention should be clear to technical reviewers who, while having expertise in behavioral sciences, may lack concentrated knowledge in the proposed domain. Proposals should be sufficiently detailed to be responsive to the criteria, described below, for evaluation.

Proposal Format and Content: To ensure all proposals receive proper consideration, the Government-recommended proposal format shown below (Volume I Technical) should be followed. This format can most easily be incorporated as the proposal table of contents and serves as a final checklist as well. Proposals must address at least one of the domains for basic or applied/advanced research cited in SECTION A of this BAA.

Proposal documents (excluding illustrations, tables, and required forms) must use the following page format:

- Page Size – 8 ½ x 11 inches
- Margins – 1 inch
- Spacing – single
- Font – Times New Roman, 12 point

Note: The Abstract, Background, Application Potential and Technical Approach sections of a proposal, including any appendices, tables, or figures, must be no greater than 23 pages in length. (The cover page, table of contents, proposal reference list, curriculum vitae, cost information and institutional information are not included in the 23-page limit). **Reviewers will not review any pages beyond the 23-page limit.**

VOLUME I – TECHNICAL

- i Cover Page
- ii Table of Contents
- iii Abstract
 1. Background
 2. Application Potential
 3. Technical Approach
 4. Reference List
 5. Curriculum Vitae/Resumes of Key Personnel

i. Cover Page: A cover page is required. Proposals will not be processed without:

A SF 424 R&R Form (required for assistance agreement proposals submitted online via Grants.gov (see section 7- Submission of Proposals)).

Note: If an Applicant elects to submit a contract proposal via Grants.gov instead of via

e-mail, the SF 424 R&R Form is required. Proposals for Grants or cooperative agreements only require the SF 424 R&R Form.

The cover page should include the BAA number, Research Area(s) of Interest, name and telephone number for the principal points of contact (both technical and contractual), proposed project title, and any other information that identifies the proposal. The cover page should also contain the proprietary data disclosure statement, if applicable (ARO FORM 52 or 52A). The title of the proposed project should be brief, scientifically representative, intelligible to a scientifically literate reader, and suitable for use in the public domain. Should the project be carried out at a branch campus or other component of the submitting organization, that branch campus or component should be identified in the space provided (Block 12 on the SF 424 R&R).

To evaluate compliance with Title IX of the Education Amendments of 1972 {20 U.S.C. A§ 1681 Et. Seq.}, the Department of Defense is collecting certain demographic and career information to be able to assess the success rates of women who are proposed for key roles in applications in STEM disciplines. To enable this assessment, each application must include the following forms completed as indicated.

Research and Related Senior/Key Person Profile (Expanded) form:

The Degree Type and Degree Year fields on the Research and Related Senior/Key Person Profile {Expanded} form will be used by DoD as the source for career information. In addition to the required fields on the form, applicants must complete these two fields for all individuals that are identified as having the project role of PD/PI or Co-PD/PI on the form. Additional senior/key persons can be added by selecting the "Next Person" button.

Research and Related Personal Data form:

This form will be used by DoD as the source of demographic information, such as gender, race, ethnicity, and disability information for the Project Director/Principal Investigator and all other persons identified as Co-Project Director(s)/Co-Principal Investigator(s). Each application must include this form with the name fields of the Project Director/Principal Investigator and any Co-Project Director(s)/Co-Principal Investigator(s) completed; however, provision of the demographic information in the form is voluntary. If completing the form for multiple individuals, each Co-Project Director/Co-Principal Investigator can be added by selecting the "Next Person" button. The demographic information, if provided, will be used for statistical purposes only and will not be made available to merit reviewers. Applicants who do not wish to provide some or all of the information should check or select the "Do not wish to provide" option.

The proposed duration for which support is requested should be consistent with the nature and complexity of the proposed activity and associated budget. The Federal awarding agency reserves the right to make awards with shorter or longer periods of performance. Specification of a desired starting date for the project is important and helpful. However, requested effective dates cannot be guaranteed.

Pursuant to 31 U.S.C. 7701, as amended by the Debt Collection Improvement Act of 1996 [Section 31001(I)(1), Public Law 104-134], Federal agencies shall obtain each awardee's

Taxpayer Identification Number (TIN). This number may be the Employer Identification Number (EIN) for a business or non-profit entity or the Social Security Number for an individual. The TIN is being obtained for purposes of collecting and reporting on any delinquent amounts that may arise out of an awardee's relationship with the Government. Applicants must provide their organization's Data Universal Numbering System (DUNS) number. The DUNS number is a nine-digit number assigned by Dun and Bradstreet Information Services.

Applicants must provide their assigned Commercial and Government Entity (CAGE) code. The CAGE code is a 5-character code assigned and maintained by the Defense Logistics Service Center (DLSC) to identify a commercial plant or establishment.

ii. Table of Contents: It is highly recommended that the Applicant follow the above table of contents (Volume I, "Technical") and use it for a final quality-control checklist.

iii. Abstract: The abstract allows the Applicant to present briefly and concisely the important aspects of its proposal. It should summarize the proposed research objectives, expectations, and the basic approaches to be used in the proposed effort. The abstract must identify implications for applied research if the project is successful. The abstract should be 250 words or less. Abstracts longer than 250 words will not be read.

1. Background: This section should describe the research problem, discuss relevant theory, and summarize existing research. It is important that the proposal identify specific, relevant hypotheses following discussion of theory. When integrating theories or research domains, an overarching framework supporting such integration should be described. When appropriate, a graphic depiction of the conceptual model and hypotheses may be provided.

2. Technical Approach: The technical approach should follow and expand upon the background section and provide a detailed description of the proposed research. This account should be much like the methods section of a research paper. The technical approach should include: a description of the data to be collected, the methods for collecting the data, the number and source of participants (e.g., using power analysis) and how they will be acquired, the research design, the measures to be used, and the analysis plan. Proposals for secondary research (e.g., meta-analyses) should provide estimates of the likely number of primary studies and/or effects available in the research literature for analysis. If the intermediate or final product of research will include training packages, simulation models, or other software-based device, the proposal should relate the product to the research hypotheses and provide sufficient detail to permit understanding and evaluation.

The technical approach should detail and set a schedule for the major tasks to be performed and products to be produced. In the case of a one-year proposal, the research plan should be divided by quarters of the year. In the case of multi-year proposals, it should be divided semi-annually or by major tasks within a year. The technical approach should specifically identify what tasks will be performed by which party and why each subcontractor, if any, was selected to perform its task(s).

3. Technical Discussion: No technical approach is without its limitations or shortcomings. Every issue should be identified and compared with the successes/failures of previous approaches. A trade-off analysis is a good way to make this comparison and should be supported by theory, simulation, modeling, experimental data, or other sound engineering and scientific practices. If the Offeror has a "new and creative" solution to the problem(s), that solution should be developed and analyzed in this section. The preferred technical approach should be described in as much detail as is necessary or useful to establish confidence in the approach. The technical discussion should include the following:

- A complete discussion stating the background and objectives of the proposed work, the scientific approaches to be considered, the relationship to competing or related research, and the level of effort to be employed; include the nature and extent of the anticipated results and how they will significantly advance the scientific state-of-the-art; if known, include the manner in which the work will contribute to the accomplishment of the Army's mission; ensure the proposal identifies any scientific uncertainties and describes specific approaches for the resolution of the uncertainties
- A brief description of your organization
- The names of other Government agencies or other parties receiving the proposal and/or funding the proposed effort (if none, so state); concurrent or later submission of the proposal to other organizations will not prejudice its review by ARI if we are kept informed of the situation
- A statement regarding possible impact, if any, of the proposed effort on the environment considering as a minimum its effect upon water, atmosphere, natural resources, human resources, and any other values
- The Offeror shall provide a statement regarding the use of Class I and Class II ozone-depleting substances. Ozone-depleting substances mean any substance designated as Class I by the Environmental Protection Agency (EPA), including but not limited to chlorofluorocarbons, halons, carbon tetrachloride, and methyl chloroform and any substance designated as Class II by EPA, including but not limited to hydrochlorofluorocarbons. See 40 C.F.R. Part 82 for detailed information. If Class I or II substances are to be utilized, a list shall be provided as part of the Offeror's proposal. If none, so state.
- Requested support (if any) in the following areas: facilities, equipment, and materials.

4. Reference List: All cited references must be listed. Do not include publications that are not referenced. The references list must be in American Psychological Association format, APA 6th Edition.

5. Curriculum Vitae/Resumes of Key Personnel: Curriculum vitae or résumés should be included for all proposed researchers with special emphasis on the Principal Investigator, Co-

Principal Investigator(s), and Consultants; documents are limited to five (5) pages per investigator to include name, brief biography, and list of recent, relevant publications.

VOLUME II – COST

The cost volume shall justify the need for and amount of major direct expense categories, including (but not limited to) labor, equipment, and travel. The cost estimate for the proposed effort should sufficiently detail elements of cost and the need for these items to allow for meaningful evaluation. The cost volume should clearly and closely align with the planned methodology presented in the technical approach section. A cost estimate should be detailed for each task of the proposed work and should include the following:

- a. A complete detail of direct labor to include, by category, labor hours and rates
- b. Fringe benefits rate and base
- c. An itemized list of equipment showing cost of each item and justification for inclusion
- d. Description and cost of expendable supplies
- e. Complete detail of travel to include number of people and duration of travel, reason/need for travel, destination, airfare, per diem, rental car, etc. Note that in recent years, travel costs for one conference per year to present work from the funded research effort has been a typical request
- f. Complete detail of any subcontracts to include labor categories, skill levels, and labor rates and hours
- g. Other direct costs (reproduction, computer, etc.)
- h. Indirect cost rates and bases with an indication whether rates are fixed or provisional and the time frame to which they are applied
- i. Proposed fee, if any and if applicable
- j. Cost sharing, if any and if applicable
- k. Any documentation which supports all items above
- l. Applicants should furnish the name and telephone number of their cognizant audit agency

COST PROPOSAL PREPARATION:

1. Cost Reimbursement or Fixed Price Award: Selection of the type of award (cost reimbursement or fixed price) is based upon various factors, such as (1) award instrument selected, (2) type of research to be performed, (3) the contractor's experience maintaining cost records, and (4) the ability to detail and allocate proposed costs and performance of the work. Cost-type awards are most commonly used because of their suitability in supporting research and development efforts as they permit some flexibility in the redirection of efforts due to recent research experiment results or changes in Army guidance. Fixed-price-type awards are used when the research project costs can be estimated accurately, the services to be rendered are reasonably definite, and the amount of property, if any, is fixed. The negotiated price is not subject to any adjustment on the basis of the Applicant's cost experience in performing the contract. An Applicant may propose either cost-reimbursable or fixed-price contract arrangements as well as assistance awards but the award type may vary in accordance with relevant factors as determined by ARI and ACC (APG) RTP Division. Grants and Cooperative Agreement awards will be cost reimbursable without profit or fee.

2. Cost Proposal Content: A proposal should represent an Applicant's best response to the solicitation, including cost information. Any inconsistency, whether real or apparent, between promised performance and cost or price data must be fully explained in the proposal. Failure to explain any significant inconsistencies may demonstrate an Applicant's lack of understanding of the nature and scope of the work required. Accordingly, the cost volume must be sufficient to establish the reasonableness, realism, and completeness of the proposed cost/price. Further, any modifications made to the initial proposal resulting in a change in the cost volume must likewise be thoroughly supported in writing regardless of whether such changes are made during negotiations or at the time of a proposal revision. The estimate should be detailed for each task of the proposed work. The cost volume should be limited to the minimum number of pages necessary to satisfy the specific requirements set forth herein. Submission of volumes of computer-generated data to support the cost volume is not necessary or desired. If computer-generated data is essential to support the cost volume, it may be submitted as an addendum and must be clearly cross-referenced to the material it supports in the cost volume.

Each proposal must contain a budget for each year of support requested and a cumulative budget for the full term of requested support. The proposal may list funds under any of the categories listed so long as the item is considered necessary to perform the proposed work and is not precluded by applicable cost principles. In addition to the forms, the budget should include no more than five (5) pages of budget justification narrative for each year.

A signed summary budget page must be included. The documentation pages should be titled "Budget Explanation Page" and numbered chronologically starting with the budget form. The need for each cost element should be explained clearly.

All cost data must be current and complete. Costs proposed must conform to the following principles and procedures:

Before award it must be established that an approved accounting system and financial management system exist for an Applicant.

The following specific information is required:

1. Summary by cost element and profit or fee for total proposal (**Note: Profit/Fee not allowed for grants, cooperative agreements, or technology investment agreements for the prime recipient of the award or any subrecipients**)
2. Labor summary for total proposal by labor categories, proposed hours per labor category, and hourly rates per labor category
3. Explanation of how labor rates are computed including base rates (actuals), fringe, and escalation, if any
4. Interdivisional transfers (detailed breakout of costs), if applicable

5. Identification of indirect rates by fiscal year and explanation of how established and base to which they apply
 6. Bill of materials detailing items by type, quantity, unit price, total amount, and source of estimate (provide vendor written quotes)
 7. Summary of all travel by destination, purpose, number of people and days, air fare, per diem, car rental, etc.
 8. Consultant(s) by name, hourly rate, and number of hours (furnish copy of consulting agreement and identify prior agreement(s) under which the consultant commanded proposed rate)
 9. Computer use by type, rate, and quantity
 10. Other direct costs by type, amount, cost per unit, and purpose (specifically identify any costs for printing or publication)
 11. DD Form 1861 (if proposing facilities capital cost of money)
 12. Forecast of monthly and cumulative dollar commitments for the proposed performance period
 13. Subcontractor's proposal, with prime Applicant's price/cost analysis of subcontractor's proposal (if subcontract was not competed, include justification)
3. Subawardee Cost Proposals: Subawardees' cost proposals must be similarly structured. All subcontracted work must be properly identified as such. If a subcontractor elects to submit an abbreviated proposal to an Applicant, it is Applicant's responsibility to see that the subcontractor simultaneously submits a complete detailed proposal properly identified directly to the Government Contracting or Grants Officer. An Applicant's proposal must:
1. Identify principal items/services to be subcontracted
 2. Identify prospective subcontractors and the basis on which they were selected (if non-competitive, provide selected source justification)
 3. Identify the type of contractual arrangement contemplated for each subcontract and the rationale for the same
 4. Identify the cost or pricing data or information other than cost or pricing data submitted by each subcontractor
 5. Provide an analysis concerning the reasonableness, realism, and completeness of each subcontractor's proposal; if the analysis is based on a comparison with prior research

efforts, identify the basis on which the prior costs or prices were determined to be reasonable

Section 6 – Submission of Proposals

Proposals must be submitted through the Applicant's organizational office having responsibility for Government business relations. The proposal must contain the signature of an authorized official. All signatures must be that of an official(s) authorized to commit the organization in business and financial affairs. The cover of the proposal should be marked with the BAA Solicitation Number W911NF-18-S-0005 (ATTN: Maria D. Nelson) along with the name of the basic research scientific area of interest(s) (see Section A of this BAA). Applicants are requested to provide their e-mail addresses upon submission of a proposal and also the name, address, and telephone number of their cognizant Defense Contract Audit Agency (DCAA) office, if known.

Proposals for Contracts, TIAs, OTAs may be submitted via e-mail or online via Grants.gov. Proposals for Grants or cooperative agreements (assistance) MUST be submitted online via Grants.gov. Further, a copy of any proposal submitted must also be furnished to the cognizant ARI Manager listed in Section A.

CONTRACT, TIA, OTA PROPOSAL SUBMISSION:

Proposals for contracts may be e-mailed directly to usarmy.rtp.aro.mbx.baa@mail.mil or submitted online via Grants.gov, <http://Grants.gov>. Please also send a courtesy copy of the proposal to cognizant ARI Manager listed in Section A.

- a. Proposals for contracts (only) may be e-mailed directly to usarmy.rtp.aro.mbx.baa@mail.mil. Please e-mail a courtesy copy of full proposals to [cognizant ARI Manager listed in Section A](#). **All submissions must include “ARI BAA W911NF-18-S-0005” in the subject line.**

All e-mailed proposals must contain the information outlined in Section D, 2 (Section 5- Preparation of Proposals) including all the electronic forms.

- b. All forms requiring signature must be completed, printed, signed, and scanned into a PDF document. All documents must be combined into a single PDF formatted file to be attached to the e-mail.

Proposals are to be provided in electronic MS Word or Adobe PDF format. The proposal must include the complete technical and cost volumes of the proposal. Electronic versions of the technical and cost volumes must be combined into one electronic file. The proposal must include the signature of the authorized institutional representative. If the electronic version does not include a signature from the appropriate representative of the Applicant, the Government Procurement Contracting Officer must be provided a signed and dated copy prior to award if selected.

GRANT AND COOPERATIVE AGREEMENT PROPOSAL SUBMISSION:

- a. GRANTS.GOV SUBMISSION (mandatory submission portal for grant and cooperative agreement proposals; optional submission portal for contract proposals). Please e-mail a courtesy copy of proposals to cognizant ARI Manager listed in Section A. Grants.gov registration (see Section 8) must be accomplished prior to application through this process.

Note: All web links referenced in this section are subject to change by Grants.gov and may not be updated here.

Specific forms are required for submission of a proposal. The forms are contained in the Application Package available through the Grants.gov application process. To access these materials, go to <http://www.grants.gov>, select "Apply for Grants," and then select "Get Application Package." A Grant Application Package and Application Instructions are available through the Grants.Gov Apply portal under CFDA Number 12.630/Funding Opportunity Number W911NF-18-S-0005. Select "Apply" and then "Apply Now Using Workspace."

- b. Specific forms are required for submission of a proposal via Grants.gov. The forms are contained in the Application Package available through the Grants.gov application process. The following documents are mandatory: (1) Application for Federal Assistance (Research and Related) (SF 424 (R&R)(Expanded)), Research & Related Personal Data and (3) Attachments Form.
- (1) The SF 424 (R&R) Form is to be used as the cover page for all proposals. Authorized Organization Representative (AOR) usernames and passwords serve as "electronic signatures" when your organization submits applications through Grants.gov. By using the SF 424 (R&R), Applicants are providing the certification required by 32 CFR Part 28 regarding lobbying. The SF 424 (R&R) must be fully completed. Block 11, "Descriptive Title of Applicant's Project," must reference the research topic area(s) being addressed in the effort by identifying the specific paragraph from Section A of this BAA (one or more of the research "domains")
 - (2) The Attachments Form must contain the information outlined in Section D, 2 (Section 5- Preparation of Complete Research Proposals) and the ARO Form 52 or ARO Form 52a, Disclosure Statement Form.

The fillable PDF forms may be saved to a working directory on a computer and opened and filled in using the latest compatible Adobe Reader software application recommended per the Grants.gov website.

- (3) All documents must be combined into a single PDF formatted file titled “W911NF-18-S-0005 Proposal” and uploaded into the mandatory Attachments Form.
- (4) If you encounter any problems, contact customer support at 1-800-518-4726 or at support@Grants.gov.
- (5) As it is possible for Grants.gov to reject the proposal during this process, it is strongly recommended that proposals be uploaded at least two calendar days before any deadlines established in the BAA so that they will not be received late and be ineligible for award consideration. It is also recommended to start uploading proposals at least two calendar days before the deadline to plan ahead for any potential technical and/or input problems involving the applicant’s own equipment.

Section 7 – Grants.Gov Registration

Each organization or individual that desires to submit applications via Grants.Gov must complete a one-time registration. There are several one-time actions your organization or individual must complete in order to submit applications through Grants.gov (e.g., obtain a Dun and Bradstreet Data Universal Numbering System (DUNS) number, register with the System for Award Management (SAM), register with the credential provider, register with Grants.gov, and obtain approval for an Authorized Organization Representative (AOR) to submit applications on behalf of the organization).

To register, please see the ‘Applicants’ link from the Grants.gov homepage.

Please note the registration process for an organization or an individual can take between three to five business days or as long as four weeks if all steps are not completed in a timely manner.

Questions relating to the registration process, system requirements, how an application form works, or the submittal process should be directed to Grants.gov at 1-800-518-4726 or support@Grants.gov.

3. Unique Entity Identifier and System for Award Management (SAM):

Each applicant (unless the applicant is an individual or Federal agency that is exempt from those requirements under 2 CFR 25.110(b) or (c), or has an exception approved by the agency under 2 CFR 25.110(d)) is required to: (i) Be registered in the System for Award Management (SAM) <https://www.sam.gov> prior to submitting its application; (ii) provide a valid DUNS number in its application; and (iii) continue to maintain an active SAM registration with current information at all times during which it has an active Federal award or an application or plan under consideration by an agency. An award will not be made to an applicant until the applicant has complied with all applicable DUNS (call 1-866-705-5711 toll free or visit <http://fedgov.dnb.com/webform>) and SAM requirements.

4. Submission Dates and Times:

Proposals will be accepted via the methods noted previously through **11:59 PM Eastern Daylight Time on 29 April 2023.**

It is the Applicant's responsibility to assure that a proposal submission is received by the respective date and time specified above. If your proposal submission is not received at the initial point of entry to the Government (received through web based system, e-mail or post-marked if applicable) by the exact date and time specified above, it will be determined late and will not be evaluated. The submission of a courtesy copy of a proposal sent to the cognizant ARI Manager listed in Section A does not fulfill the timeliness requirement.

5. Intergovernmental Review:

Not Applicable

6. Funding Restrictions:

There are no funding restrictions associated with this BAA.

7. Other Submission Requirements:

Information to be Requested from Successful Applicants: Applicants whose proposals are accepted for funding will be contacted before award to provide additional information required for award. The required information is normally limited to clarifying budget explanations, representations, certifications, and some technical aspects.

For Contracts Only- Performance Work Statements (PWS): Prior to award, the Contracting Officer may request that the contractor submit a PWS for the effort to be performed, which will be incorporated into the contract at the time of award.

E. APPLICATION REVIEW INFORMATION:

1. Criteria: White Papers and Proposals will initially be evaluated as to whether they constitute basic, applied, or advanced technology development research.

Basic research is defined as systematic study directed toward greater knowledge or understanding of the fundamental aspects of phenomena and of observable facts without specific application of processes or products in mind, whereas applied research provides a systematic expansion and application of knowledge to design and develop useful strategies, techniques, methods, tests, or measures that provide the means to meet a recognized and specific Army need. Advanced Technology Development program includes the development of technologies, components, or prototypes that can be tested in field experiments and/or simulated environments. Projects in this category have a direct relevance to identified military needs. These projects should demonstrate the general military utility or cost reduction potential of technology in the

areas of personnel selection, assignment, and retention; advanced data analytics and models applied to talent management; development of higher-order competencies for Soldiers and Leaders; holistic assessment of unit readiness; and team and unit mission effectiveness. These projects should be focused on a more direct operational benefit and, if successful, the technology should be available for transition.

White Papers and Proposals received in response to this BAA will be evaluated by scientific peers internal, and possibly external to the Army, using the following criteria. ARI may solicit input on technical aspects of proposals from non-Government consultants/experts who are strictly bound by non-disclosure requirements. Criterion (a) is most important; the other criteria are of equal importance to one another:

- (a) The overall scientific and/or technical merits of the proposed research;
- (b) The potential contributions to ARI's mission;
- (c) Applicants capabilities, related experience, facilities, techniques, or unique combinations of these which are integral factors for achieving the proposed objectives;
- (d) The qualifications, capabilities, and experience of the proposed principal investigator and other key personnel who are critical to achievement of the proposed objectives;
- (e) Applicants' record of past performance;
- (f) Reasonableness, realism, and affordability of proposed costs;
- (g) Current and/or future relationship or interface with ongoing activities in academia and/or industry to the referenced solicitation for review.

Each criterion, as well as the overall White Paper or Proposal, will rated based on the definitions shown below:

Technical Assessment Ratings	
Adjectival Rating	Definition
Outstanding	Proposal meets requirements and indicates an exceptional approach and understanding of the requirements. Strengths far outweigh any weaknesses. Risk of unsuccessful performance is very low.
Good	Proposal meets requirements and indicates a thorough approach and understanding of the requirements. Proposal contains strengths which outweigh any weaknesses. Risk of unsuccessful performance is low.
Acceptable	Proposal meets requirements and indicates an adequate approach and understanding of the requirements. Strengths and weaknesses are offsetting or will have little or no impact

	on contract performance. Risk of unsuccessful performance is no worse than moderate.
Marginal	Proposal does not clearly meet requirements and has not demonstrated an adequate approach and understanding of the requirements. The proposal has one or more weaknesses which are not offset by strengths. Risk of unsuccessful contract performance is high.
Unacceptable	Proposal does not meet requirements and contains one or more deficiencies and is not awardable.

2. Review and Selection Process:

- a. All White Papers and Proposals are treated as privileged information prior to award and the contents are disclosed to Government employees or designated support contractors only for the purpose of evaluation. The Applicant must indicate on the appropriate proposal form or in the proposal any limitation to be placed on disclosure of information contained in the proposal form (ARO Form 52 or 52A) any limitation to be placed on disclosure of information contained in the proposal to non-Government evaluators.
- b. All White Papers and Proposals will be evaluated based on the merit and relevance of the specific R&D proposed as it relates to the overall ARI research program, rather than against other proposals in the same general area.
- c. In accordance with OMB guidance in 200 of Title 2, CFR, it is DoD policy that DoD Components must report and use integrity and performance information in the Federal Awardee Performance and Integrity Information System (FAPIS), or any successor system designated by OMB, concerning Grants, Cooperative Agreements, and TIAs.

If the total Federal share will be greater than the Simplified Acquisition Threshold on any Federal award under a notice of funding opportunity (see §200.88 Simplified Acquisition Threshold):

- a. The Federal awarding agency, prior to making a Federal award with a total amount of Federal share greater than the Simplified Acquisition Threshold, will review and consider any information about the applicant that is in the designated integrity and performance system accessible through the System for Award Management (SAM) (currently FAPIS) (see 41 U.S.C. 2313);
- b. An Applicant, at its option, may review information in the designated integrity and performance systems accessible through SAM and comment on any information about itself that a Federal awarding agency previously entered and is currently in the designated integrity and performance system accessible through SAM;
- c. The Federal awarding agency will consider any comments by the Applicant, in addition to the other information in the designated integrity and performance system, in making a

judgment about the Applicant's integrity, business ethics, and record of performance under Federal awards when completing the review of risk posed by the Applicant.

If the total value of your currently active grants, cooperative agreements, and procurement contracts from all Federal awarding agencies exceeds \$10,000,000.00 for any period of time during the period of performance of this Federal award, then you as the recipient during that period of time must maintain the currency of information reported to the System for Award Management (SAM) that is made available in the designated integrity and performance system (currently the Federal Awardee Performance and Integrity Information System (FAPIIS)) about civil, criminal, or administrative proceedings described in paragraph 2 of this award term and condition.

F. AWARD ADMINISTRATION INFORMATION:

1. Award Notices:

An Applicant whose proposal is recommended for award will be contacted by a Government Contract/Grant Specialist to discuss any additional information required for award. Additional information required may include representations and certifications, revised budgets or budget explanations, certificate of current cost or pricing data, subcontracting plan for small businesses, and other information as applicable to the proposed award. The anticipated award start date will be determined at this time. The appropriate award document, when signed by the Government Contracting/Grants Officer, is the authorizing award document.

2. Administrative and National Policy Requirements:

a. Required Representations and Certifications:

i. Contract Proposals:

(1) Representations and certifications shall be completed by successful applicants prior to award. FAR Online Representations and Certifications are to be completed through SAM at <https://www.SAM.gov>. As appropriate, DFARS and contract-specific certification packages will be provided to the contractor for completion prior to award.

(2) FAR 52.203-18, PROHIBITION ON CONTRACTING WITH ENTITIES THAT REQUIRE CERTAIN CONFIDENTIALITY AGREEMENTS OR STATEMENTS—REPRESENTATION (JAN 2017)

(a) Definition. As used in this provision--

“Internal confidentiality agreement or statement”, “subcontract”, and “subcontractor”, are defined in the clause at 52.203-19, Prohibition on Requiring Certain Internal Confidentiality Agreements or Statements.

(b) In accordance with section 743 of Division E, Title VII, of the Consolidated and Further Continuing Appropriations Act, 2015 (Pub. L. 113-235) and its successor provisions in subsequent appropriations acts (and as extended in continuing resolutions), Government agencies are not permitted to use funds appropriated (or otherwise made available) for contracts with an entity that requires employees or subcontractors of such entity seeking to report waste, fraud, or abuse to sign internal confidentiality agreements or statements prohibiting or otherwise restricting such employees or subcontractors from lawfully reporting such waste, fraud, or abuse to a designated investigative or law enforcement representative of a Federal department or agency authorized to receive such information.

(c) The prohibition in paragraph (b) of this provision does not contravene requirements applicable to SF 312, (Classified Information Nondisclosure Agreement), Form 4414 (Sensitive Compartmented Information Nondisclosure Agreement), or any other form issued by a Federal department or agency governing the nondisclosure of classified information.

(d) Representation. By submission of its offer, the applicant represents that it will not require its employees or subcontractors to sign or comply with internal confidentiality agreements or statements prohibiting or otherwise restricting such employees or subcontractors from lawfully reporting waste, fraud, or abuse related to the performance of a Government contract to a designated investigative or law enforcement representative of a Federal department or agency authorized to receive such information (e.g., agency Office of the Inspector General).

(3) FAR 52.209-11, REPRESENTATION BY CORPORATIONS REGARDING
DELINQUENT TAX LIABILITY OR A FELONY CONVICTION UNDER FEDERAL LAW
(FEB 2016)

As required by sections 744 and 745 of Division E of the Consolidated and Further Continuing Appropriations Act, 2015 (Pub. L 113-235), and similar provisions, if contained in subsequent appropriations acts, the Government will not enter into a contract with any corporation that--

Has any unpaid Federal tax liability that has been assessed, for which all judicial and administrative remedies have been exhausted or have lapsed, and that is not being paid in a timely manner pursuant to an agreement with the authority responsible for collecting the tax liability, where the awarding agency is aware of the unpaid tax liability, unless an agency has considered suspension or debarment of the corporation and made a determination that suspension or debarment is not necessary to protect the interests of the Government; or

Was convicted of a felony criminal violation under any Federal law within the preceding 24 months, where the awarding agency is aware of the conviction, unless an agency has considered suspension or debarment of the corporation and made a determination that this action is not necessary to protect the interests of the Government.

The applicant represents that—

It is ☐ is not ☐ a corporation that has any unpaid Federal tax liability that has been assessed, for which all judicial and administrative remedies have been exhausted or have lapsed, and that is not being paid in a timely manner pursuant to an agreement with the authority responsible for collecting the tax liability; and

It is ☐ is not ☐ a corporation that was convicted of a felony criminal violation under a Federal law within the preceding 24 months.

ii. Grant and Cooperative Agreement Proposals:

(1) Grant awards greater than \$100,000.00 require a certification of compliance with a national policy mandate concerning lobbying. Statutes and Government-wide regulations require the certification to be submitted prior to award. When submitting your grant through Grants.gov, by completing blocks 18 and 19 of the SF 424 (R&R) Form, the grant applicant is providing the certification on lobbying required by 32 CFR Part 28; otherwise a copy signed by the AOR must be provided. Below is the required certification:

CERTIFICATION AT APPENDIX A TO 32 CFR PART 28 REGARDING
LOBBYING: Certification for Contracts, Grants, Loans, and Cooperative Agreements the undersigned certifies, to the best of his or her knowledge and belief, that:

(1) No Federal appropriated funds have been paid or will be paid, by or on behalf of the undersigned, 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 this Federal contract, grant, loan, or cooperative agreement, the undersigned shall complete and submit SF-LLL, "Disclosure Form to Report Lobbying," in accordance with its instructions.

(3) The undersigned 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 31 U.S.C. 1352. Any person who fails to file the required certification shall be subject to a civil penalty of not less than \$10,000.00 and not more than \$100,000.00 for each such failure.

(2) In accordance with Continuing Appropriations Act, 2017 (Pub. L. 114-223), or any other Act that extends to fiscal year (FY) 2018 funds the same prohibitions as contained in section 743, division E, title VII, of the Consolidated Appropriations Act, 2016 (Pub. L. 114-113), none of the funds appropriated or otherwise made available by that or any other Act may be made available for a grant or cooperative agreement with an entity that requires its employees or contractors seeking to report fraud, waste, or abuse to sign internal confidentiality agreements or statements prohibiting or otherwise restricting those employees or contractors from lawfully reporting that waste, fraud, or abuse to a designated investigative or law enforcement representative of a Federal department or agency authorized to receive the information.

PROHIBITION ON CONTRACTING WITH ENTITIES THAT REQUIRED CERTAIN INTERNAL CONFIDENTIALITY AGREEMENTS – REPRESENTATION

Agreement with the representation below will be affirmed by checking the “I agree” box in block 17 of the SF424 (R&R) as part of the electronic proposal submitted via Grants.gov. The representation reads as follows:

By submission of its proposal or application, the applicant represents that it does not require any of its employees, contractors, or subrecipients seeking to report fraud, waste, or abuse to sign or comply with internal confidentiality agreements or statements prohibiting or otherwise restricting those employees, contractors, subrecipients from lawfully reporting that waste, fraud, or abuse to a designated investigative or law enforcement representative of a Federal department or agency authorized to receive such information.

*Note that: Section 743 states that it does not contravene requirements applicable to SF 312, Form 4414, or any other form issued by a Federal department or agency governing the nondisclosure of classified information.

(3) Recipients are required to submit the following representation with the application package IAW the instructions at Section D of this BAA:

REPRESENTATIONS UNDER DOD ASSISTANCE AGREEMENTS: APPROPRIATIONS PROVISIONS ON TAX DELINQUENCY AND FELONY CONVICTIONS

The applicant is () is not () a “Corporation” meaning any entity, including any institution of higher education, other nonprofit organization, or for-profit entity that has filed articles of incorporation.

If the applicant is a “Corporation” please complete the following representations:

(a) The applicant represents that it is () is not () a corporation that has any unpaid Federal tax liability that has been assessed, for which all judicial and administrative remedies have been exhausted or have lapsed, and that is not being paid in a timely manner pursuant to an agreement with the authority responsible for collecting the tax liability.

(b) The applicant represents that it is () is not () is not a corporation that was convicted of a criminal violation under any Federal law within the preceding 24 months.

NOTE: If an applicant responds in the affirmative to either of the above representations, the applicant is ineligible to receive an award unless the agency suspension and debarment official (SDO) has considered suspension or debarment and determined that further action is not required to protect the Government’s interests. The applicant therefore should provide information about its tax liability or conviction to the agency’s SDO as soon as it can do so, to facilitate completion of the required considerations before award decisions are made.

b. Policy Requirements:

The following list provides notable national policy requirements that may be applicable to an award. NOTE: The following is not an all-inclusive list of policy requirements. For assistance awards, refer to the DoD Research and Development General Terms and Conditions at <http://www.onr.navy.mil/Contracts-Grants/submit-proposal/grants-proposal/grants-termsconditions.aspx> for additional national policy requirements that may apply. For contract awards, appropriate Federal Acquisition Regulation (FAR) and/or Defense Federal Acquisition Regulation Supplement (DFARS) clauses will be added to award documents.

i. PROTECTION OF HUMAN SUBJECTS:

(1) Assistance Instruments:

The Recipient will not commence performance of research involving human subjects that is covered under 32 CFR Part 219, or that meets exemption criteria under 32 CFR 219.101(b), or expend funding on such effort, until and unless the conditions of either the following paragraph (c)(1) or (c)(2) have been met:

(a) The Recipient furnishes to the Human Research Protection Official (HRPO), with a copy to the Grants Officer, an assurance of compliance and IRB approval and receives notification from

the Contracting Officer that the HRPO has approved the assurance as appropriate for the research under the agreement, and also, that the HRPO has reviewed the protocol and accepted the IRB approval for compliance with the DoD component policies. The Recipient may furnish evidence of an existing assurance of compliance for acceptance by the HRPO, if an appropriate assurance has been approved in connection with previous research. The Recipient will notify the Grants Officer immediately of any suspensions or terminations of the assurance.

(b) The Recipient furnishes to the HRPO, with a copy to the Contracting Officer, a determination that the human research proposed meets exemption criteria in 32 CFR 219.101(b) and receives written notification from the Contracting Officer that the exemption is determined acceptable. The determination shall include citation of the exemption category under 32 CFR 219.101(b) and a rationale statement. In the event of a disagreement regarding the Recipient's furnished exemption determination, the HRPO retains final judgment on what research activities or classes of research are covered or are exempt under the agreement.

Note: If the Recipient has its own in-house human subjects IRB committee, it must be used **in addition** to the Army Research Institute (ARI) Institutional Review Board (IRB). The Recipient must submit the complete results of its in-house human use committee findings to the ARI Human Research Protection Official (HRPO) immediately upon their receipt and before actual research involving human subjects begins.

(2) Contracts: The appropriate FAR/DFARS clauses shall be added to the award.

ii. MILITARY RECRUITING:

(1) Assistance Instruments: This is to notify potential applicants that each grant or cooperative agreement awarded under this announcement to an institution of higher education must include the following term and condition:

(a) As a condition for receiving funds available to the DoD under this award, you agree that you are not an institution of higher education (as defined in 32 CFR part 216) that has a policy or practice that either prohibits, or in effect prevents:

(i) The Secretary of a Military Department from maintaining, establishing, or operating a unit of the Senior Reserve Officers Training Corps (ROTC)—in accordance with 10 U.S.C. 654 and other applicable Federal laws—at that institution (or any sub-element of that institution);

(ii) Any student at that institution (or any sub-element of that institution) from enrolling in a unit of the Senior ROTC at another institution of higher education.

(iii) The Secretary of a Military Department or Secretary of Homeland Security from gaining access to campuses, or access to students (who are 17 years of age or older) on campuses, for purposes of military recruiting in a manner that is at least equal in quality and scope to the access to campuses and to students that is provided to any other employer; or

(iv) Access by military recruiters for purposes of military recruiting to the names of students (who are 17 years of age or older and enrolled at that institution or any sub-element of that institution); their addresses, telephone listings, dates and places of birth, levels of education, academic majors, and degrees received; and the most recent educational institutions in which they were enrolled.

(b) If you are determined, using the procedures in 32 CFR part 216, to be such an institution of higher education during the period of performance of this award, we:

(i) Will cease all payments to you of DoD funds under this award and all other DoD grants and cooperative agreements; and

(ii) May suspend or terminate those awards unilaterally for material failure to comply with the award terms and conditions.

(2) Contracts: Each contract awarded under this announcement to an institution of higher education shall include the following clause: DFARS 252.209-7005, Military Recruiting on Campus.

iii. SUBCONTRACTING:

(1) Assistance Instruments: N/A

(2) Contracts: Pursuant to Section 8(d) of the Small Business Act (15 U.S.C. § 637(d)), it is the policy of the Government to enable small business and small disadvantaged business (SDB) concerns to be considered fairly as subcontractors. All other than U.S. small businesses proposing contracts expected to exceed \$700,000.00 and that have subcontracting possibilities are required to submit a subcontracting plan IAW FAR 19.702(a), and shall do so with their proposal.

Subcontracting plans are determined to be acceptable or unacceptable based on the criteria established at FAR 19.705-4, DFARS 219.705-4, and AFARS 5119.705-4. Goals are established on an individual contract basis and should result in realistic, challenging and attainable goals that, to the greatest extent possible, maximize small business participation in subcontracting for Small Business, SDB, Woman-Owned Small Business (WOSB), Economically-Disadvantaged Women-Owned Small Business (EDWOSB), Service-Disabled Veteran-Owned Small Business (SDVOSB), Veteran-Owned Small Business (VOSB), and Historically Underutilized Business Zone (HUBZone) Small Business consistent with applicants' make-or-buy policy, the pool of and availability of qualified and capable small business subcontractors, their performance on subcontracts, and existing relationships with suppliers.

Subcontracting goals should result in efficient contract performance in terms of cost, schedule, and performance and should not result in increased costs to the Government or undue administrative burden to the prime contractor. For reference, DoD Small Business Subcontracting Goals may be found at:

<http://www.acq.osd.mil/osbp/statistics/sbProgramGoals.shtml>.

iv. EXPORT CONTROL LAWS:

(1) Assistance Instruments: N/A

(2) Contracts: Applicants should be aware of current export control laws and are responsible for ensuring compliance with all International Traffic in Arms Regulation (ITAR) (22 CFR 120 et. Seq.) requirements, as applicable. In some cases, developmental items funded by the Department of Defense are now included on the United States Munition List (USML) and are therefore subject to ITAR jurisdiction. Applicants should address in their proposals whether ITAR restrictions apply or do not apply, such as in the case when research products would have both civil and military application, to the work they are proposing to perform for the Department of Defense. The USML is available online at <http://www.ecfr.gov/cgi-bin/textidx?node=pt22.1.121>. Additional information regarding the President's Export Control Reform Initiative can be found at <http://export.gov/ecr/index.asp>.

v. DRUG-FREE WORKPLACE:

(1) Assistance Instruments: The recipient must comply with drug-free workplace requirements in Subpart B of 2 CFR part 26, which is the DoD implementation of 41 U.S.C. chapter 81, "Drug-Free Workplace."

(2) Contracts: The appropriate FAR/DFARS clause(s) shall be added to the award.

vi. DEBARMENT AND SUSPENSION:

(1) Assistance Instruments: The recipient must comply with requirements regarding debarment and suspension in Subpart C of 2 CFR part 180, as adopted by DoD at 2 CFR part 1125. This includes requirements concerning the recipient's principals under an award, as well as requirements concerning the recipient's procurement transactions and subawards that are implemented in DoD Research and Development General Terms and Conditions PROC Articles I through III and SUB Article II.

(2) Contracts: The appropriate FAR/DFARS clause(s) shall be added to the award.

vii. REPORTING SUBAWARDS AND EXECUTIVE COMPENSATION:

(1) Assistance Instruments: The recipient must report information about subawards and executive compensation as specified in the award term in Appendix A to 2 CFR part 170, "Reporting subaward and executive compensation information," modified as follows:

(a) To accommodate any future designation of a different Government wide Web site for reporting subaward information, the Web site "http://www.fsrs.gov" cited in paragraphs a.2.i. and a.3 of the award provision is replaced by the phrase "http://www.fsrs.gov or successor OMB-designated Web site for reporting subaward information";

(b) To accommodate any future designation of a different Government wide Web site for reporting executive compensation information, the Web site “http://www.sam.gov” cited in paragraph b.2.i. of the award provision is replaced by the phrase “https://www.sam.gov or successor OMB-designated Web site for reporting information on total compensation”; and

(c) The reference to “Sec. ____ .210 of the attachment to OMB Circular A-133, “Audits of States, Local Governments, and Non-Profit Organizations” in paragraph e.3.ii of the award term is replaced by “2 CFR 200.330, as implemented in DoD Research and Development General Terms and Conditions SUB Article I of this award.”

(2) Contracts: The appropriate FAR/DFARS clause(s) shall be added to the award.

3. Reporting:

Reporting requirements, including number and types, will be specified in the award document. The reports shall be prepared and submitted in accordance with the procedures contained in the award document and mutually agreed upon before award. Reports and briefing material will also be required as appropriate to document progress in accomplishing program metrics. A final report that summarizes the project and tasks will be required at the conclusion of the performance period for the award.

a. Reporting and Meeting Requirements. In addition to other requirements that the award proposal may specify, all awards shall be held to the following reporting and meeting requirements:

- i. Kick-off meeting: A kick-off meeting will be scheduled within three (3) months of award.
- ii. Quarterly Progress Reports: Brief letter-style quarterly reports will be filed with the Contracting Officer’s Representative (COR), Grants Officer’s Representative (GOR) or Cooperative Agreement Manager (CAM) as applicable summarizing progress during the prior quarter, activities projected for the following quarter, challenges and difficulties encountered, status report on level of effort, and grant funds expended during the prior quarter, cumulative funds remaining, and anticipated expenses for the upcoming quarter.
- iii. Annual Interim Progress Review Briefing: Meeting to be conducted once a year at Ft. Belvoir or other location on a date to be determined.
- iv. Site Visit: at the discretion of the government, the COR/GOR or other ARI representative may make a site visit to location where research is being performed. Site visits will be coordinated and arranged with the Principal Investigator.
- v. Interim Progress Report(s): Interim reports will be required on a periodic basis for all multi-year awards. The proposed schedule of interim reports should conform to major tasks in the proposal.

- vi. Annual Research Summary: Research Summaries are due November 1st of each year, unless otherwise specified, while the award is in force. Formats for the written summary and briefing slides will be provided by ARI. A final research summary will be due in conjunction with the final report.
- vii. Bibliometrics Update: Complete bibliometric information related to research work are due November 1st of each year, unless otherwise specified, while the award is in force.
- viii. Final Project Review Meeting: A project close-out meeting will be scheduled in the final quarter of the award to review results and conclusions of the research effort.
- ix. Final Technical Report: Draft report is due no later than 2 months prior to end of award.
- x. Journal Articles, Book Chapters, and Book: request copy of journal article, book chapter, and/book simultaneous with final acceptance.
- xi. Data and Associated Files: Cleaned, de-identified data files in SPSS, SAS, or comma-delimited text formats along with associated syntax and dictionary files shall be provided on CD or DVD as appropriate with the final report.

b. Army Manpower Contractor Reporting:

For Contracts Only: The Office of the Assistant Secretary of the Army (Manpower & Reserve Affairs) operates and maintains a secure Army data collection site where the contractor will report ALL contractor manpower (including subcontractor manpower) required for performance of this contract. The contractor is required to completely fill in all the information in the format using the following web address: <https://cmra.army.mil/>. The required information includes: (1) Contracting Office, Contracting Officer, Contracting Officer's Technical Representative; (2) Contract number, including task and delivery order number; (3) Beginning and ending dates covered by reporting period; (4) Contractor name, address, phone number, e-mail address, identity of contractor employee entering data; (5) Estimated direct labor hours (including subcontractors); (6) Estimated direct labor dollars paid this reporting period (including subcontractors); (7) Total payments (including subcontractors); (8) Predominate Federal Service Code (FSC) reflecting services provided by contractor (and separate predominant FSC for each subcontractor if different); (9) Estimated data collection cost; (10) Organizational title associated with the Unit Identification Code (UIC) for the Army Requiring Activity (the Army Requiring Activity is responsible for providing the contractor with its UIC for the purposes of reporting this information); (11) Locations where contractor and subcontractors perform the work (specified by zip code in the United States and nearest city, country, when in an overseas location, using standardized nomenclature provided on website); (12) Presence of deployment or contingency contract language; and (13) Number of contractor and subcontractor employees deployed in theater this reporting period (by country). As part of its submission, the contractor will also provide the estimated total cost (if any) incurred to comply with this reporting requirement. The reporting period will be the period of performance not to exceed 12 months ending 30 September of each Government fiscal year and must be reported by 31 October of each calendar year. Contractors

may use a direct XML data transfer to the database server or fill in the fields on the website. The XML direct transfer is a format for transferring files from a contractor's systems to the secure web site without the need for separate data entries for each required data element at the web site. The specific formats for the XML direct transfer may be downloaded from the web site.

G. FEDERAL AWARD AGENCY CONTACTS:

Questions of a technical nature are to be directed to:

Primary Technical Points of Contact:

The technical points of contact (ARI Managers) for each area of interest (Section A) are identified as part of the description of that area and may be contacted as appropriate.

General Technical Points of Contact:

Dr. Martin Bink, (703) 545-2430, martin.l.bink2.civ@mail.mil
Ms. Darlene Brown, (703) 545-2335, darlene.brown59.civ@mail.mil

Questions of a business nature are to be directed to:

Ms. Maria D. Nelson, (919) 541-4992, maria.d.nelson.civ@mail.mil

Comments or questions submitted should be concise and to the point, eliminating any unnecessary verbiage. The e-mail subject line should cite "ARI BAA W911NF-18-S-0005." Additionally, the relevant part and paragraph of the BAA should be referenced.

H. OTHER INFORMATION:

Below are two (2) samples of the cost proposal informational requirements for a procurement contract or Grants, cooperative agreements, and TIAs.

CONTRACT PROPOSALS:

Cover sheet to include:

- (1) BAA number;
- (2) Technical area;
- (3) Lead Organization submitting proposal;
- (4) Type of business, selected among the following categories: "LARGE BUSINESS", "SMALL DISADVANTAGED BUSINESS", "OTHER SMALL BUSINESS", "HBCU", "MI", "OTHER EDUCATIONAL", OR "OTHER NON-PROFIT";

- (5) Contractor's reference number (if any);
- (6) Other team members (if applicable) and type of business for each;
- (7) Proposal title;
- (8) Technical point of contact to include: salutation, last name, first name, street address, city, state, zip code, telephone, fax (if available), electronic mail (if available);
- (9) Administrative point of contact to include: salutation, last name, first name, street address, city, state, zip code, telephone, fax (if available), and electronic mail (if available);
- (10) Award instrument requested: cost-plus-fixed-fee (CPFF), cost-contract—no fee, cost sharing contract – no fee, or other type of procurement contract (specify).
- (11) Place(s) and period(s) of performance;
- (12) Total proposed cost separated by basic award and option(s) (if any);
- (13) Name, address, and telephone number of the proposer's cognizant Defense Contract Management Agency (DCMA) administration office (if known);
- (14) Name, address, and telephone number of the proposer's cognizant Defense Contract Audit Agency (DCAA) audit office (if known);
- (15) Date proposal was prepared;
- (16) DUNS number;
- (17) TIN number; and
- (18) CAGE Code;
- (19) Subcontractor information; and
- (20) Proposal validity period
- (21) Any Forward Pricing Rate Agreement, other such approved rate information, or such other documentation that may assist in expediting negotiations (if available)

I. Reasoning for Submitting a Strong Cost Proposal:

The ultimate responsibility of the Contracting Officer is to ensure that all prices/costs offered in a proposal are fair and reasonable before contract award [FAR 15.4]. To establish the reasonableness of the offered prices/costs, the Contracting Officer may ask an Applicant to

provide various supporting documentation that assists in this determination. The Applicant's ability to be responsive to the Contracting Officer's requests can expedite the award process. As specified in Section 808 of Public Law 105-261, an Applicant who does not comply with a requirement to submit information for a contract or subcontract in accordance with paragraph (a)(1) of FAR 15.403-3 may be ineligible for award.

II. DCAA-Accepted Accounting System:

- A) Before a contract can be awarded, the Contracting Officer must confirm that the Applicant has a Defense Contract Audit Agency (DCAA)-accepted accounting system in place for accumulating and billing costs under Government contracts [FAR 53.209-1(f)]. If the Applicant has DCAA correspondence which documents the acceptance of their accounting system, this should be provided to the Contracting Officer (i.e. attached or referenced in the proposal). Otherwise, the Contracting Officer will submit an inquiry directly to the appropriate DCAA office and request a review of the Applicant's accounting system.
- B) If an Applicant does not have a DCAA-accepted accounting system in place, the DCAA review process can take several months depending upon the availability of the DCAA auditors and the Applicant's internal processes. This will cause a delay in contract award.
- C) For more information about cost proposals and accounting standards, view the link titled "Information for Contractors" on the main menu on their website.

III. Field Pricing Assistance:

During the pre-award cost audit process, the Contracting Officer will solicit support from DCAA to determine commerciality and price reasonableness of the proposal [FAR 15.404-2]. Any proprietary information or reports obtained from DCAA field audits will be appropriately identified and protected within the Government.

IV. Sample Cost Proposal – "Piece by Piece":

- A) To help guide Applicant through the pre-award cost audit process, a sample cost volume is detailed below. This sample also allows the Applicant to see exactly what the Government is looking for; therefore, all cost and pricing back-up data can be provided to the Government in the first cost proposal submission. Review each cost element within the proposal, and take note of the types of documentation that the Contracting Officer will require from the Applicant.
- B) Direct Labor: The first cost element included in the cost proposal is Direct Labor. The Department of Defense (DoD) requires each proposed employee to be listed by name and labor category.

Below is the Direct Labor as proposed by our sample Applicant:

C) Other Direct Costs (ODCs): This section of the cost proposal includes all other directly related costs required in support of the effort i.e., materials, subcontractors, consultants, travel, etc. Any cost element that includes various items will need to be detailed in a cost breakdown to the Contracting Officer.

(1) Direct Material Costs: This subsection of the cost proposal will include any special tooling, test equipment, and material costs necessary to perform the project. Items included in this section will be carefully reviewed relative to need and appropriateness for the work proposed, and must, in the opinion of the Contracting Officer, be advantageous to the Government and directly related to the specific topic.

a) The Contracting Officer will require adequate documentation from the Applicant to determine the cost reasonableness for each material cost proposed. The following methods are ways in which the Contracting Officer can determine this [FAR 15.403-1].

i) Adequate Price Competition: A price is based on adequate price competition when the Applicant solicits and receives quotes from two or more responsible vendors for the same or similar items or services. Based on these quotes, the Applicant selects the vendor who represents the best value to the Government. The Applicant will be required to provide copies of all vendor quotes received to the Contracting Officer.

Note: Price competition is not required for items at or below the micro-purchase threshold (\$3,000.00). If an item's unit cost is less than or equal to \$3,000.00, price competition is not necessary. However, if an item's total cost over the period of performance (unit cost * quantity is higher than \$3,000.00, two or more quotes must be obtained by the Applicant.

ii) Commercial Prices: Commercial prices are those published on current price lists, catalogs, or market prices. This includes vendors who have prices published on a General Services Administration (GSA) schedule contract. The Applicant will be required to provide copies of such price lists to the Contracting Officer.

iii) Prices set by law or regulation: If a price is mandated by the Government (i.e. pronouncements in the form of periodic rulings, reviews, or similar actions of a Governmental body, or embodied in the laws) that is sufficient to set a price.

b) Below is the list of Direct Material costs included in our sample proposal:

DIRECT MATERIAL COSTS:	YEAR 1	YEAR 2
Raw Materials	\$35,000.00	\$12,000.00
Computer for experiments	\$4,215.00	\$0.00
Cable (item #12-3657, 300 ft)	\$1,275.00	\$0.00
Software	\$1,825.00	\$1,825.00

Subtotal Direct Materials Costs (DM):	\$42,315.00	\$13,825.00
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- i) “Raw Materials”: This is a generic label used to group many material items into one cost item within the proposal. The Contracting Officer will require a detailed breakout of all the items that make up this cost. For each separate item over \$3,000.00 (total for Year 1 + Year 2), the Applicant must be able to provide either competitive quotes received, or show that published pricing was used.
- ii) “Computer for experiments”: Again, this item is most likely a grouping of several components that make up one system. The Contracting Officer will require a detailed breakout of all the items that make up this cost. For each separate item over \$3,000.00 (total for Year 1 + Year 2), the Applicant must be able to provide either competitive quotes received, or show that published pricing was used.
- iii) “Cable”: Since this item is under the micro-purchase threshold of \$3,000.00, competitive quotes or published pricing are not required. Simply provide documentation to show the Contracting Officer where this price came from.
- iv) “Software”: This cost item could include either one software product, or multiple products. If this includes a price for multiple items, please provide the detailed cost breakdown.

Note: The price for Year 1 (\$1,825.00) is below the micro-purchase threshold; however, in total (Year 1 + Year 2) the price is over \$3,000.00, so competitive quotes or published pricing documentation must be provided.

- c) Due to the specialized types of products and services necessary to perform these projects, it may not always be possible to obtain competitive quotes from more than one reliable source. Each cost element over the micro-purchase threshold (\$3,000.00) must be substantiated. There is always an explanation for HOW the cost of an item was derived. Provide the Contracting Officer with an explanation of how a cost or price was derived.
- d) When it is not possible for an Applicant to obtain a vendor price through competitive quotes or published price lists, a Contracting Officer may accept other methods to determine cost reasonableness. Below are some examples of other documentation, which the Contracting Officer may accept to substantiate costs:
 - i) Evidence that a vendor/supplier charged another Applicant a similar price for similar services. Has the vendor charged someone else for the same product? (Two (2) to three (3) invoices from that vendor to different customers may be used as evidence.)

- ii) Previous contract prices: Has the Applicant charged the Government a similar price under another Government contract for similar services? If the Government has already paid a certain price for services, then that price may already be considered fair and reasonable. (Provide the contract number, and billing rates for reference.)
 - iii) DCAA approved: Has DCAA already accepted or verified specific cost items included in your proposal? (Provide a copy of DCAA correspondence that addressed these costs.)
- 2) Below is the remaining ODC portion of our proposal including equipment, subcontractors, consultants, and travel. Assume in this scenario that competitive quotes or catalog prices were not available for these items:

OTHER DIRECT COSTS:	YEAR 1	YEAR 2
Equipment Rental for Analysis	\$5,500.00	\$5,600.00
Subcontractor - Lockheed	\$25,000.00	\$0.00
Consultant: John Bowers	\$0.00	\$12,000.00
Travel	\$1,250.00	\$1,250.00
Subtotal Other Direct Costs		
(ODC):	\$31,750.00	\$18,850.00

- a) “Equipment Rental for Analysis”: The Applicant explains that the Year 1 cost of \$5,500.00 is based upon 250 hours of equipment rental at an hourly rate of \$22.00/hr. One (1) invoice from the vendor charging another vendor the same price for the same service is provided to the Contracting Officer as evidence. Since this cost is over the micro-purchase threshold, further documentation to determine cost reasonableness is required. The Applicant is able to furnish another invoice charging a second vendor the same price for the same service.
- b) “Subcontractor – Lockheed”: The Applicant provides a copy of the subcontractor quote to the Contracting Officer in support of the \$25,000.00 cost. This subcontractor quote must include sufficient detailed information (equivalent to the data included in the prime’s proposal to the Government), so that the Contracting Officer can make a determination of cost reasonableness.
- i) As stated in Section 3.5(c)(6) of the DoD Cost Proposal guidance, “All subcontractor costs and consultant costs must be detailed at the same level as prime contractor costs in regards to labor, travel, equipment, etc. Provide detailed substantiation of subcontractor costs in your cost proposal.”

- ii) In accordance with FAR 15.404-3, “the Contracting Officer is responsible for the determination of price reasonableness for the prime contract, including subcontracting costs”. This means that the subcontractor’s quote/proposal may be subject to the same scrutiny by the Contracting Officer as the cost proposal submitted by the prime. The Contracting Officer will need to determine whether the subcontractor has an accepted purchasing system in place and/or conduct appropriate cost or price analyses to establish the reasonableness of proposed subcontract prices. Due to the proprietary nature of cost data, the subcontractor may choose to submit their pricing information directly to the Contracting Officer and not through the prime. This is understood and encouraged.
- iii) When a subcontractor is selected to provide support under the prime contract due to their specialized experience, the Contracting Officer may request sole source justification from the Applicant.
- c) “Consultant – John Bowers”: Again, the Applicant shall provide a copy of the consultant’s quote to the Contracting Officer as evidence. In this example, the consultant will be charging an hourly rate of \$125.00/hour for 96 hours of support. The Applicant indicates to the Contracting Officer that this particular consultant was used on a previous contract with the Government (provide contract number), and will be charging the same rate. A copy of the consultant’s invoice to the Applicant under the prior contract is available as supporting evidence. Since the Government has paid this price for the same services in the past, determination has already been made that the price is fair and reasonable.
- d) “Travel”: The Contracting Officer will require a detailed cost breakdown for travel expenses to determine whether the total cost is reasonable based on Government per diem and mileage rates. This breakdown shall include the number of trips, the destinations, and the number of travelers. It will also need to include the estimated airfare per round trip, estimated car rental, lodging rate per trip, tax on lodging, and per diem rate per trip. The lodging and per diem rates must coincide with the Joint Travel Regulations. Please see the following website to determine the appropriate lodging and per diem rates: <http://www.defensetravel.dod.mil>. Additionally, the Applicant must provide why the airfare is fair and reasonable as well. Sufficient supporting documentation for both airfare and car rental would include print-outs of online research at the various travel search engines (Expedia, Travelocity, etc.) documenting the prices for airfare and car rentals thus proving why your chosen rate is fair and reasonable.

i) Below is a sample of the travel portion:

TRAVEL		Trips	Travelers	Nights	Days	Unit Cost	Total Travel
Airfare	roundtrip	1	1			\$996.00	\$996.00
	per day	1	1	1		\$75.00	\$75.00

Lodging Tax on						
Lodging (12%)	per day	1	1	1	\$9.00	\$9.00
Per Diem	per day	1	1	2	\$44.00	\$88.00
Automobile Rental	per day	1	1		\$41.00	\$41.00
Subtotal Travel						\$1,209.00

D) Indirect Rates: Indirect rates include elements such as Fringe Benefits, General & Administrative (G&A), Overhead, and Material Handling costs. The Applicant shall indicate in the cost proposal both the indirect rates (as a percentage) as well as how those rates are allocated to the costs in the proposal.

Below is the Indirect Rates portion of our sample proposal:

INDIRECTS	YEAR 1	YEAR 2
Subtotal Direct Labor (DL):	\$97,280.00	\$100,198.40
Fringe Benefits, if not included in Overhead, rate (15.0000 %) X DL =	\$14,592.00	\$15,029.76
Labor Overhead (rate 45.0000 %) X (DL + Fringe) =	\$50,342.40	\$51,852.67
Total Direct Labor (TDL):	\$162,214.40	\$167,080.83

- (1) In this example, the Applicant includes a Fringe Benefit rate of 15.00% that it allocated to the Direct Labor costs. They also propose a Labor Overhead rate of 45.00% that is allocated to the Direct Labor costs plus the Fringe Benefits.
- (2) All indirect rates and the allocation methods of those rates must be verified by the Contracting Officer. In most cases, DCAA documentation supporting the indirect rates and allocation methods can be obtained through a DCAA field audit or proposal review. Many Applicants have already completed such reviews and have this documentation readily available. If an Applicant is unable to participate in a DCAA review to substantiate indirect rates, the Contracting Officer may request other accounting data from the Applicant to make a determination.

- E) Cost of Money (COM): If Cost of Money (an imputed cost that is not a form of interest on borrowings- see FAR 31.205-20); an “incurred cost” for cost-reimbursement purposes under applicable cost-reimbursement contracts and for progress payment purposes under fixed-price contracts; and refers to— (1) Facilities capital cost of money (48 CFR 9904.414); and (2) Cost of money as an element of the cost of capital assets under construction (48 CFR 9904.417)) is proposed in accordance with FAR 31.205-10, a DD Form 1861 is required to be completed and submitted with the contractor’s proposal.
- F) Fee/Profit: The proposed fee percentage will be analyzed in accordance with DFARS 215.404, the Weighted Guidelines Method.
- G) Small Business Subcontracting Plan: If the total amount of the proposal exceeds \$700,000.00 and the Applicant is a large business or an institute of higher education (other than HBCU/MI) and the resultant award is a contract, the Applicant shall be prepared to submit a subcontracting plan for small business and small disadvantaged business concerns. A mutually agreeable plan will be included in and made a part of the contract (see the goals listed at Section II, F, 2, b).

GRANT & COOPERATIVE AGREEMENT PROPOSALS (ASSISTANCE INSTRUMENTS)

Before award, it must be established that an approved accounting system and financial management system exist.

- A) Direct Labor: Show the current and projected salary amounts in terms of man-hours, man-months, or annual salary to be charged by the Principal Investigator(s), faculty, research associates, postdoctoral associates, graduate and undergraduate students, secretarial, clerical, and other technical personnel either by personnel or position. State the number of man-hours used to calculate a man-month or man-year. For proposals from universities, research during the academic term is deemed part of regular academic duties, not an extra function for which additional compensation or compensation at a higher rate is warranted. Consequently, academic term salaries shall not be augmented either in rate or in total amount for research performed during the academic term. Rates of compensation for research conducted during non-academic (summer) terms shall not exceed the rate for the academic terms. When part or all of a person's services are to be charged as project costs, it is expected that the person will be relieved of an equal part or all of his or her regular teaching or other obligations. For each person or position, provide the following information:
 - (1) The basis for the direct labor hours or percentage of effort (e.g., historical hours or estimates)
 - (2) The basis for the direct labor rates or salaries: Labor costs should be predicted upon current labor rates or salaries. These rates may be adjusted upward for forecast salary or wage cost-of-living increases that will occur during the

agreement period. The cost proposal should separately identify the rationale applied to base salary/wage for cost-of-living adjustments and merit increases. Each must be fully explained.

- (3) The portion of time to be devoted to the proposed research, divided between academic and non-academic (summer) terms, when applicable
- (4) The total annual salary charged to the research project
- (5) Any details that may affect the salary during the project, such as plans for leave and/or remuneration while on leave

B) Fringe Benefits and Indirect Costs (Overhead, General and Administrative, and Other): The most recent rates, dates of negotiation, and the base(s) and periods to which the rates apply must be disclosed and a statement included identifying whether the proposed rates are provisional or fixed. If the rates have been negotiated by a Government agency, state when and by which agency. A copy of the negotiation memorandum should be provided. If negotiated forecast rates do not exist, Applicants must provide sufficient detail to enable a determination to be made that the costs included in the forecast rate are allocable according to 2 CFR Part 200, applicable OMB Circulars, and/or FAR/DFARS provisions. Applicants' disclosure should be sufficient to permit a full understanding of the content of the rate(s) and how it was established.

As a minimum, the submission should identify:

- (1) All individual cost elements included in the forecast rate(s);
- (2) Bases used to prorate indirect expenses to cost pools, if any;
- (3) How the rate(s) were calculated;
- (4) Distribution basis of the developed rate(s);
- (5) Bases on which the overhead rate is calculated, such as "salaries and wages" or "total costs," and
- (6) The period of the Applicant's fiscal year

C) Permanent Equipment: If facilities or equipment are required, a justification why this property should be furnished by the Government must be submitted. State the organization's inability or unwillingness to furnish the facilities or equipment. Applicants must provide an itemized list of permanent equipment showing the cost for each item. Permanent equipment is any article or tangible nonexpendable property having a useful life of more than one year and an acquisition cost of \$5,000.00 or more

per unit. The basis for the cost of each item of permanent equipment included in the budget must be disclosed, such as:

- (1) Vendor Quotes: Show name of vendor, number of quotes received and justification, if intended award is to other than lowest bidder
 - (2) Historical Cost: Identify vendor, date of purchase, and whether or not cost represents lowest bid; include reason(s) for not soliciting current quotes
 - (3) Engineering Estimate: Include rationale for quote and reason for not soliciting current quotes; if applicable, the following additional information shall be disclosed in the Applicant's cost proposal:
 - Special test equipment to be fabricated by the awardee for specific research purposes and its cost
 - Standard equipment to be acquired and modified to meet specific requirements, including acquisition and modification costs, listed separately
 - Existing equipment to be modified to meet specific research requirements, including modification costs; do not include equipment the organization will purchase with its funds if the equipment will be capitalized for Federal income tax purposes; proposed permanent equipment purchases during the final year of an award shall be limited and fully justified
 - Grants and cooperative agreements may convey title to an institution for equipment purchased with project funds. At the discretion of the Contracting/Grants Officer, the agreement may provide for retention of the title by the Government or may impose conditions governing the equipment conveyed to the organization. The Government will not convey title to commercial contractors.
- D) Travel: Forecasts of travel expenditures (domestic and foreign) that identify the destination and the various cost elements (airfare, mileage, per diem rates, etc.) must be submitted. The costs should be in sufficient detail to determine the reasonableness of such costs. Allowance for air travel normally will not exceed the cost of round-trip, economy air accommodations. Specify the type of travel and its relationship to the research project. Additional travel may be requested for travel to Army laboratories and facilities to enhance agreement objectives and to achieve technology transfer.
- E) Materials, Supplies, and Consumables: A general description and total estimated cost of expendable equipment and supplies are required. The basis for developing the cost estimate (vendor quotes, invoice prices, engineering estimate, purchase order history, etc.) must be included. If possible, provide a material list.

- F) Publication, Documentation, and Dissemination: The budget may request funds for the costs of preparing, publishing, or otherwise making available to others the findings and products of the work conducted under an agreement, including costs of reports, reprints, page charges, or other journal costs (except costs for prior or early publication); necessary illustrations, cleanup, documentation, storage, and indexing of data and databases; and development, documentation, and debugging of software.
- G) Consultant Costs: Applicants normally are expected to utilize the services of their own staff to the maximum extent possible in managing and performing the project's effort. If the need for consultant services is anticipated, the nature of proposed consultant services should be justified and included in the technical proposal narrative. The cost proposal should include the names of consultant(s), primary organizational affiliation, each individual's expertise, daily compensation rate, number of days of expected service, and estimated travel and per diem costs.
- H) Computer Services: The cost of computer services, including computer-based retrieval of scientific, technical, and educational information, may be requested. A justification/explanation based on the established computer service rates at the proposing organization should be included. The budget also may request costs, which must be shown to be reasonable, for leasing automatic data processing equipment. The purchase of computers or associated hardware and software should be requested as items of equipment.
- I) Subawards (subcontracts or subgrants): A precise description of services or materials that are to be awarded by a subaward must be provided. For subawards totaling \$10,000.00 or more, provide the following specific information:
- (1) A clear description of the work to be performed
 - (2) If known, the identification of the proposed subawardee and an explanation of why and how the subawardee was selected or will be selected
 - (3) The identification of the type of award to be used (cost reimbursement, fixed price, etc.)
 - (4) Whether or not the award will be competitive and, if noncompetitive, rationale to justify the absence of competition
 - (5) A detailed cost summary
- J) Other Direct Costs: Itemize and provide the basis for proposed costs for other anticipated direct costs such as communications, transportation, insurance, and rental of equipment other than computer related items. Unusual or expensive items shall be fully explained and justified.

- K) Profit/Fee: Profit/fee is not allowed for the recipient of an assistance instrument (grant or cooperative agreement) or TIA or a subawardee/subrecipient under an assistance instrument or TIA. A subaward is an award of financial assistance in the form of money, or property in lieu of money, made under a DoD grant or cooperative agreement by a recipient to an eligible subrecipient. The term includes financial assistance for substantive program performance by the subrecipient of a portion of the program for which the DoD grant or cooperative agreement was made.
- L) Small Business Subcontracting Plan: Small Business Subcontracting Plan requirements do not apply to assistance instruments.

CONTRACT FACILITIES CAPITAL COST OF MONEY: If cost of money is proposed, a completed Contract Facilities Capital Cost of Money (FCCM) (DD Form 1861) is required.

Unsuccessful Proposal Disposition: Unless noted in an Applicant's proposal to the contrary, unsuccessful proposals will be retained for six (6) months from declination and then properly destroyed.

Acronyms:

ACC (APG) RTP –	Army Contracting Command (Aberdeen Proving Ground) Research Triangle Park Division
AOR –	Authorized Organization Representative
ARI –	Army Research Institute for the Behavioral and Social Sciences
ARL –	Army Research Laboratory
BAA –	Broad Agency Announcement
CAGE –	Commercial and Government Entity
CFDA–	Catalogue of Federal Domestic Assistance
CFR –	Code of Federal Regulations
COM –	Cost of Money
CONUS –	Continental United States
CPFF –	Cost Plus Fixed Fee
D&B –	Dun and Bradstreet, Inc.
DCAA –	Defense Contract Audit Agency
DCMA –	Defense Contract Management Agency
DD –	Department of Defense
DFARS –	Defense Federal Acquisition Regulation Supplement
DLSC –	Defense Logistics Service Center
DoD –	Department of Defense
DoDI–	Department of Defense Instruction
DUNS –	Data Universal Numbering System
EIN –	Employer Identification Number
FAPIS –	Federal Awardee Performance and Integrity Information System

FAR –	Federal Acquisition Regulation
FCCM –	Facilities Capital Cost of Money
FFP –	Firm Fixed Price
FFRDC –	Federally Funded Research and Development Center
FOIA –	Freedom of Information Act
FSC –	Federal Service Code
FY–	Fiscal Year
G&A –	General and Administrative
GFD –	Government Furnished Data
GFE –	Government Furnished Equipment
GFI –	Government Furnished Information
GFP –	Government Furnished Property
GSA –	General Services Administration
HBCU/MI –	Historically Black College or University/Minority Serving Institution
IR&D –	Independent Research and Development
MIPR –	Military Interdepartmental Purchase Request
ODC –	Other Direct Cost
OMB –	Office of Management and Budget
OPSEC –	Operations Security
OTA -	Other Transaction for Prototype
PDF –	Portable Document Format
PI –	Principal Investigator
PL –	Public Law
PWS –	Performance Work Statement
R&D –	Research & Development
SAM –	System for Award Management
SF –	Standard Form
TIA –	Technology Investment Agreement
TIN –	Taxpayer Identification Number
TPOC –	Technical Point of Contact
UIC –	Unit Identification Code
USC –	United States Code
XML –	Extensible Markup Language