

ARL Strengthening Teamwork for Robust Operations in Novel Groups (STRONG)

W911NF-19-S-0001

Amendment #10

The purpose of this modification is to issue Cycle 7 of the ARL STRONG Program. This modification includes the topic updates as well as administrative changes to the FOA. Please be sure to read the modification to its entirety. Proposals are due in grants.gov by 3:00pm (local time in North Carolina, USA) on 31 January 2025. An email receipt will be provided to each Applicant for each Proposal submission received. Applications submitted after the closing date and time will not be considered or evaluated by the Government

ARL Strengthening Teamwork for Robust Operations in Novel Groups (STRONG)

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FUNDING OPPORTUNITY OVERVIEW

1. Federal Awarding Agency Name

U.S. Army Research Laboratory, 2800 Powder Mill Road, Adelphi, MD 20783-1197

Issuing Acquisition Office

U.S. Army Contracting Command – Aberdeen Proving Ground, Research Triangle Park (RTP)
Division, 800 Park Office Drive, Suite #4229, Research Triangle Park, NC 27709

2. Research Opportunity Title

Strengthening Teamwork for Robust Operations in Novel Groups (STRONG)

3. Announcement Type

Amendment: Cycle 7 updates - ***SEE SECTION A.4***

4. Funding Opportunity Number

W911NF-19-S-0001 (The same FOA number from the first cycle will be used throughout all cycles of the program, but will be amended at the beginning of each cycle to topic area descriptions and other relevant program updates.)

5. Catalog of Federal Domestic Assistance (CFDA) Number(s)

12.630 - "Basic, Applied, and Advanced Research in Science and Engineering"

6. STRONG Website: <https://www.arl.army.mil/strong>

7. Key Dates:

The following is a summary of the events and dates associated with this Cycle under the overall STRONG Funding Opportunity Announcement (FOA):

<u>EVENT</u>	<u>ESTIMATED DATE/TIMEFRAME</u>
Opportunity released	December 2024
Opportunity Webinar	8 January 2025
Deadline for Questions on Funding Opportunity	15 January 2025
Proposals due for Cycle 7	31 January 2025
Cycle 7 Awards	April 2025 (Expected)
Cycle 7 Innovation Summit	July 2025
Cycle 7 Follow-On Presentations	January 2026

ARL Strengthening Teamwork for Robust Operations in Novel Groups (STRONG)

A. PROGRAM DESCRIPTION

Overview: The 10-year STRONG program has a specific long-term goal to identify and implement the fundamental research necessary to develop individualized, adaptive technologies that promote effective teamwork in novel groups of humans and intelligent agents. Success in future military scenarios will require faster than human ideation and decision-making within increasingly complex, dynamic, and rapidly evolving sociotechnical contexts. The STRONG Cycle #7 program's research initiatives center on integrating the explainability of theory-driven approaches with the real-world applicability of data-driven approaches. This approach will lay the foundation for future intelligent agents that adapt to a variety of multi-timescale, real-world contextual variables while maintaining transparency in the underlying causal mechanisms driving those intelligent agents' strategies and decision-making."

1. Background

The future vision for the U.S. Army includes teams of humans and intelligent agents working together to accomplish missions. The U.S. Army Research Laboratory (ARL) has established a 10-year (FY19-FY29) collaborative program, Strengthening Teamwork for Robust Operations in Novel Groups (STRONG), structured under eight annual program cycles (i.e., Cycles 1-8; FY19-FY26) with the overall goal of developing the foundation for enhanced teamwork within heterogeneous human-intelligent agent teams. This collaborative venture will bring together diverse, multidisciplinary expertise to support scientific breakthroughs relevant to specific and critical scientific questions that must be addressed to enable this future vision.

STRONG focuses directly on coordination and cooperation in human-agent teams via individualized and adaptive systems. The 10-year program has a specific long-term goal *to identify and implement the fundamental research necessary to develop individualized, adaptive technologies that promote effective teamwork in novel groups of humans and intelligent agents*. Prior to submitting, Applicants should review Decostanza et al. (2018) *Enhancing Human-Agent Teaming with Individualized, Adaptive Technologies: A Discussion of Critical Scientific Questions* (<https://brain.ieee.org/brain-storm/enhancing-human-agent-teaming/>), which provides the initial vision and discussion of the scientific questions underlying the STRONG program, as well as Metcalf et. al. (2021) *Systemic Oversimplification Limits the Potential for Human-AI Partnership* which describes re-envisioning human machine teaming paradigms to enable success in problem spaces that are un-accessible to either humans or machine intelligence alone (<https://ieeexplore.ieee.org/stamp/stamp.jsp?arnumber=9425540>).

Collaboration: STRONG addresses a critical objective within a broader Army goal to enable effective integration of Artificial Intelligence / Machine Learning (AI/ML) on the battlefield. This program has been developed in coordination with other related ARL-funded collaborative efforts (see descriptions of ARL collaborative alliances at <https://www.arl.army.mil/www/default.cfm?page=93>) and shares a common vision of highly collaborative academia-industry-government partnerships. However, with the rapid pace of technological change and the scientific community's nascent understanding of and empirical evidence for human-agent teaming, STRONG will implement a novel, synergistic approach/structure. Annual Cycles will be explicitly structured to foster the greatest degree of collaboration and knowledge sharing to optimally leverage or combine findings from each effort awarded under each cycle and directly tie with internal ARL research programs. This structure is intended to more effectively and efficiently achieve the overall goals of the STRONG program by preventing unnecessary duplication or silos of information, findings, or other relevant outcomes from ARL investments (internal and external). In other words, the success of STRONG requires a multidisciplinary, collaborative effort that *synergistically views every new funded effort as a network of research or "building block" to grow and support an ecosystem of high-quality, innovative researchers actively sharing knowledge and collaboratively addressing scientific gaps critical to the Department of*

Defense. Given this novel approach, Government researchers and program managers will be taking a more active role to support rapid integration of findings and cohesion within the research ecosystem.

Support Infrastructure: Each Cycle will require Recipient participation in an annual *Innovation Summit Series* to foster active collaboration, as detailed below. In addition to general updates, a dedicated *STRONG website* (<https://www.arl.army.mil/strong>) will maintain a regularly updated knowledge bank of ARL research priorities, programs and contacts; previously funded research summaries, products and contacts; and other relevant information specific to STRONG. Additional information about the annual *Innovation Summit Series* is available upon request via email to strong-cra@army.mil.

2. Cycle Structure

STRONG will be executed through a series of eight annual program cycles (i.e., Cycles 1-8; FY19-FY26) with the following format: (1) 12-month seedling awards structured as individual cooperative agreements to each awardee; (2) required awardee participation in the annual Innovation Summit Series to foster *novel collaborations*; and (3) potential 3-year extension of a seedling award executed as an Option under the original cooperative agreement.

Enhanced Research Program funding from ARL or Other Government Agencies (OGAs) may become available during a cycle which provides a mechanism for growth and enhancement within STRONG. A proposal should not include any discussion of the Enhanced Research Program. Recipients receiving a CA will be notified and provided details if the opportunity for Enhanced Research Program funding becomes available during their award period of performance.

a) *Annual Cycle Seedling Announcements:*

- The FOA will be amended annually with “Cycle updates” to identify a new problem statement, topic, and other necessary changes for that specific Cycle.
 - **SEE SECTION A.4.a FOR THIS YEAR’S CYCLE TOPIC**
- Each annual Cycle will begin with a call for “seedling” proposals with funding provided to those Recipients selected under a cooperative agreement (CA).
- Total number of seedling Recipients and funding per Recipient may vary from year to year at the discretion of the Government based on annual Cycle changes or requirements.
- Each Cycle topic will be focused on addressing a different scientific area within the scope of the broad research aims of STRONG, with all Cycles designed to ultimately converge on the **specific long-term program goal** noted above.
- Cycle topics will be carefully chosen based on both program achievements from the previous year and on scientific advancements by the broader research community.
- Prior to the final submission date of each Cycle (see Event Timeline above), ARL will host an opportunity webinar on to provide detailed information and question-answer opportunities. A link to the annual webinar will be posted on the STRONG Program website at <https://www.arl.army.mil/strong> and can also be obtained via email to strong-cra@army.mil.
- Publications and seedling abstracts from each awardee under previously completed Cycles will be shared on <https://www.arl.army.mil/strong> for all future applicants to review.
- Proposals from junior investigators (e.g., students, research fellows, and early-career researchers with less than 5 years past reception of their PhD or less than 5 years’ experience within the primary field of their organization) are appropriate under this opportunity.

b) *Innovation Summit Series:*

- Seedling Recipient participation by at least one team member in each meeting of the Innovation Summit Series under the Recipient's awarded Cycle will be REQUIRED.
 - ***SEE SECTION A.4.b FOR THIS YEAR'S TENTATIVE AGENDA***
- Seedling presentation: Recipients will be expected to demonstrate their scientific principles and approach to the community, providing evidence of progress toward scientific breakthroughs that support the criticality of the particular concept or approach to the specific topic.
- Active collaboration: Recipients will be expected to coordinate their future research plans with complimentary ongoing or planned efforts executed by other Recipients and government researchers within their designated Cycle. Regular communication between seedling Recipients and government researchers to develop awareness of relevant ARL-internal research programs is encouraged prior to, during, and after the Innovation Summit Series. Connections to broader ARL programs, other service labs or other Government agencies is also encouraged. Lastly, *novel connections to and collaborations with the commercial sector is strongly encouraged.*
- Multi-year Extension Option: Recipients that wish to apply for up to a 3-year Extension Option will be expected to present their proposed project to an evaluation panel at a virtual/in-person hybrid event that will be scheduled in January 2026.

c) *Multi-year Extension Option:*

- Recipients of a seedling CA under the annual Cycle are eligible for consideration to receive funding (see Table 1) for an optional extension of up to 3 years at the conclusion of the seedling award. The period of the performance of the option will be based on the research and available funding.
- In addition to active collaboration during the Innovation Summit Series as noted above, explicit reference to any connection, extension potential, or refute of prior Cycle efforts is expected, where applicable. In other words, *demonstrable knowledge of prior and current STRONG efforts is expected.*

3. Deliverables / Research Products

Given the cyclical and collaborative nature of STRONG, awardees are encouraged to share research products (e.g., databases and algorithms/code) whenever possible with ARL and fellow awardees in order to contribute to the collective S&T advancement of the STRONG program and the human-agent teaming research community and ecosystem. Creative ideas to enable enduring and multiplicative benefits (e.g., government and commercial) of the research conducted under STRONG is highly encouraged. Additionally, the intent is to leverage past work to promote greater return on investment (ROI) for government investments under each award. ARL will maintain a central repository for all such STRONG deliverables, and as appropriate, these deliverables will be shared on the STRONG website.

a) *Required seedling deliverables:*

- Prior to 1st Summit meeting: Seedling Research Summary/Plan (publicly releasable, 1/2pg target)
- End of seedling award: Final Seedling Research Report (publicly releasable, 1-2pg max)

b) *Required extension deliverables:*

- 1 month post modification notification: Proposed Research Summary/Abstract (public releasable, 1/2pg target)
- Annually for extension period of performance: Annual Research Report & Summit

presentation (public releasable, 1-2pg max)

c) *Additional project-specific deliverable examples are below and will be determined at award time:*

- Annotated databases
- Algorithms developed/used
- Testbed description, including access if possible
- Any other relevant research product

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Cycle 7: Bridging theory-driven and data-driven approaches to human behavior

Overview: As the Army advances toward future Human-Machine Integration capabilities, operational success will increasingly depend on the effectiveness of Soldier interactions with intelligent agents, whether one-on-one or within hybrid teams. Soldier behaviors will vary due to multiple factors relating to their unique skills, experience, training, and physical and mental states, all influenced by the demands of specific operational environments. Future intelligent agents will need new capabilities to adapt within this highly multivariate context. While predicting behavior based on statistical patterns will be useful, a deeper understanding of why specific behaviors emerge in specific contexts would provide transformational capabilities, enabling more effective Soldier-agent interactions tailored to meet individual Soldier needs. This is an ambitious, long-term objective, well-aligned with the STRONG program’s goal to “identify and implement the fundamental research necessary to develop individualized, adaptive technologies that prompt effective teamwork in novel groups of humans and intelligent agents.” Its achievement will ultimately contribute to the development of adaptive, intelligent agents capable of dynamically responding to the evolving needs of Soldiers in complex, high-stakes operational environments. To get there, cutting-edge theory and methodological advances are needed now, rather than immediate technology solutions. Therefore, the central aim of this program is to deliver the **scientifically rigorous approaches necessary to develop models that offer both explanatory depth and predictive accuracy through causal understandings of human behavior.**

Background:

Specific to its stated aim, this program seeks innovative approaches that can enable Theory-Driven Big Data (TDBD) models with two fundamental properties: 1) they represent the **multivariate causal structure** of human behavior, and 2) they are grounded in **very large datasets** that capture the range and variation of human behavior in real-world conditions, both within individuals and across populations. The first property requires drawing upon our extensive knowledge of the causal factors and mechanisms typically explored in theory-driven laboratory research. The second reflects the Big Data¹ methods characteristic of data-driven

¹ The definition of “Big Data” remains a contentious and evolving issue (see. Favaretto et al., 2020) and the term is commonly used in reference to several different concepts. In this Call for Proposals, Big Data refers to large, complex datasets that are often difficult to manage and analyze using traditional data processing and analytic tools. Specifically, two of the so-called “3Vs” of Big Data (Laney, 2001) - volume (the quantity of data) and variety (the diversity of data types) - are emphasized, as they are closely tied to the large-scale sampling necessary to adequately capture the range and variation of human behavior in real-world conditions. While no specific thresholds for data volume or variety are provided, proposals should justify whether the datasets for planned research efforts should be considered as “Big Data” in relation to these criteria. However, given the evolving nature of the term, consideration of additional factors, such as data velocity (i.e., the speed at which the data is generated; Laney, 2001) or the computing requirements and infrastructure needed, as well as other factors may be used further support the classification of Big Data with

approaches aimed at predicting behavior.

Neither approach yet provides both explanatory depth and predictive accuracy. Theory-driven approaches enable explanation but are typically based on simple, low dimensional models tested in highly constrained laboratory conditions with small sample sizes. As a result, they lose predictive accuracy in the translation from laboratory to real-world conditions where multiple internal and external factors are simultaneously at play. Data-driven approaches provide predictive accuracy of real-world behavior. However, their focus on prediction leads to models with enormous numbers of parameters that are prone to overfitting their training data and do not support causal inference.

By bridging theory-driven and data-driven perspectives in novel TDBD approaches, this program will lay the foundations for future adaptive, intelligent agent capabilities. It should be noted, however, that TDBD is not alone in identifying the critical need for causal understanding in adaptive, intelligent agents. Ongoing research in Explainable AI (XAI) is focused on post-hoc interpretations of black-box models to improve transparency and trust, without revealing underlying causal mechanisms. The emerging field of Causal AI, like TDBD, focuses on identifying causal relationships, typically through data-driven discovery rather than theory-driven insight. While TDBD emphasizes the integration of theory-driven and data-driven approaches, comparisons with Causal AI's complementary data-driven methods may also be of interest in this program, particularly when such comparisons can clarify the strengths and limitations of each approach for causal understanding in real-world contexts.

Cycle 7 Goals and Questions

Successful proposals will provide strong evidence of the potential to significantly advance the foundational knowledge and technical innovations necessary to develop scientifically rigorous TDBD approaches. Proposed approaches should combine and build upon the strengths of theory-driven and data-driven approaches to enable the future development of TDBD models, as described above, capable of achieving predictive accuracy and explanatory depth in real-world contexts. It is acknowledged that proposals may not have access to very large datasets, particularly very large datasets that are directly reflective of Army operational contexts. Proposals should thoughtfully address the scalability of their approaches based on the nature of the data identified for use (see footnote #1). Rather than focusing on the immediate applicability of proof-of-concept models developed, emphasis should be placed on potential scalability to handle the multivariate complexity of real-world contexts, including future Army operational environments.

The following Technical Goals have been identified as key focus areas for systematic and coherent programs of research that can advance TDBD approaches. In assessing submitted proposals, priority will be placed on scientific quality, depth, and the coherence of the research plan in addressing its Technical Goals, over comprehensiveness in addressing all Technical Goals. High-risk/high-reward proposals are encouraged. In evaluating risk, reviewers will consider the potential for scientific impact, justification of risk relative to theoretical or technical challenges, proposed mitigation strategies, and the potential reward if the research is successful.

1. Innovative Approaches to Theory-Driven Big Data Models of Human Performance

Explore novel approaches for developing TDBD models of human behavior and performance in real-world environments. Approaches should prioritize developing models with both explanatory depth and predictive accuracy, enabling future models to support agent capabilities that not only forecast behaviors but explain why they occur. Proposals are encouraged that emphasize accounting for the full distribution of behavior, including rare or extreme cases, to reveal causal relationships that may be overlooked by

sufficient justification. Proposals will be evaluated on how well their provided descriptions and rationale align with the criteria described here or otherwise justify the use of the data proposed.

conventional methods focused on central tendencies alone. The primary focus is on approaches that are scalable to develop models that can handle the multivariate complexity of future Army operational environments, though proof-of-concept models in this program may be developed, tested, and validated in the absence of real-world operational data.

Key Scientific Questions:

- What novel TDBD frameworks and approaches can be developed to rigorously explore and uncover the multivariate causal structure of human behavior by leveraging the strengths of theory- and data-driven approaches?
- To what extent can multivariate TDBD models that move beyond predictive accuracy to providing explanatory depth through causal understanding outperform models developed through theory-driven or data-driven approaches alone?
- Can approaches focused on rare or extreme behaviors in a distribution enable the discovery of causal relationships that are missed by conventional approaches?
- What foundational features of TDBD models can be explored now to inform future adaptive capabilities for intelligent agents, focusing on the identification of candidate factors or mechanisms that may be critical for future applications?

2. Large-Scale and/or Multi-Modal Sampling for Real-World Contexts

The reliable and efficient collection of data that capture the full range and variation of real-world human behavior across multiple dimensions and timescales will be essential for TDBD approaches. These data, whether passively collected (without active participation) or actively gathered through direct interaction, must reflect the complexity of behavior in real-world contexts. Large-scale sampling of real-world behavioral data poses significant practical challenges (e.g., reliability, quality, privacy, participant compliance). Real-time, multimodal, and dense sampling present additional challenges, particularly in real-world contexts. Proposals should address these challenges and innovations to enhance the effectiveness and efficiency of data collection to enable TDBD models scalable to the multivariate complexity of future Army operational environments are encouraged. Innovative approaches to leverage TDBD models or to integrate real-time and/or multimodal data, including physiological data, to enhance the accuracy and explanatory power of TDBD models are highly encouraged.

Key Scientific Questions:

- What are the most critical scientific challenges in collecting large-scale or and/or multimodal data for TDBD approaches, and how can innovative solutions address these challenges to ensure the representativeness of data to reflect the full range and variation of human behavior in future operational contexts?
- What are the critical technological, logistical, and ethical challenges in collecting large-scale or densely sample multimodal data for TDBD approaches, and what novel solutions can ensure that these data are reliable and secure, and that data collection approaches are scalable to the multivariate complexity of future Army operational environments?
- How can multimodal measurement approaches, including approaches for densely sampled and/or real-time physiological data, be optimized for collection and integration with the large-scale data essential to TDBD models to ensure the data supports exploration of key theoretical questions about the multivariate causal factors underlying human performance?

3. Scalable Data Infrastructure and Algorithms:

While collection of large-scale behavioral and multimodal data is essential for the success of future TDBD approaches, these data must be stored and processed efficiently and securely. Scalable data

infrastructure and algorithms are critical to enable the approaches to develop TDBD models, as well as enabling real-time analysis that results in actionable insights, as data reflecting the multivariate complexity of human behavior evolves on multiple timescales in dynamic, real-world contexts. Innovative algorithms are needed to efficiently manage and process these datasets, integrating data from diverse sources to enable TDBD models that effectively account for the causal structure underlying human behavior in and across different real-world contexts, including future Army operational environments. To enable future adaptive, intelligent agent capabilities, algorithms must provide real-time analysis to support actionable insights in dynamic, operational environments. Proposals should focus on both the development of scalable data architectures and the algorithms that will enable the reliable, secure, and high-speed processing of data for TDBD models.

Key Scientific Questions:

- What are the critical challenges in designing scalable, secure, and efficient data infrastructures that can support the collection, storage, and real-time processing of large, multi-modal datasets in real-world contexts?
- What innovations in data management are required to handle the large volumes and complexity of data required to model the multivariate causal structure of human behavior, while ensuring data fidelity and efficient computational performance?
- How can algorithms be designed to integrate and process high-dimensional data, including potential real-time processing, that reflect the multivariate causal structure of human behavior to enable actionable insights in real-world settings?
- What approaches can be developed to ensure that data infrastructures and algorithms remain robust and scalable in resource-constrained environments, such as real-time military operations?

4. Adaptive Model Refinement and Learning

The long-term effectiveness of TDBD approaches relies on their ability to develop models that maintain predictive accuracy and explanatory depth, even as new data becomes available. Incorporating learning or related adaptation mechanisms will allow these models to refine their causal understandings to improve their predictions and explanations and ensure their continued effectiveness over time. Moreover, by leveraging real-time data streams, adaptive TDBD models can respond to context-dependent and individual-specific shifts in the causal factors driving behavior, leading to more precise predictions and tailored interactions as operational conditions and Soldier states change. Proposals should explore innovative approaches for developing adaptive models that remain robust to the variability of human behavior, within and across individuals, contexts, and operational demands.

Key Scientific Questions:

- How can real-time multimodal data be integrated with large-scale data within TDBD approaches to support the real-time adaptive behavior and continuous learning of models, ensuring more accurate and contextually relevant prediction and explanation in real-world contexts?
- What adaptive learning mechanisms can be developed to refine the causal pathways of models developed through TDBD approaches to improve their prediction and explanatory accuracy as new data is collected?
- What foundational methods can be explored for adaptive model refinement to avoid potential maladaptive changes in the real-time interactions between humans and intelligent agents?

5. Validation of Approaches for Real-World Contexts:

Novel validation strategies are needed to ensure future TDBD models achieve and maintain predictive accuracy and explanatory depth in real-world applications. Proposals should focus on technical and methodological innovations that allow for robust validation of TDBD models in varied contexts. Proposers should address the challenges of translating TDBD models across different real-world

contexts, including validation of models that can adapt as the range and variation of human behavior changes with changes in operational demands and conditions, potentially altering the underlying causal structure of the behavior observed in different real-world contexts.

Key Scientific Questions:

- How can empirical validation strategies be designed to assess the predictive accuracy and reliability of models developed through TDBD approaches in varied real-world contexts?
- What gaps exist in current validation paradigms that may limit their applicability to models developed through TDBD approaches, and how can these gaps be addressed?
- What methodological innovations are needed to ensure that applications driven by models developed through TDBD approaches can maintain predictive accuracy and explanatory depth when faced with different, context-dependent real-world contexts?
- What foundational methods can be developed for the validation of adaptive TDBD models to ensure effective adjustments to new or unforeseen contextual demands?
- How can systems detect when a significant shift in operational context has occurred, enabling timely adaptation of TDBD models to maintain performance and ensure predictive accuracy and relevance into the new context?

Together, the five Technical Goals provide a broad and overarching framework for advancing scientifically rigorous TDBD approaches. To foster the innovation necessary to achieve transformative impact, the requirements defined below for Cycle 7 one-year seedling and multi-year follow-on projects aim to provide flexibility in the design of high quality, high-risk/high-reward programs of research. With these Technical Goals as a guide, submitted proposals are expected to demonstrate how they address the Key Scientific and Technical Questions while adhering to the following submission requirements.

One-year seedling projects are expected to explore foundational elements within the identified Technical Goals. Seedling proposals must address **at least three Key Scientific Questions**. No limits are placed on the number of questions addressed within any single Goal, though a high priority is placed on the first three Goals. No maximum number of Key Scientific Questions is required. However, the quality, depth, and realism of the proposed research plans within the one-year period of performance, as well as potential contribution to the broader programs of research in multi-year follow-on projects, will be prioritized over the quantity of Key Scientific Questions covered.

Multi-year follow-on projects are expected to expand the scope and complexity of the initial seedling efforts within a holistic, well-integrated program of high-risk/high-reward research. Follow-on projects are expected to build upon seedling efforts to deliver TDBD approaches that can handle the multivariate complexity of real-world contexts, including future Army operational environments. **Follow-on proposals must address:**

- **At least one question from each of the first three Goals**
- **At least two questions from the 4th and 5th Goals, collectively (i.e., two questions from Goal 4, two questions from Goal 5, OR one from each)**

Additional questions may be addressed but are not required. Both the quality of the proposed research and the overall coherence of the proposed program of research will be weighed more heavily than the quantity of Key Scientific Questions or Goals addressed.

Notional Activity Outline occurring in the May-August 2025 timeframe:

ORIENTATION & OVERVIEWS - (PIs or representative required)

- Introduction to Army science mission, planning and strategy
- Demonstrations of initial concept and approach from current Cycle Seedling Awardees
- Presentations from prior Cycle Option Awardees as appropriate
- Industry Perspective: presentations and brainstorming on shared research challenges and gaps impacting both military and commercial sectors. Identify unique collaboration opportunities and/or multiple paths for research transition

COLLABORATION / TEAM-BUILDING & RESEARCH – (junior/student participation required with guidance by senior/PI)

- Facilitated activities to support new collaborations and new ideas for those interested in the Option effort
- Opportunity for development of junior investigators to link into the ecosystem of researchers working on questions relative to Army priorities
- Hack-a-thon focused on experimental paradigms
- Dedicated time to interact with and discuss collaboration options with ARL scientists and specific ARL research programs
- Independent break-out sessions for research planning

*Notional Activity Outline occurring in the **January 2026 timeframe:***

PROPOSED FOLLOW-ON OPTION EFFORTS

- Presentation of proposed follow-on efforts (approximately 1 hour with questions) open to collaborators and government only.
- White papers for Follow-On efforts due.

C. References

- Favaretto, M., De Clercq, E., Schneble, C. O., & Elger, B. S. (2020). What is your definition of Big Data? Researchers' understanding of the phenomenon of the decade. *PloS one*, 15(2), e0228987.
- Laney, D. (2001). 3D data management: Controlling data volume, velocity and variety. *META group research note*, 6(70), 1.

B. FEDERAL AWARD INFORMATION

Multiple CAs will be awarded from this FOA. The Applicants selected for award will be notified by the Grants Officer or his/her designee telephonically or via email. The CA award is not official until the Recipient has received the award signed by the Grants Officer.

Cooperative agreements for institutions of higher education, nonprofit organizations, foreign organizations, and foreign public entities are primarily governed by the following:

- Federal statutes
- Federal regulations
- 2 CFR Part 200
- 2 CFR Part 1104
- 32 CFR Parts 21, 22, 26, and 28
- DoD Research and Development General Terms and Conditions

- Agency-specific Research Terms and Conditions

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:

- Federal statutes
- Federal regulations
- 32 CFR Part 34 – Administrative Requirements for Grants and Agreements with For-Profit Organizations
- 32 CFR Parts 21, 22, 26, and 28
- DoD Research and Development General Terms and Conditions
- Agency-specific Research Terms and Conditions

The following websites may be accessed to obtain an electronic copy of the governing regulations and guidance:

- FAR, DFARS, and AFARS: <https://www.acquisition.gov/>
- Code of Federal Regulations: <http://www.ecfr.gov>
- DoD Research and Development General Terms and Conditions September 2021
- ACC-APG-RTP Division Assistance, Research General Terms and Conditions dated January 2022

Core Funding Cycles:

	FY19	FY20	FY21	FY22	FY23	FY24	FY25	FY26	FY27	FY28	FY29	Proposal Submissions
Cycle 1	B	O	O	O								DEC 2018
Cycle 2		B	O	O	O							SEP 2019
Cycle 3			B	O	O	O						SEP 2020
Cycle 5				B	O	O	O					SEP 2021
Cycle 5					B	O	O	O				SEP 2022
Cycle 6						B	O	O	O			SEP 2023
Cycle 7							B	O	O	O		SEP 2024
Cycle 8								B	O	O	O	SEP 2025

Note: B is for Base (“seedling”) period of Cooperative Agreement; O indicates 3-yr Option.

Funding for seedling project efforts will not exceed \$100,000 per award. Award of approximately 10 seedling CAs is expected during this Cycle. Funding for a Multi-year Option beyond the seedling CA is expected to be larger in scope, with an estimated budget ranging between \$350,000 and \$500,000 per year, per award. Multiple seedling Recipients are encouraged to collaboratively propose an extension effort. Seedling Recipients may include new entities as subawardees that were not part of the initial seedling under a proposed 3-year Option. Any discussion about options is only applicable for those Seedling Recipients who receive an option.

Enhanced Research Program funding from ARL or Other Government Agencies (OGAs) may become available during a cycle which provides a mechanism for growth and enhancement within STRONG. A proposal should not include any discussion of the Enhanced Research Program. Recipients receiving a CA will be notified and provided details if the opportunity for Enhanced Research Program funding becomes available during their award period of performance.

Award Instrument: This Funding Opportunity is expected to result in the award of multiple “seedling”

cooperative agreements (CA) during each Cycle as defined at 31 U.S.C. 6305 for the execution of the program. The CA is used to enter into a relationship:

- a. The principal purpose of which 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 Federal Government's direct benefit or use.
- b. Substantial involvement is expected between the Federal Government and the Recipient when carrying out the activity contemplated by the CA.
- c. No fee or profit is allowed

Structure of Award: The CAs will consist of an initial 12-month Base award that will be executed and considered a "seedling" CA. Each seedling CA will provide for the potential for exercising an option, adding up to three more years to the base award, as outlined in the table above. This proposed additional effort may be scoped for one to three years based on its objectives and available funding, will be collaboratively developed with input from Government scientists during the period of performance of the seedling CA, **and will be presented in the January 2026 time frame for Cycle 7.**

Proposal Submission: The application process consists of proposal submissions from applicants for each Cycle under this FOA. Applicants should note there are page limitations and other requirements associated with the submission process. Submissions in connection with this FOA are due by the date and time specified below. FOA amendments for future topics will include the submission requirements for those submissions. The Government's decision to award a seedling CA will be based upon the evaluation results of the proposal submission.

Period of Performance: The CA Awards made as a result of this FOA will provide for a period of performance of one year, with the potential exercise an option period for up to three additional years at the discretion of the Government.

Place of Performance: There is no limitation on the place of performance, except an application must address planned Recipient team member participation during the Innovation Summit Series described above. The locations and other pertinent information for the summit will be posted on STRONG Program website at <https://www.arl.army.mil/strong> and also available upon request via email to strong-cra@army.mil.

Collaboration: Collaboration is expected as described in Section A.1.

Funding: This FOA is issued subject to the availability of funds. ARL has submitted the requisite documents to request funding for the period covered by the program. However, Applicants are reminded this request is subject to Presidential, Congressional and Departmental approval. Funding levels specified in this FOA are estimated funding levels and are for proposal preparation purposes only; actual funding levels of the CAs will be updated annually as part of the federal appropriation process.

Profit/Fee: Profit/fee is not permitted under the CA.

Cost Sharing: Cost sharing is not required under this FOA.

Opportunity Webinar: ARL will host an opportunity webinar (see Event timeline above). A link to the webinars can be requested via email to strong-cra@army.mil and will be posted on the STRONG Program website at <https://www.arl.army.mil/strong>.

Contact Information: Additional information about scheduling and events related to the STRONG CRA

is available upon request via email to strong-cra@army.mil. All questions or comments concerning this FOA shall be submitted to strong-cra@army.mil. Comments or questions submitted should be concise and to the point. In addition, the relevant part and paragraph of the FOA to which a comment or question pertains must be referenced. Responses to non-proprietary questions received will be answered at the STRONG opportunity webinar for the benefit of all interested parties. All clearly identified and marked proprietary questions submitted will be responded to via an individual email response, and not responded to at the opportunity webinar. Applicants are encouraged to submit questions as early as possible. The deadline for submission of questions which will be answered under this FOA is listed in Event timeline above. Any answers provided to questions do not change the requirements of this FOA. Future amendments to this FOA, including new cycle topics, will be issued via an amended FOA posted in grants.gov.

C. ELIGIBILITY INFORMATION

1. Eligible Applicants

It is our goal for the program to include a diverse group of Applicants with varied long-term interests. Participants may be institutions of higher education, for-profit, or non-profit organization.

Federally Funded Research and Development Centers (FFRDCs) are subject to applicable direct competition limitations and cannot propose to this solicitation in any capacity unless they meet the following conditions. (1) FFRDCs must clearly demonstrate that the proposed work is not otherwise available from the private sector. (2) FFRDCs must provide a letter, on official letterhead from their sponsoring organization, that (a) cites the specific authority establishing their eligibility to propose to Government solicitations and compete with industry, and (b) certifies the FFRDC's compliance with the associated FFRDC sponsor agreement's terms and conditions. These conditions are a requirement for FFRDCs proposing to be awardees or subawardees.

Proposals may consist of teams from any combination of organizations (*e.g.*, prime and subawardees), but this is not a requirement for award and award will only be made to a single entity. For each Cycle, only those Applicants awarded a seedling CA will be eligible for consideration of a 3-year option period for that Cycle as a prime during the follow-on presentations that will occur in the January 2026 timeframe; however, if desired, a Recipient of a seedling CA can include new subawardees in their white paper and follow-on presentation. All eligible Applicants may apply for future topics under future cycles.

2. Cost Sharing or Matching

Cost sharing is not required under this Funding Opportunity.

D. APPLICATION AND SUBMISSION INFORMATION

The application process consists of a single Proposal stage. Applicants will receive feedback regarding their proposal **ONLY IF IT IS SELECTED FOR AWARD**, in order to improve the proposal and ensure alignment of the proposed research with Government goals. Applicants with **non-selected proposals will be notified of their non-selection, but will not receive feedback.**

1. Address to Request Application Package

This Funding Opportunity may be accessed from the following: Grants.gov (www.grants.gov). Amendments, if any, to this FOA will be posted to these websites when they occur. Interested parties

are encouraged to periodically check these websites for updates and amendments.

2. Content and Format of Application Submission

The following information is for those wishing to respond to the FOA:

Grants.gov Application Submission and Receipt Procedures

This section provides the application submission and receipt instructions for DoD program applications. Please read the following instructions carefully and completely.

DoD is participating in the Grants.gov initiative to provide the grant community with a single site to find and apply for grant funding opportunities. For this funding opportunity, DoD requires applicants to submit their applications online through Grants.gov. This funding opportunity may be found on Grants.gov by going to the Grants.gov Search Grants screen and entering the funding opportunity number for this FOA, W911NF-19-S-0001, in the Funding Opportunity search box. You can also search for the CFDA Number 12.630

How to Register to Apply through Grants.gov

1. *Instructions:* Read the instructions below about registering to apply for DoD funds. Applicants should read the registration instructions carefully and prepare the information requested before beginning the registration process. Reviewing and assembling the required information before beginning the registration process will alleviate last-minute searches for required information.

Organizations must have a active System for Award Management (SAM) registration and Grants.gov account to apply for grants. Creating a Grants.gov account can be completed online in minutes, but SA registrations may take additional time. Therefore, an organization's registration should be done in sufficient time to ensure it does not impact the entity's ability to meet required application submission deadlines.

Complete organization instructions can be found on Grants.gov here:

<https://www.grants.gov/web/grants/applicants/organization-registration.html>

- a. *Register with SAM:* All organizations applying online through Grants.gov must register with the System for Award Management (SAM). Failure to register with SAM will prevent your organization from applying through Grants.gov. SAM registration must be renewed annually. For more detailed instructions for registering with SAM, refer to:
<https://www.grants.gov/web/grants/applicants/organization-registration/step-2-register-with-sam.html>
- b. *Create a Grants.gov Account:* The next step is to register an account with Grants.gov. Follow the on-screen instructions or refer to the detailed instructions here:
<https://www.grants.gov/web/grants/applicants/registration.html>
- c. *Add a Profile to a Grants.gov Account:* A profile in Grants.gov corresponds to a single applicant organization the user represents (i.e., an applicant) or an individual applicant. If you work for or

consult with multiple organizations and have a profile for each, you may log in to one Grants.gov account to access all of your grant applications. To add an organizational profile to your Grants.gov account, enter the UEI Number for the organization in the UEI field while adding a profile. For more detailed instructions about creating a profile on Grants.gov, refer to: <https://www.grants.gov/web/grants/applicants/registration/add-profile.html>

- d. *EBiz POC Authorized Profile Roles*: After you register with Grants.gov and create an Organization Applicant Profile, the organization applicant's request for Grants.gov roles and access is sent to the EBiz POC. The EBiz POC will then log in to Grants.gov and authorize the appropriate roles, which may include the Authorized Organization Representative (AOR) role, thereby giving you permission to complete and submit applications on behalf of the organization. You will be able to submit your application online any time after you have been assigned the AOR role. For more detailed instructions about creating a profile on Grants.gov, refer to: <https://www.grants.gov/web/grants/applicants/registration/authorize-roles.html>
- e. *Track Role Status*: To track your role request, refer to: <https://www.grants.gov/web/grants/applicants/registration/track-role-status.html>

- 2. *Electronic Signature*: When applications are submitted through Grants.gov, the name of the organization applicant with the AOR role that submitted the application is inserted into the signature line of the application, serving as the electronic signature. The EBiz POC **must** authorize people who are able to make legally binding commitments on behalf of the organization as a user with the AOR role; **this step is often missed, and it is crucial for valid and timely submissions.**

How to Submit an Application to DoD via Grants.gov

Grants.gov applicants can apply online using Workspace. Workspace is a shared, online environment where members of a grant team may simultaneously access and edit different webforms within an application. For each funding opportunity announcement (FOA), you can create individual instances of a workspace.

Below is an overview of applying on Grants.gov. For access to complete instructions on how to apply for opportunities, refer to:

<https://www.grants.gov/web/grants/applicants/workspace-overview.html>

- a. *Create a Workspace*: Creating a workspace allows you to complete it online and route it through your organization for review before submitting.
- b. *Complete a Workspace*: Add participants to the workspace to work on the application together, complete all the required forms online or by downloading PDF versions, and check for errors before submission. The Workspace progress bar will display the state of your application process as you apply. As you apply using Workspace, you may click the blue question mark icon near the upper-right corner of each page to access context-sensitive help.

- 1) *Adobe Reader*: If you decide not to apply by filling out webforms you can download individual PDF forms in Workspace. The individual PDF forms can be downloaded and saved to your local device storage, network drive(s), or external drives, then accessed through Adobe Reader.

NOTE: Visit the Adobe Software Compatibility page on Grants.gov to download the appropriate version of the software at:

<https://www.grants.gov/web/grants/applicants/adobe-software-compatibility.html>

- 2) *Mandatory Fields in Forms*: In the forms, you will note fields marked with an asterisk and a different background color. These fields are mandatory fields that must be completed to successfully submit your application.
 - 3) *Complete SF-424 Fields First*: The forms are designed to fill in common required fields across other forms, such as the applicant name, address, and UEI Number. Once it is completed, the information will transfer to the other forms.
- c. *Submit a Workspace*: An application may be submitted through workspace by clicking the Sign and Submit button on the Manage Workspace page, under the Forms tab. Grants.gov recommends submitting your application package **at least 24-48 hours prior to the close date** to provide you with time to correct any potential technical issues that may disrupt the application submission.
 - d. *Track a Workspace Submission*: After successfully submitting a workspace application, a Grants.gov Tracking Number (GRANTXXXXXXXX) is automatically assigned to the application. The number will be listed on the Confirmation page that is generated after submission. Using the tracking number, access the Track My Application page under the Applicants tab or the Details tab in the submitted workspace.

For additional training resources, including video tutorials, refer to:

<https://www.grants.gov/web/grants/applicants/applicant-training.html>

Applicant Support: Grants.gov provides applicants 24/7 support via the toll-free number 1-800-518-4726 and email at support@grants.gov. For questions related to the specific grant opportunity, contact the number listed in the application package of the grant you are applying for.

If you are experiencing difficulties with your submission, it is best to call the Grants.gov Support Center and get a ticket number. The Support Center ticket number will assist the DoD with tracking your issue and understanding background information on the issue.

Application forms and instructions will be available at Grants.gov. To access these materials, go to <http://www.grants.gov>, select "Apply for Grants", and then select "Download an Application Package." Enter the FOA number, W911NF-19-S-0001.

Applicants must complete the mandatory forms and any optional forms (e.g., SF-LLL Disclosure of Lobbying Activities) in accordance with the instructions on the forms and the additional instructions below. The required fields should be completed in accordance with the "pop-up" instructions on the forms. To activate the instructions, turn on the "Help Mode" (icon with the pointer and question mark at the top of the form). Files that are attached to the forms must be in Adobe Portable Document Form (PDF) unless otherwise specified in this announcement.

The following formatting rules apply for the file attachments:

- Paper size when printed – 8.5 x 11 inch paper
- Margins – 1 inch
- Spacing – Single
- Font – No Smaller than Times New Roman, 12 point

Form: SF 424 (R&R) (Mandatory) – Complete this form first to populate data in other forms. 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.

Form: Research & Related Other Project Information - Complete questions 1 through 6 and attach files.

- **Project Summary/Abstract (Field 7 on the form)** - The Project Summary should be a brief summary of the content of the application. It shall include a title, the research team (include roles, expertise, affiliations), designation of Junior Investigator or Senior Investigator derivation, and a brief abstract articulating the project objectives. **The project summary/abstract must not exceed 1 page and will not be evaluated as it is primarily for documentation purposes.**
- **Project Narrative (Field 8 on the form)** - Chapters and Numbers of pages – Field 7 is to contain the chapters set forth below and may not exceed the stipulated page counts for those chapters. Pages in excess of the page limits may be removed for the evaluation of the application. All chapters set forth below should be in a single PDF file. For those chapters with specified page limitations, any pages submitted beyond the specified amount for a chapter will not be reviewed or evaluation.
 - **Chapter 1: Technical Component**. The pages included in Chapter 1 are to be numbered. Applicants are advised that Chapter 1 **will not exceed 8 pages**, utilizing one side of the page. Tables that extend beyond one page (fold out tables) will only count as one page. Pages provided in excess of the prescribed 8 pages will not be evaluated.
 - **Proposed Effort (approximately 4 pages):** This section of Chapter 1 should include an overview of the research strategy to be employed to advance the state-of-the-art in advanced preparation for a future teaming environment with fluid, mutual adaptation between humans and agents that leads to enhanced team performance over time and tasks; a short description and justification for annual research goals of the proposed effort; and a short technical discussion stating the background and objectives of the proposed research, the overall technical approaches to be pursued. This technical discussion should include a proposed breakdown of research tasks and short description of the technical approaches for each task. The Proposed Effort should include the specific research questions and/or hypotheses to be tested, and what specific tasks will be performed by the research team to test them, as well as justification for why these are the appropriate measures. Technical Proposals must also include a brief summary of how this research addresses the broader needs of the program, as summarized in the program description above.
 - **Proposed Innovation Summit Series Participation and Collaboration Development (approximately 1 pages):** Must include the plan for

participation in the Innovation Summit Series. Collaboration with US Army Research Lab or other Government research personnel is highly encouraged, as well as cross-connection with other Program participants. Include a plan to foster communication and collaboration across government, academic, and industry partners, through planned participation in the Innovation Summit Series and other methods for developing multi-disciplinary collaborations throughout performance under the seedling CA. Proposals should also focus on the plan for development of collaborations to propose a follow-on option effort.

- **Participant(s) roles, qualifications and bio-sketches (approximately 1 pages):** Must include the names, primary role/availability, and brief biographies of individuals involved with the research. Include plans for junior investigator development and mentorship of less experienced personnel (mentoring plan).
- **Proposed timeline (approximately 0.5 page):** An estimated timeline of tasks to be completed during the 12-month period, including (1) components to be completed at the home institution(s) and (2) components planned during the Summit series.
- **Chapter 2: Cost Component.** The pages included in Chapter 2 will be numbered and Chapter 2 does not have a page limitation. Cost Application must include a budget for the 12-month period of performance. The cost portion of the application will contain cost estimates sufficiently detailed for meaningful evaluation, to include Summit series participation. Budget justification may also be attached in this chapter. Before award it must be established that an approved accounting system and financial management system exist.

For all applications, the budget details should include:

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 personnel performing under this agreement either by personnel or position. State the number of man-hours used to calculate a man-month or man-year. For each person or position, provide the following information:

i. The basis for the direct labor hours or percentage of effort (e.g., historical hours or estimates);

ii. 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 application should separately identify the rationale applied to base salary/wage for cost-of- living adjustments and merit increases. Each must be fully explained;

iii. The portion of time to be devoted to the requirements of the agreement;

iv. The total annual salary charged to the agreement; and

v. 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, G&A, and Other): The most recent rates, dates of negotiation, 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 applicable cost provisions. Applicants' disclosure should be sufficient to permit a full understanding of the content of the rate(s) and how it was established. At a minimum, the submission should identify:

- i. All individual cost elements included in the forecast rate(s);
- ii. Basis used to prorate indirect expenses to cost pools, if any;
- iii. How the rate(s) was calculated;
- iv. Distribution basis of the developed rate(s);
- v. Basis on which the overhead rate is calculated, such as "salaries and wages" or "total costs;" and
- vi. The period of the applicant's FY.

c. Permanent Equipment: If facilities or equipment are required, a justification why this property should be purchased with Government funds 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 or more per unit. The basis for the cost of each item of permanent equipment included in the budget must be disclosed, such as:

- i. Vendor Quote: Show name of vendor, number of quotes received and justification, if intended award is to other than lowest bidder.
- ii. Historical Cost: Identify vendor, date of purchase, and whether or not cost represents lowest bid. Include reason(s) for not soliciting current quotes.
- iii. 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 application:

- iv. Special test equipment to be fabricated by the Recipient for specific requirements in the agreement.
- v. Standard equipment to be acquired and modified to meet specific requirements, including acquisition and modification costs, listed separately.
- vi. 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.

vii. Grants and cooperative agreements may convey title to an eligible institution for permanent 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 per the governing laws and regulations.

d. Travel: Forecasts of travel expenditures (domestic and foreign) that identify the destination (if known) 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 requirements of the agreement.

e. Participant Support Costs: This budget category refers to costs of transportation, per diem, stipends, and other related costs for participants or trainees (but not employees) in connection with DoD-sponsored conferences, meetings, symposia, training activities, and workshops. Generally, indirect costs are not allowed on participant support costs. The number of participants to be supported should be entered in the parentheses on the budget form. These costs should also be justified in the budget justification page(s) attached to the cost application.

f. 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.

g. 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.

h. 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 application narrative. The cost application 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.

i. 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.

j. *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 or more, provide the following specific information:

- i. A clear description of the work to be performed;
- ii. If known, the identification of the proposed subawardee and an explanation of why and how the subawardee was selected or will be selected;
- iii. The identification of the type of award to be used (cost reimbursement, fixed price, etc.);
- iv. Whether or not the award will be competitive and, if noncompetitive, rationale to justify the absence of competition; and
- v. A detailed cost summary.

k. *ODCs*: 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 must be fully explained and justified.

l. *Profit/Fee*: Profit/fee is not allowed for the Recipient of or subaward to an assistance instrument, where the principal purpose of the activity to be carried out is to stimulate or support a public purpose (i.e., to provide assistance), rather than acquisition (i.e., to acquire goods and services for the direct benefit of the Government). 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. It does not include the Recipient's procurement of goods and services needed to carry out the program.

- **Bibliography and Reference Cited (Field 9 on the form)** – Attach a listing of applicable publications cited in above sections.
- **Facilities and Other Resources (Field 10 on the form)** - The applicant is to provide a description of any facilities planned to be used for the project, whether at the home institution, a partner facility, or during the Innovation Summit Series. A note of support guaranteeing access to these facilities on behalf of their primary management should also be included. Attach this information at Field 10.
- **Equipment (Field 11 on the form)** - The applicant is to include a listing of equipment available to support the application. Any Government equipment necessary for performance is to be clearly identified. Attach this information at Field 11.
- **Appendices (Field 12 on the form)**: Some situations require that special information and supporting documents be included in the proposal before funding can be approved. Such information and documentation should be included by appendix to the proposal.

a. **To evaluate compliance with Title IX of the Education Amendments of 1972** (20 U.S.C. A Section 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.

i. 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.

ii. 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 or 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.

b. Data Management Plan: A data management plan is a document that describes which data generated through the course of the proposed research will be shared and preserved, how it will be done, or explains why data sharing or preservation is not possible or scientifically appropriate, or why the costs of sharing or preservation are incommensurate with the value of doing so. See also: DoD Instruction 3200.12. In no more than 2 pages set forth as a separate PDF document, discuss the following:

- The types of data, software, and other materials to be produced.
- How the data will be acquired.
- Time and location of data acquisition, if scientifically pertinent.
- How the data will be processed.
- The file formats and the naming conventions that will be used.
- A description of the quality assurance and quality control measures during collection, analysis, and processing.
- A description of dataset origin when existing data resources are used.
- A description of the standards to be used for data and metadata format and content.
- Appropriate timeframe for preservation.
- The plan may consider the balance between the relative value of data preservation and other factors such as the associated cost and administrative burden. The plan will provide a justification for such decisions.
- A statement that the data cannot be made available to the public when there are national security or controlled unclassified information concerns (e.g., “This

data cannot be cleared for public release in accordance with the requirements in DoD Directive 5230.09.”)

- c. With the application, the Applicant must provide the following “Privacy Act Statement”** consent form for each Covered Individual in the proposal. This form must also be signed by the Applicant as that Individual’s Sponsor.

**Privacy Act Statement
Army Futures Command or Department of the Army
Application for Federal Assistance**

Authority: Government Paperwork Elimination Act (Pub. L. 105-277, 44 U.S.C. 3504); Executive Order 12372, Intergovernmental review of Federal Programs (47 FR 30959); 42 U.S. Code § 6605 – Disclosure of funding sources in applications for Federal research and development awards; Public Law 117-167, CHIPS and Science Act; Public Law 116-92, National Defense Authorization Act for Fiscal Year 2020; 5 U.S.C. 9101, Access to Criminal History for National Security and Other Purposes 5 CFR § 1320.8, Agency collection of information Responsibility; 18 U.S.C. § 1001, False Statements, Concealment; E.O. 13478, Amendments to Executive Order 9397 Related to Federal Use of social Security Numbers; NSPM-33, National Security Presidential Memorandum 33 on National Security for United States Research and Development; DoD-D 5240.01, DoD Intelligence Activities; DoD-I 5200.02, Department of Defense Personnel Security Program; Army Regulation 381-10, U.S. Army Intelligence Activities

Purpose: The information collected may be used in processing, investigating, and maintaining records relevant to Federal Assistance awarded by the Department of the Army. Records in these systems will be used to ensure Army sponsored and/or awarded federal grants, assistance, contracts, and/or benefits are awarded to responsible parties, entities, and individuals.

Routine Uses: To contractors, grantees, experts, consultants, students, and others performing or working on a contract, service, grant, cooperative agreement, or other assignment for the Federal Government when necessary to accomplish an agency function.

To the appropriate Federal, State, local, territorial, tribal, foreign, or international law enforcement authority or other appropriate entity where a record, either alone or in conjunction with other information, indicates a violation or potential violation of law, whether criminal, civil, or regulatory in nature.

DoD Blanket Routine Use (<http://dpcl.d.defense.gov/privacy>)

Effect of not providing information: Providing information to the Department of the Army is voluntary. However, 42 U.S. Code § 6605, which imposes certain disclosure requirements in connection with Federal research and development awards, provides various enforcement mechanisms for non-compliance. One such mechanism, which the Department of the Army intends to pursue here, is rejection of such applications.

Proposal Title (or grants.gov number): _____

Acknowledgment of consent:

Covered individual (Signature): _____ Date: _____

Covered individual (Name print): _____

Institution’s Authorized Representative (Signature): _____ Date: _____

Institution’s Authorized Representative (Name print): _____

Institution Name: _____

- d. FORM: SF-424 Research & Related Senior/Key Person Profile (Expanded) (Mandatory) –** 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.

- e. **FORM: SF-424 (R&R) Personal Data (Mandatory)** - 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.
- f. **SF-LLL – Disclosure of Lobbying Activities.** If applicable, attach a complete SF- LLL at Field 11 of the R&R Other Project Information form. Applicability: If any funds other than Federal appropriated funds have been paid or will be paid to any person for influencing or attempting to influence an officer or employee of any agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with the cooperative agreement, you must complete and submit Standard Form - LLL, "Disclosure Form to Report Lobbying.”
- g. Complete the **Representations under DoD Assistance Agreements: Appropriations Provisions on Tax Delinquency and Felony Convictions** (this can be found under National Policy Requirements)

3. Submission Dates and Times

Proposals are due in grants.gov by 3:00pm (local time in North Carolina, USA) on **31 January, 2025**. An email receipt will be provided to each Applicant for each Proposal submission received. Applications submitted after the closing date and time will not be considered or evaluated by the Government.

Application Receipt Notices

Grants.gov: After an application is submitted to Grants.gov, the AOR will receive a series of three emails from Grants.gov. The first two emails will be received within 24 to 48 hours after submission. The first email will confirm time of receipt of the application by the Grants.gov system and the second will indicate that the application has either been successfully validated by the system prior to transmission to the grantor agency or has been rejected due to errors. A third email will be received once the grantor agency has confirmed receipt of the application. Reference https://www.grants.gov/help/html/help/GetStarted/Get_Started.htm from the Grants.gov User Guide for information on how to track your application package.

For the purposes of this FOA, an applicant’s application is not considered received by the Government until the AOR receives email #3.

E. APPLICATION REVIEW / EVALUATION INFORMATION

1, The following represents the evaluation criteria for this FOA:

Factor 1: Scientific Merit and Relevance: Evaluation of this factor will concentrate on the overall scientific and technical merit, creativity, innovation, and flexibility of the proposed research in light of the current state-of-the-art of STRONG-relevant scientific topics, and the expected outcomes based on the timeline of execution. The scientific merit will be evaluated with regard to the specific research area to be addressed in this FOA. Evaluation of this factor will also concentrate on the long-term relevance of the proposed research and the likelihood the proposed research will address scientific challenges and research barriers facing the Army and commercial sectors, in addition to STRONG specific relevance.

Factor 2: Experience and Qualifications of Scientific Staff and Junior Investigator Development: Evaluation of this factor will concentrate on the qualifications, capabilities, availability, proposed level of effort, and experience of both the Applicant's key research personnel (individually and as a whole), their relevant past accomplishments, and their ability to achieve the proposed technical objectives. Plans for junior investigator development and mentorship of less experienced personnel will be an evaluation factor. Key personnel are expected to be substantially and meaningfully engaged in the research and the proposed level of effort for key personnel reflected in the proposal should be commensurate with and demonstrate such engagement. The extent to which the Applicant's proposed facilities and equipment will contribute to the accomplishment of the proposed research will be evaluated, including the nature, quality, relevance, availability, and access to state-of-the-art research facilities and equipment.

Factor 3: Collaboration / Ecosystem support: Evaluation of this factor will concentrate on the Applicant's strategies, plans and experience in fostering collaborative research and managing collaborative research programs as set forth in this FOA. Evaluation of this factor will include evidence of previous successful collaborative efforts, plans for participation at the Innovation Summit Series, the Applicant's commitment and plans for collaboration within the program and the synergistic value of the collaborations among researchers and government scientists. Of particular interest are the Applicant's plans for creative ideas or approaches to sharing and transition of research products (e.g., datasets, code/algorithms, models) that *create enduring collaborative potential and strengthen the overall innovation ecosystem amongst government, academic, and industry partners.*

Factor 4: Cost: While this area will not be weighted, evaluation of this area will consider cost realism, cost reasonableness, and affordability within funding constraints. The Government may make adjustments to the cost of the total proposed effort as deemed necessary to reflect what the effort should cost. These adjustments will consider the task undertaken and approach proposed. These adjustments may include upward or downward adjustments to proposed labor hours, labor rates, quantity of materials, price of materials, overhead rates and G&A, etc.

2, Review and Selection Process

a, All timely and compliant Proposal submissions will be evaluated in accordance with the evaluation criteria set forth above by an evaluation panel of qualified scientists and managers from the Government. The evaluation panel will provide recommendations for award to the decision maker for the Government. The decision maker will make decisions concerning award selection. The Government reserves the right not to make an award should no acceptable Proposal be submitted.

b, No other material outside of a Proposal will be provided to, or considered by, those evaluating proposals. An initial review of the proposals will be conducted to ensure compliance with the requirements of this FOA. Failure to comply with the requirements of the FOA may result in a proposal not being evaluated and

receiving no further consideration for award.

c, Upon receipt of a proposal, ARL staff will perform an initial review of its scientific merit and potential contribution to the Army mission, and also determine if funds are expected to be available for the effort. Proposals not considered having sufficient scientific merit or relevance to the Army's needs, or those in areas for which funds are not expected to be available, may not receive further review.

d, All proposals are treated as procurement sensitive and are disclosed only for the purpose of evaluation. Proposals having sufficient scientific merit or relevance will be subject to a peer review by highly qualified subject matter experts, both Government employees and non- Government employees. While the applicant may restrict the evaluation to Government employees, to do so may prevent review of the proposal by other qualified experts in the field of research covered by the proposal. The applicant must indicate on the appropriate proposal form (Form 52 or 52A) any limitation to be placed on disclosure of information contained in the proposal.

e, Proposals that are timely and in compliance with the requirements of the FOA will be evaluated in accordance with merit based, competitive procedures. These procedures will include evaluation factors that will be evaluated using an adjectival and color rating system as follows:

OUTSTANDING (blue): The proposal is evaluated as outstanding for this factor. The proposal includes **one or more significant strengths that are not offset by weaknesses.**

GOOD (purple): The proposal is evaluated as good for this factor. The proposal includes **some strengths that are not offset by weaknesses.**

ACCEPTABLE (green): The proposal is evaluated as acceptable for this factor. **Any strengths and weaknesses in the proposal balance out.**

MARGINAL (yellow): The proposal is evaluated as marginal for this factor. While the proposal **may or may not contain some strengths, and strengths are more than offset by any weakness or weaknesses.**

UNACCEPTABLE (red): The proposal is evaluated as unacceptable for this factor. While the proposal **may or may not contain some strengths, and strengths are offset by any significant weakness or weaknesses.**

f, Army Research Risk Assessment. Each proposal with a recommendation to “select” in accordance with E.1 above, whose costs have been determined to be reasonable and realistic in accordance with E.1 above, for which funds are available, and where a grant or cooperative agreement will be the award instrument type, will be subject to an Army Research Risk Assessment prior to award.

i, The Army Research Risk Assessment Program.

The Army Research Risk Assessment Program (ARRP) is an adaptive risk management security program applied to Army-funded research designed to help protect Army Science and Technology (S&T) by identifying possible vectors of undue foreign influence. In order to identify and mitigate undue foreign influence as required by federal law and policy, the Army will perform a research risk assessment of each proposal selected based on the criteria above for consideration of a fundamental research grant or cooperative agreement award. ARRP risk assessments for these subject proposals will be developed for all proposed Senior/Key personnel, (also referred to as

“Covered Individuals”). These risk assessments will be based on information disclosed in the Standard Form (SF) 424, “Senior/Key Person Profile (Expanded),” any of its accompanying or referenced documents, publicly available information, and information contained in internal Army databases. Nationality or citizenship is not a factor in the risk assessment.

ARRP has a risk matrix which identifies risk factors and resulting risk ratings. The matrix generally looks at four factors, or risk areas: participation in foreign talent programs; denied entity list affiliation or association (see <https://www.bis.doc.gov/index.php/the-denied-persons-list> and <https://www.bis.doc.gov/index.php/policy-guidance/lists-of-parties-of-concern/entity-list>); funding sources to include conflict of interest or conflict of commitment, or funding from a strategic competitor; and foreign influence showing a pattern or history of affiliation, association, or collaboration with a foreign institution, person or entity from a U.S. strategic competitor. The matrix is set forth below:

Rating	Identified Specific Actions of the Senior/Key Personnel			
	Foreign Talent Program	Denied Entities	Funding	Foreign Institutions
<u>HIGH</u>	Indicators of active (ongoing) participation or sponsorship in a strategic competitor Foreign Talent Program	Indicators of an active (ongoing) affiliation or past affiliation or present association with an entity on the U.S. Gov’t denied entity or person list or EO 13959 or subsequent similar issuances	Indicators of active (ongoing) conflict of interest, conflict of commitment, or pattern of direct funding from a strategic competitor or country with history of targeting U.S. research or technology	Indicators of active (ongoing) direct affiliation, association or collaboration with a foreign institution, person, or entity from a strategic competitor
<u>MODERATE</u>	Indicators of past participation in a Foreign Talent Program with a U.S. strategic competitor, or country with a history of targeting U.S. research or technology	Indicators of past association with an entity identified in the U.S. Gov’t denied entity or person list or EO 13959 or subsequent similar issuances	Indicators of any history or nonconsecutive pattern of, conflict of interest, conflict of commitment, or funding from a strategic competitor or country with history of targeting U.S. research or technology	Indicators of a history or pattern of association or collaboration with foreign institution, person, or entity from a strategic competitor or country with history of targeting U.S. research or technology
<u>LOW</u>	No participation in a Foreign Talent Program	No indicators of past or current association or affiliation with an entity on the U.S. Gov’t denied entity or person list or EO 13959 or subsequent	No indicators of past funding from a strategic competitor or country with history of targeting U.S. research or technology	No indicators of an association or collaboration with a foreign institution, person, or entity from a strategic competitor or country with history of targeting

		similar issuances		U.S. research or technology
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- **Affiliation** is academic, professional, or institutional appointments or positions with a foreign government-connected entity, whether full-time, part-time, or voluntary (including adjunct, visiting, honorary, or lectures/visits) where direct monetary or non-monetary reward is involved.

- **Association** is academic, professional, or institutional appointments or positions with a foreign government-connected entity, whether full-time, part-time, or voluntary (including adjunct, visiting, honorary, or lectures/visits) where no direct monetary or non-monetary reward is involved.

- **Collaboration** is academic, professional, or institutional agreement to jointly work together with a foreign government connected entity, whether full-time, part-time, or voluntarily, in an official or unofficial capacity. Co-authorship in research endeavors is an example of collaboration.

- **Strategic competitors** are those adversaries identified in the current year Annual Threat Assessment report from Director of National Intelligence. The 2021 assessment was published on April 9, 2021 and can be found at <https://www.dno.gov/>.

- **Conflict of Interest and Conflict of Commitment** are defined in NSPM-33 and in the CONOP as well as the ARRP Policy memorandum.

- **Senior/Key Personnel** are those who (a) contribute in a substantive, meaningful way to the scientific development or execution of a research and development project proposed to be carried out with a research and development award from a Federal research agency; and (b) are designated as a covered individual by the Federal research agency concerned.

ARRP risk ratings range from LOW to HIGH depending on the amount, type, and timing of foreign associations or affiliations that could constitute a foreign-influenced “Conflict of Interest” or “Conflict of Commitment,” as defined by National Security Presidential Memorandum 33 (NSPM-33).

Once the research risk assessments are performed, the Army risk acceptance authority has several courses of action available for consideration. These courses of action are as follows:

Course of Action 1 - The Army risk acceptance authority may accept the risk rating that results from the risk assessment process and proceed with the award. This typically happens with proposals with risk ratings of “LOW” but could also happen with the other risk ratings. In Course of Action 1, the applicant will not be required to do anything related to the risk assessment process or the assigned risk rating.

Course of Action 2 - The Army risk acceptance authority may accept the risk rating with some research protection requirements added to the grant or cooperative agreement award. This typically happens with proposals with risk ratings of “MODERATE” but could also happen

with the other risk ratings. Also, typically, these added research protection requirements could include, but be limited to the following in the grant or cooperative agreement award:

- The University's Security Office shall provide the Principal Investigator and key personnel related to this award training on foreign talent recruitment programs and threat awareness and reporting requirements.
- The University shall disclose to the Army Research Laboratory Security Office and Grants Officer all international travel, i.e., all international travel completed as part of any university business, by the Principal Investigator and key personnel related to this award instrument prior to travel.
- The University shall report to the Army Research Laboratory Security Office and Grants Officer all inquiries by foreign operatives or suspected foreign operatives into research associated with the award.
- The University is encouraged to utilize students without potential conflicts of interest or conflicts of commitment as identified in U.S. National Security Presidential Memorandum (NSPM-33).

Under Course of Action 2, the applicant will be asked to sign the grant or cooperative agreement prior to award, confirming agreement to these added requirements. Should the applicant not agree to these added research protection requirements, the Army risk assessment authority may decide not to award.

Course of Action 3 - The Army risk acceptance authority is not willing to accept the risk assigned as a result of the assessment process. In this case, the applicant will be provided an opportunity to provide a risk mitigation plan. This typically happens with proposals with risk ratings of "HIGH" but could also happen with the other risk ratings. In Course of Action 3, the applicant will be informed of the risk rating assigned during the risk assessment process as well as the block(s) on the matrix where the review resulted in some type of finding that contributed to the assigned risk rating. Should the applicant choose to not submit a risk mitigation plan, the Army risk assessment authority may decide not to award. Should the applicant choose to submit a risk mitigation plan, the Army will review such plan. As a result of this review, the Army risk acceptance authority may then be willing to accept the risk assigned with the mitigation plan and proceed with the award or the Army risk acceptance authority may not be willing to accept the risk and may decide not to award. Further, should the risk mitigation plan include proposal revisions that affect those aspects of the proposal included in the review or selection process under SECTION II.E.2.c, the original proposal evaluation will be reviewed and revised as appropriate based on the proposal revisions.

ii. Actions Required by Applicants.

1, By submission of this application and authorized signature on the SF 424 (R&R) Form, the Applicant agrees to comply with the following requirements:

- To certify that each covered individual who is listed on the application has been made aware:
 - (1) of all relevant disclosure requirements, including the requirements of 42 U.S.C. § 6605; and
 - (2) that false representations may be subject to prosecution and liability pursuant to, but not limited to, 18 U.S.C. §§287, 1001, 1031 and 31 U.S.C. §§ 3729-3733 and 3802. See National

Science and Technology Council Guidance for Implementing National Security Presidential Memorandum 33 (NSPM-33) on National Security Strategy for United States Government-Supported Research and Development (January 2022), at p. 7 (available at <https://www.whitehouse.gov/wp-content/uploads/2022/01/010422-NSPM-33-Implementation-Guidance.pdf>).

- To establish and maintain an internal process or procedure to address foreign talent programs, conflicts of commitment, conflicts of interest, and research integrity.
- To exercise due diligence to identify Foreign Components or participation by Senior/Key Personnel in Foreign Government Talent Recruitment Programs and agree to share such information with the Government upon request.

2, With the application, the Applicant must provide a completed “Privacy Act Statement” consent form for each Covered Individual that is also signed by the Applicant as that Individual’s Sponsor. The “Privacy Act Statement” form is included at SECTION II.D.2.d.xii (3) of this BAA.

3, During the award period of performance:

- If, at any time, during performance of this award, the Recipient learns that its Senior/Key Research Personnel (including any subawardee personnel who receive this designation) are or are believed to be participants in a Foreign Government Talent Program or have Foreign Components with a strategic competitor or country with a history of targeting U.S. technology for unauthorized transfer, the recipient will notify the Government or Grants Officer within 5 business days of awareness.
- This disclosure must include specific information as to the personnel involved and the nature of the situation and relationship. The Government will review this information and conduct any necessary fact-finding or discussion with the Recipient. The Government’s determination on disclosure may include acceptance, mitigation, or termination of the award.
- Failure of the Recipient to reasonably exercise due diligence to discover or ensure that neither it nor any of its Senior/Key Research Personnel involved in the subject award are participating in a Foreign Government Talent Program or have a Foreign Component with a strategic competitor or country with a history of targeting U.S. technology for unauthorized transfer may result in the Government exercising remedies in accordance with federal law and regulation.
- The provisions concerning this disclosure will be included in each award.
- The Recipient will be required to flow down this provision to all sub awardees who have personnel designated as Senior/Key Research Personnel as a result of their involvement in the performance of the research.

iii. Actions Required by Covered Individuals.

Federal law requires that all current and pending research support, as defined by 42 U.S.C. §6605, must be disclosed at the time of proposal submission, for all covered individuals. The Government may require an updated disclosure during the performance of any research project selected for funding. The Government will require an updated disclosure whenever covered individuals are added or identified as performing under the funded project. See definition of “Covered Individuals” below.

Covered Individuals are also required to sign the “Privacy Act Statement” and provide such signed statement to the applicant for submission with the proposal. Any decision to accept a proposal for funding under this announcement will include full reliance on the individual’s statements. Failure to report fully and completely all sources of project support and outside positions and affiliations may be considered a material statement within the meaning of the False Claims Act, 31 U.S.C. 3729, and constitute a violation of Federal law.

iv. Privacy Act Compliance.

All information collected and developed for the purpose of conducting ARRP risk assessments will be maintained in accordance with the following authorities: •

- Office of Personnel Management (OPM) System of Records Notice (SORN) GOVT-1. This SORN governs information collected from federal grantees for the purpose of conducting a national security investigation or carrying out other lawful statutory, administrative, or investigative purposes of the agency, to the extent the information is relevant and necessary to the requesting agency’s decision.
- Department of the Army (DA) SORN A0381-20b-DAMI (Feb. 10, 2009, 74 F.R. 6596). This SORN applies to information contained in systems used by the Department of the Army to develop ARRP risk assessments.
- 32 C.F.R. Appendix A to Part 310, Paragraph N: DoD Blanket Routine Uses. Pursuant to this provision, a record from a system of records maintained by a Component may be disclosed as a routine use outside the DoD or the U.S. Government for the purpose of counterintelligence activities authorized by U.S. law or Executive order or for the purpose of enforcing laws that protect the national security of the United States.

v. Definitions

- **Covered Individual.** An individual who contributes in a substantive, meaningful way to the scientific development or execution of a research and development project proposed to be carried out with a research and development award from a Federal research agency; and is designated as a covered individual by the Federal research agency concerned. See 42 U.S.C. § 6605, Definitions. (For purposes of this BAA, “covered individuals” are all Senior/Key Personnel.)
- **Senior/Key Research Personnel.** This term includes the Principal Investigator (PI) and other individuals who contribute to the scientific development or execution of a project in a substantive, measurable way, whether or not they receive salaries or compensation under the award. These include individuals whose absence from the project would be expected to impact the approved

scope of the project. (For purposes of this BAA, “Senior/Key Personnel” are all considered “covered individuals.”)

- **Foreign Associations and Affiliations.** Association is defined as collaboration, coordination or interrelation, professionally or personally, with a foreign government-connected entity where no direct monetary or non-monetary reward is involved. Affiliation is defined as collaboration, coordination, or interrelation, professionally or personally, with a foreign government-connected entity where direct monetary or non-monetary reward is involved.
- **Foreign Government Talent Recruitment Programs.** In general, these programs include any foreign-state-sponsored attempt to acquire U.S. scientific-funded research or technology through foreign government-run or funded recruitment programs that target scientists, engineers, academics, researchers, and entrepreneurs of all nationalities working and educated in the U.S. Distinguishing features of a Foreign Government Talent Recruitment Program may include:
 - Compensation, either monetary or in-kind, provided by the foreign state to the targeted individual in exchange for the individual transferring their knowledge and expertise to the foreign country. In-kind compensation may include honorific titles, career advancement opportunities, promised future compensation or other types of remuneration or compensation.
 - Recruitment, in this context, refers to the foreign-state-sponsor’s active engagement in attracting the targeted individual to join the foreign-sponsored program and transfer their knowledge and expertise to the foreign state. The targeted individual may be employed and located in the U.S. or in the foreign state.
 - Contracts for participation in some programs that create conflicts of commitment and/or conflicts of interest for researchers. These contracts include, but are not limited to, requirements to attribute awards, patents, and projects to the foreign institution, even if conducted under U.S. funding, to recruit or train other talent recruitment plan members, circumventing merit-based processes, and to replicate or transfer U.S.-funded work in another country.
 - Many, but not all, of these programs aim to incentivize the targeted individual to physically relocate to the foreign state. Of particular concern are those programs that allow for continued employment at U.S. research facilities or receipt of U.S. Government research funding while concurrently receiving compensation from the foreign state.
 - Foreign Government Talent Recruitment Programs do **not** include research agreements between the University and a foreign entity, unless that agreement includes provisions that create situations of concern

addressed elsewhere in this section; agreements for the provision of goods or services by commercial vendors; or invitations to attend or resent at conferences.

- **Conflict of Interest.** A situation in which an individual, or the individual's spouse or dependent children, has a financial interest or financial relationship that could directly and significantly affect the design, conduct, reporting, or funding of research.
- **Conflict of Commitment.** A situation in which an individual accepts or incurs conflicting obligations between or among multiple employers or other entities. Common conflicts of commitment involve conflicting commitments of time and effort, including obligations to dedicate time in excess of institutional or funding agency policies or commitments. Other types of conflicting obligations, including obligations to improperly share information with, or withhold information from, an employer or funding agency, can also threaten research security and integrity and are an element of a broader concept of conflicts of commitment.
- **Foreign Component.** Performance of any significant scientific element or segment of a program or project outside of the U.S., either by the University or by a researcher employed by a foreign organization, whether or not U.S. government funds are expended. Activities that would meet this definition include, but are not limited to: involvement of human subjects or animals; extensive foreign travel by University research program or project staff for the purpose of data collection, surveying, sampling, and similar activities; collaborations with investigators at a foreign site anticipated to result in co-authorship; use of facilities or instrumentation at a foreign site; receipt of financial support or resources from a foreign entity; or any activity of the University that may have an impact on U.S. foreign policy through involvement in the affairs or environment of a foreign country.
- **Strategic Competitor.** A nation, or nation-state, that engages in diplomatic, economic or technological rivalry with the United States where the fundamental strategic interests of the U.S are under threat.

3, Recipient Qualification

The Grants Officer is responsible for determining a Recipient's qualification prior to award. In general, a Grants Officer will award grants or CAs only to qualified Recipients that meet the standards at 32 CFR 22.415. To be qualified, a potential Recipient must:

- (1) Have the management capability and adequate financial and technical resources, given those that would be made available through the grant or cooperative agreement, to execute the program of activities envisioned under the grant or cooperative agreement;
- (2) Have a satisfactory record of executing such programs or activities (if a prior Recipient of an award);
- (3) Have a satisfactory record of integrity and business ethics; and

(4) Be otherwise qualified and eligible to receive a grant or cooperative agreement under applicable laws and regulations (see 32 CFR 22.420(c)).

Applicants are requested to provide information with proposal submission to assist the Grants Officer's evaluation of Recipient qualification.

In accordance with OMB guidance in parts 180 and 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 (FAPIIS), or any successor system designated by OMB, concerning grants, cooperative agreements, and TIAs as follows:

If the total Federal share will be greater than the simplified acquisition threshold on any Federal award under a notice of funding opportunity (see 2 CFR 200.88 Simplified Acquisition Threshold):

(5) 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 SAM (currently FAPIIS) (see 41 U.S.C. 2313);

(6) 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;

(7) 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 applicants as described in 2 CFR 200.205 Federal awarding agency review of risk posed by applicants.

F. AWARD ADMINISTRATION INFORMATION

Award Notices

Should your Proposal be selected for award, you will be contacted telephonically or via email by the Grants Officer or his/her representative to discuss additional information required for award. This may include representations and certifications, revised budgets or budget explanations, and other information as applicable to the proposed award. The anticipated start date will be determined at that time.

The award document signed by the Government Grants Officer is the official and authorizing award instrument.

Administrative and National Policy Requirements

- a. Each award under this announcement will be governed by the general award terms and conditions in effect at the time of the award that conform to DoD's implementation of OMB guidance applicable to financial assistance in 2 CFR part 200, "Uniform Administrative Requirements, Cost Principles, and Audit Requirements for Federal Awards." The DoD Research and Development General Terms and Conditions are located at

<https://www.onr.navy.mil/Contracts-Grants/submit-proposal/grants-proposal/grants-terms-conditions>. These terms and conditions are incorporated by reference in this announcement.

- b. You must comply with all applicable national policy requirements. The key national policy requirements that may relate to an award under this FOA are included in the terms and conditions specified in paragraph 2.a above.
- c. By electronically signing the SF-424, the applicant affirms its agreement with the following certification.

Certification Required for Grant and Cooperative Agreement Awards

The certification at Appendix A to 32 CFR Part 28 regarding lobbying is the only certification required at the time of application submission for a grant or cooperative agreement award. The certification is as follows:

“By signing and submitting an application that may result in the award of a grant exceeding \$100,000, the prospective awardee is certifying, 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 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 employ 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 of Lobbying Activities” 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, and loans, or cooperative agreements) and that all Subrecipients shall certify and disclose accordingly.

This certification is a material representation of fact upon which reliance was placed when this transaction was made or entered into. Submission of this certification is a prerequisite for making or entering into this transaction imposed by section 1352, Title 31, U.S. Code. Any person who fails the required certification shall be subject to a civil penalty or not less than \$10,000.00 and not more than \$100,000.00 for each failure.

- d. Representations Required for Grant and Cooperative Agreement Awards

Appropriations Provisions on Tax Delinquency and Felony Convictions

Check either “is” or “is not” for each of these two representations, as appropriate for the

proposing institution, include the AOR signature and point of contact information, and attach the representation page to Field 12 of the SF-424 Research & Related Other Project Information form. The page for these representations is provided with the application materials that are available for download at Grants.gov. Representations:

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:

(1) The applicant represents that it is () or 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.

(2) The applicant represents that it is () 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.

OMB CONTROL NUMBER: 0704-0494

OMB EXPIRATION DATE: 11/30/2019

AGENCY DISCLOSURE NOTICE

The public reporting burden for this collection of information is estimated to average 5 minutes per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing the burden, to the Department of Defense, Washington Headquarters Services, Executive Services Directorate, Directives Division, 4800 Mark Center Drive, East Tower, Suite 02G09, Alexandria, VA 22350-3100 [0704-0494]. Respondents should be aware that notwithstanding any other provision of law, no person shall be subject to any penalty for failing to comply with a collection of information if it does not display a currently valid OMB control number.

Prohibition on Contracting with Entities that Require Certain Internal Confidentiality Agreements

Agreement with the representation below will be affirmed by checking the “I agree” box in block 17 of the SF-424 (R&R) as part of the electronic application submitted via Grants.gov. The representation reads as follows:

By submission of its 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: (1) the basis for this representation is a prohibition in Section 743 of the Financial Services and General Government Appropriations Act, 2015, Pub. L. 113- 235) on provision of funds through grants and cooperative agreements to entities with certain internal confidentiality agreements or statements; and (2) 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.

Section 889 of the National Defense Authorization Act (NDAA) for Fiscal Year (FY) 2019

Section 889 of the National Defense Authorization Act (NDAA) for Fiscal Year (FY) 2019 (Public Law 115-232) prohibits the head of an executive agency from obligating or expending loan or grant funds to procure or obtain, extend, or renew a contract to procure or obtain, or enter into a contract (or extend or renew a contract) to procure or obtain the equipment, services, or systems prohibited systems as identified in section 889 of the NDAA for FY 2019.

(1) In accordance with 2 CFR 200.216 and 200.471, all awards that are issued on or after August 13, 2020, recipients and subrecipients are prohibited from obligating or expending loan or grant funds to:

1. Procure or obtain;
2. Extend or renew a contract to procure or obtain; or,
3. Enter into a contract (or extend or renew a contract) to procure or obtain equipment, services, or systems that uses covered telecommunications equipment or services as a substantial or essential component of any system, or as critical technology as part of any system. As described in Public Law 115- 232, section 889, covered telecommunications equipment is telecommunications equipment produced by Huawei Technologies Company or ZTE Corporation (or any subsidiary or affiliate of such entities).

(a) For the purpose of public safety, security of government facilities, physical security surveillance of critical infrastructure, and other national security purposes, video surveillance and telecommunications equipment produced by Hytera Communications Corporation, Hangzhou Hikvision Digital Technology Company, or Dahua Technology Company (or any subsidiary or affiliate of such entities).

(b) Telecommunications or video surveillance services provided by such entities or using such equipment.

(c) Telecommunications or video surveillance equipment or services produced or provided by an entity that the Secretary of Defense, in consultation with the Director of the National Intelligence or the Director of the Federal Bureau of Investigation, reasonably believes to be an entity owned or controlled by, or otherwise connected to, the government of a covered foreign country.

(2) In implementing the prohibition under Public Law 115-232, section 889, subsection (f), paragraph (1), heads of executive agencies administering loan, grant, or subsidy programs shall prioritize available funding and technical support to assist affected businesses, institutions and organizations as is reasonably necessary for those affected entities to transition from covered communications equipment and services, to procure replacement

equipment and services, and to ensure that communications service to users and customers is sustained.

(3) See Public Law 115-232, section 889 for additional information.

COVERED FOREIGN COUNTRY means the People's Republic of China.

e, National Security:

(1) This announcement requires that all current and pending research support, as defined by Section 223 of the FY21 National Defense Authorization Act must be disclosed annually, for all covered individuals identified in the proposal. Such disclosure will be updated annually during the performance of any research project selected for funding, and whenever covered individuals are added or identified as performing under the project.

(2) Any decision to accept a proposal for funding under this announcement will include full reliance on the applicant's statements. Failure to report fully and completely all sources of project support and outside positions and affiliations may be considered a material statement within the meaning of the federal False Claims Act, and constitute a violation of law.

ARL may conduct a pre-award conflict of interest/conflict of commitment review, as defined in the National Security Presidential Memorandum- 33, of any proposal selected for funding. Applicants are advised that any significant conflict of interest/conflict of commitment identified may be a basis for the rejection of an otherwise awardable proposal.

G. AGENCY CONTACTS

All questions or comments concerning this FOA should be submitted via email to strong-cra@army.mil. In addition, the relevant part and paragraph of the FOA must be referenced. Responses to non-proprietary questions received by the specified date will be discussed at the opportunity webinar (see timeline above for dates). Should an Applicant have questions they believe are of a proprietary nature, the Applicant must clearly state so and identify and mark the proprietary information in the question when submitted. Answers to questions of a proprietary nature will be provided via email directly to the requestor of the question and not discussed at the opportunity webinar.

H. OTHER – HUMAN SUBJECTS

For Assistance Instruments:

- a. The Recipient must protect the rights and welfare of individuals who participate as human subjects in research under this award and comply with the requirements at 32 CFR part 219, Department of Defense Instruction (DoDI) 3216.02, 10 U.S.C. 980, and when applicable, Food and Drug Administration (FDA) regulations.
- b. The Recipient must not begin performance of research involving human subjects, also known as human subjects research (HSR), that is covered under 32 CFR part 219, or that meets exemption criteria under 32 CFR 219.101(b), until you receive a formal notification of approval from a DoD Human Research Protection Official (HRPO). Approval to perform HSR under this award is

received after the HRPO has performed a review of the Recipient's documentation of planned HSR activities and has officially furnished a concurrence with the Recipient's determination as presented in the documentation.

- c. In order for the HRPO to accomplish this concurrence review, the Recipient must provide sufficient documentation to enable his or her assessment as follows:
 - i. If the HSR meets an exemption criteria under 32 CFR 219.101(b), the documentation must include a citation of the exemption category under 32 CFR 219.101(b) and a rationale statement.
 - ii. If the Recipient's activity is determined as "non-exempt research involving human subjects", the documentation must include:
 - Assurance of Compliance (i.e., Department of Health and Human Services Office for Human Research Protections (OHRP) Federal Wide Assurance (FWA)) appropriate for the scope of work or program plan; and
 - Institutional Review Board (IRB) approval, as well as all documentation reviewed by the IRB to make their determination.
- d. The HRPO retains final judgment on what activities constitute HSR, whether an exempt category applies, whether the risk determination is appropriate, and whether the planned HSR activities comply with the requirements in paragraph (a) of this section.
- e. The Recipient must notify the HRPO immediately of any suspensions or terminations of the Assurance of Compliance.
- f. DoD staff, consultants, and advisory groups may independently review and inspect the Recipient's research and research procedures involving human subjects and, based on such findings, DoD may prohibit research that presents unacceptable hazards or otherwise fails to comply with DoD requirements.
- g. Definitions for terms used in this article are found in DoDI 3216.02.