



FEDERAL AWARDING AGENCY: Washington Headquarters Services Acquisition Directorate (WHS/AD)

FUNDING OPPORTUNITY TITLE: Minerva Research Initiative's (Minerva) Defense Education and Civilian University Research (DECUR) Partnership

ANNOUNCEMENT TYPE: Initial Announcement

NOTICE OF FUNDING OPPORTUNITY (NFO) NUMBER: HQ003423NFOEASD13

ASSISTANCE LISTING: 12.630 Basic, Applied, and Advanced Research in Science and Engineering

KEY DATES: White Papers: Wednesday, October 4, 2023 1500 Eastern
Full Applications: Friday, January 5, 2024 1500 Eastern

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SECTION A: PROGRAM DESCRIPTION

1. SHORT DESCRIPTION OF FUNDING OPPORTUNITY

Minerva's Defense Education and Civilian University Research (DECUR) Partnership aims to develop collaborative basic research partnerships between Defense Professional Military Education (PME) Institutions and Civilian Research Universities by supporting basic research projects that improve capacities in defense-related basic social science to inform Department of Defense (DoD) policy makers and decision leaders.

2. BACKGROUND

Minerva aims to improve DoD's basic understanding of the social, cultural, behavioral, and political forces that shape regions of the world of strategic importance to the U.S. The research program seeks to:

- Leverage and focus the resources of the Nation's top universities;
- Define and develop foundational knowledge about sources of present and future conflict with an eye toward better understanding of the political trajectories of key regions of the world; and
- Improve the ability of DoD to develop cutting-edge social science research and foreign area and interdisciplinary studies that is developed and vetted by the best scholars in these fields.

Minerva brings together universities, research institutions, and individual scholars and supports interdisciplinary and cross-institutional projects addressing specific topic areas determined by the Secretary of Defense.

3. PROGRAM DESCRIPTION/OBJECTIVE

The Office of the Secretary of Defense (OSD) is interested in receiving applications for Minerva's [DECUR Partnership](#). The DECUR Partnership aims to develop collaborative basic research partnerships between PME Institutions and Civilian Research Universities by supporting fundamental scientific research that improves the capacity of security-related basic social science research and education. Building upon the success of Minerva's university research awards, the DECUR Partnership aims to pair civilian university researchers with PME faculty to facilitate collaborative research in the fundamental understanding of the social and cultural forces shaping U.S. strategic interests globally. OSD is particularly interested in projects that align with and support the [2022 National Defense Strategy](#).

Minerva emphasizes questions of strategic importance to U.S. national security policy, and the DECUR partnership aims to increase the Department's intellectual capital in the social sciences and improve its ability to address future challenges and build bridges between the Department and the social science community. Minerva brings together universities and other research institutions around the world and

supports multidisciplinary and cross-institutional projects addressing specific interest areas determined by the Department of Defense. The Minerva program aims to promote research in specific areas of social science and to promote a candid and constructive relationship between DoD and the social science academic community.

The Minerva Research Initiative competition is for research related to six (6) topics listed below. Innovative white papers and applications related to these research areas are highly encouraged. Detailed descriptions of the interest areas—which are intended to provide a frame of reference and are not meant to be restrictive—can be found in Appendix One: Research Topics.

- Topic 1: Socio-economic vulnerability to climate change
- Topic 2: Deterrence in the future operating environment
- Topic 3: Russian speakers in online spaces
- Topic 4: Power and influence in the era of strategic competition
- Topic 5: The Arctic as a polar crossroads
- Topic 6: Management and information in the Defense environment

Applications must include a civilian university Principal Investigator (PI) and a PME co-PI. Applications that include PME students in the research design, i.e. has a pedagogic component that uses basic research in social science to think through social science to address security challenges, will be looked upon favorably. Outside of the civilian university PI and the PME co-PI, the size of research teams is not limited, though the maximum award amount will be \$400,000 distributed evenly over two years. The research questions addressed should extend beyond standard disciplinary approaches to include innovative multidisciplinary and interdisciplinary methodological approaches.

Either the civilian university PI or the PME co-PI may submit the White Paper. While the civilian university PI and the PME co-PI will be considered coequals on the project, the civilian university PI should submit the invited Full Application through grants.gov. Awards will be made with institutions and the apportionment of funds including sub-awards, if any, must be described in both the application text and the budget. The civilian university budget portion, including indirect costs on their effort, will be sent via grant; the PME budget portion will be sent separately, via Military Interdepartmental Purchase Request (MIPR), and should not be included in the civilian university indirect costs. As well, the basic research contribution of the project must be clearly described in the application text.

The Minerva Research Initiative is a multi-service effort with the Air Force Office of Scientific Research, the Army Research Office, and the Office of Naval Research. Ultimately, however, funding decisions will be made by OSD personnel, in close collaboration with and technical inputs from the participating Services.

a. AUTHORIZATION

10 U.S.C. 4001 Research and development projects

b. LEGAL REQUIREMENTS

Each grant awarded under this announcement will be governed by the general 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 1100 [Subchapter D – Administrative Requirements Terms and Conditions for Cost-Type Grants and Cooperative Agreements to Nonprofit and Government Entities] which are located at <https://www.nre.navy.mil/work-with-us/manage-your-award/manage-grant-award/grants-terms-conditions>. These terms and conditions are incorporated by reference in this announcement.

c. PROGRAM-SPECIFIC REQUIREMENTS

Not applicable.

SECTION B: FEDERAL AWARD INFORMATION

1. AWARD HISTORY AND INSTRUMENT

This NFO is a follow-on to WHS-AD-FOA-DECUR-19, and is expected to result in the award of a grant or grants.

2. FUNDING AMOUNT AND NUMBER OF AWARDS

This Notice of Funding Opportunity (NFO) intends to fund five to six grant awards, with each grant valued up to \$200,000.00 per year, with a two-year period of performance. The total amount awarded from this NFO will not exceed \$2,000,000.00. These funding amounts include both direct and indirect costs. Applicants are reminded that this request is subject to Federal funding appropriations and Departmental approval.

3. PROFIT/FEE

Fee/profit is unallowable under assistance agreements at either the prime award, but may be permitted on subcontracts issued by the prime recipient.

4. PLACE OF PERFORMANCE

Performance is limited to the United States and its territories.

5. PERIOD OF PERFORMANCE

An award made as a result of this NFO will provide potential funding for up to two (2) years. The Government will review the grant(s) annually to assess the degree to which the recipient is making progress towards meeting the objectives of the agreement.

6. SUB-AWARDEES AND SUB-CONTRACTS

Each recipient may be augmented with sub-awards and subcontracts, especially for efforts to which a sub-awardee or subcontractor is particularly qualified. Additionally, the inclusion of small and women-owned businesses as sub-awardees and/or subcontracts are encouraged.

7. GOVERNMENT ROLE AND RESPONSIBILITY

The assistance being contemplated under this NFO will be in the form of a grant or grants to successful applicants. Substantial involvement is not expected between the executive agency and the State, local government, or other recipient when carrying out the activity contemplated in the NFO or any resultant award, per 31 U.S.C. 6304(2).

SECTION C: ELIGIBILITY INFORMATION

1. ELIGIBLE APPLICANTS

All U.S.-based civilian universities and Professional Military Educational (PME) institutions associated with the Air Force, Army, Navy/Marine Corps, and Joint PME may submit applications under this NFO.

Historically Black Colleges and Universities (HBCUs) and Minority Institutions (MIs) are encouraged to apply.

Teams are encouraged and may submit applications in any and all areas. At minimum, there should be a civilian university Principal Investigator (PI) and a PME co-PI. Non-profit institutions and commercial entities may be included on a university-led team as subawardees only, receiving funding for their efforts accordingly. Federally Funded Research and Development Centers (FFRDCs), including Department of Energy National Laboratories, are not eligible to receive awards under this NFO. However, teaming arrangements between FFRDCs and eligible principal applicants are allowed provided they are permitted under the sponsoring agreement between the Government and the specific FFRDC. Regardless the size of the team, however, the maximum award amount is \$400,000 distributed evenly over a two-year period.

A single PI from the civilian university and a single co-PI from the PME institution must be designated on the application. There is no restriction on the number of additional key research personnel who can be included on a single application, but each position should be justified by the scope and focus of the research. Applications that integrate PME students in the research will be looked upon favorably. There is no limit to the number of applications that an individual PI may have submitted by their institution in response to this NFO.

2. COST SHARE OR MATCHING

Cost sharing is not required.

3. CONFLICT OF INTEREST

i. GENERAL REQUIREMENT FOR DISCLOSURE

The Applicant must disclose any potential or actual scientific or nonscientific conflict of interest(s) to the Government. The Applicant must also disclose any potential or actual conflict(s) of interest for any identified sub recipient you

include in the application. The Government or Grants Officer reserves the right to clarify any conflicts of interest, if needed.

At the Government and/or Grants Officer's discretion, the Government and/or Grants Officer may ask the Applicant for a conflict-of-interest mitigation plan after submission of the application. The plan is subject to Government and/or Grants Officer approval.

ii. SCIENTIFIC CONFLICT OF INTEREST

Scientific collaborations on research and development projects are generally the result of close collaboration prior to the submission of applications for support. Accordingly, these collaborations should be considered when considering potential conflicts of interest. The potential conflict is mitigated by the disclosure of these collaborations, and the list of current and pending support you provide for senior and key researchers. Therefore, you must include in your list of current and pending support all collaborators, even if they did not formally provide support.

iii. OTHER

The Applicant must include the Acknowledgment of Support and Disclaimer on all materials created or produced under our awards. This language may be found in the Terms and Conditions included in the award documents.

4. CERTIFICATIONS, REPRESENTATIONS, AND ASSURANCES

To apply for grants and other funding opportunities the applicant entity must have an active registration in the [System for Award Management \(SAM\)](#). Applications will not be accepted through Grants.gov or other methods unless the entity is registered in SAM. Registration in SAM now includes the acceptance of Certifications and Assurances. See the [Standard Language Describing the Grants.gov Application Process](#) and Section IV.F.4 for details on how to register in SAM, and at Grants.gov.

The Federal Assistance Certifications Report is an attestation that the entity will abide by the requirements of the various laws and regulations; therefore, as applicable, you are still required to submit any documentation, including the SF-LLL Disclosure of Lobbying Activities (if applicable), and, if applicable, informing DoD of unpaid delinquent tax liability or a felony conviction under and Federal law.

5. PROTECTION OF HUMAN SUBJECTS

For applications containing activities that include research involving human subjects as defined in [DoDI 3216.02](#), after award, the Applicant must submit documentation as requested by a DoD Human Research Protection Official (HRPO), outlined in the DoDI 3216.02. Additional information and requirements can be found in Section X.C.

SECTION D: APPLICATION AND SUBMISSION INFORMATION

1. SUBMISSION DATES AND TIMES

The Minerva application process is conducted in two stages:

- Stage 1 – White Paper submission (via email to osd.minerva@mail.mil AND the “Appendix One: Research Topics” technical point of contact)
 - Deadline: Wednesday, October 4, 2023 3:00 PM ET
- Stage 2 – Full Application submission (via Grants.gov)
 - Deadline: Friday, January 5, 2024 3:00 PM ET

Stage One –Based on an assessment of the white papers submitted, the grants officer will advise prospective proposers whether the applications outlined in their white papers were judged to be competitive for Minerva DECUR Partnership award selection, and will then invite the most promising subset of applications to submit a full application for funding consideration.

*** White Papers are optional, though strongly encouraged.

Stage Two –After being select, interested entities will submit full applications. All applications submitted under the terms and conditions cited in this NFO will be evaluated in accordance with the evaluation criteria stated herein. Full applications submitted after the posted deadline will not be evaluated for funding consideration.

2. ADDRESS TO REQUEST APPLICATION PACKAGE

The application package for this NFO is only available via Grants.gov.

3. APPLICATION PROCEDURES AND REQUIREMENTS

Applications will only be accepted if submitted through grants.gov. Organizations must have a Unique Entity Identifier (UEI), active System for Award Management (SAM) registration, and Grants.gov account to apply for grants.

Full application packages must be submitted electronically (via E-mail for Stage 1 and via Grants.gov for Stage 2) no later than the dates and times listed in Section IV.A.

Applicants are responsible for submitting their applications in sufficient time to allow them to reach Grants.gov by the date and time specified in this announcement. It is strongly recommended that applications be uploaded at least two days before the closing date and time. This will help avoid problems caused by high system usage or any potential technical and/or input problems involving the applicant’s own equipment. It will also allow any application errors detected by Grants.gov to be corrected in time for the application to be resubmitted. If the application is received by Grants.gov after the exact time and date specified as the deadline for receipt, it will be considered “late” and may not be considered for review.

Applicants can track the status of their applications at <https://www.grants.gov/web/grants/applicants/track-my-application.html>.

4. APPLICATION WITHDRAWAL

An applicant may withdraw an application at any time before award by written notice or by email. Notice of withdrawal shall be sent to the grants officer identified in this announcement. Withdrawals are effective upon receipt of notice by the grants officer.

5. INTERGOVERNMENTAL REVIEW

Not applicable.

6. CONTENT AND FORMATION OF SUBMISSIONS

i. GENERAL REQUIREMENTS

1. DOCUMENT FORMAT

All documents included in both white paper and full application packages must be submitted in Adobe Portable Document Format (PDF) in compliance with the guidelines below. Applications with attachments submitted in word processing, spreadsheet, zip, or any format other than Adobe Portable Document format will not be considered for award. NOTE: Titles given to the white papers/full applications should be descriptive of the work they cover and not be merely a copy of the title of this solicitation.

Documents must be submitted with the following specifications:

- Paper Size – 8.5 x 11-inch paper
- Margins - 1 inch
- Spacing – single spaced
- Font – Times New Roman, 11 point
- PI's and co-PI's name and institutions in header or footer
- Appropriate markings on each page that contains proprietary or confidential information, if applicable.

White papers, supporting documentation, and full applications submitted under this NFO are unclassified.

2. MARKING PROPRIETARY OR CONFIDENTIAL INFORMATION

OSD and WHS/AD will make every effort to protect any proprietary information submitted in white papers and full applications. Any proprietary information included in application materials must be identified. Prospective proposers should be aware, however, that under the Freedom of Information Act (FOIA) requirements, proprietary information contained in white papers and applications (marked or unmarked) may still potentially be subject to release.

It is the prospective applicants' responsibility to notify WHS/AD of applications containing proprietary information and to identify the relevant portions of their applications that require protection. The entire application (or portions thereof) without protective markings or otherwise identified as

requiring protection will be considered to be furnished voluntarily to WHS/AD without restriction and will be treated as such for all purposes.

It is the intent of WHS/AD to treat all white papers and full applications as proprietary information before the award and to disclose their contents to reviewers only for the purpose of evaluation.

ii. WHITE PAPER PREPARATION AND SUBMISSION

1. WHITE PAPER PACKAGE COMPONENTS

Submitted documentation should be in PDF format and include in a single document:

- A cover letter (optional), not to exceed one page.
- A cover page, labeled “APPLICATION WHITE PAPER,” that includes the NFO number, proposed project title, and prospective applicant's technical point of contact with telephone number, e-mail address, and most relevant area number(s) and title(s) (see Appendix One: Research Topics).
- Curriculum vitae (CV) of key investigators (optional)
- The white paper (four (4) page limit, single-sided) including:
 - Identification of the research and issues including the state of the field
 - Proposed methods
 - Potential contribution to fundamental social science basic research
 - Potential implications for national defense
 - Potential team and management plan
 - Data management plan for data or tools to be generated in the course of research
 - Summary of estimated costs
 - Reference citations are not required but may be included outside the four-page limit

The white paper should provide sufficient information on the research being proposed (e.g., hypothesis, theories, concepts, methods, approaches, data collection, measurement and analyses) to allow for an assessment by a subject matter expert.

2. WHITE PAPER SUBMISSION

White papers and supporting documentation must be submitted as email attachments to osd.minerva@mail.mil no later than 3:00 p.m. Eastern Time on October 4, 2023. E-mail transmission is not instantaneous and delays in transmission may occur anywhere along the route. The Government takes no responsibility for any delays in the transmission of an e-mail. The prospective applicant is responsible for allowing enough time to complete the required application components, upload the white paper, and submit via e-mail before the deadline. It is not necessary for white papers to carry official institutional signatures.

The submission email subject line should indicate relevant area categories (see Appendix One: Research Topics), written as: FY23 Minerva DECUR WP - Area [Topic Number]

An e-mail confirmation will be sent to the applicant within four days of submission. Documents submitted after the deadline or found to be non-compliant with the requirements described above will not be reviewed.

iii. FULL PROPOSAL PACKAGE PREPARATION AND SUBMISSION

Stage two submission shall be made through grants.gov. The following forms are identified in grants.gov for submission for stage two:

Stage Two Submissions
SF424 (R & R) [V5.0]
Assurances for Non-Construction Programs (SF-424B - R & R) [V1.1]
Disclosure of Lobbying Activities (SF-LLL) [V2.0]
Budget Information for Non-Construction Programs (SF-424A) [V1.0]
Project Abstract Summary [V2.0]
Project Narrative Attachment Form [V1.2]
Research & Related Budget [V3.0]
Research & Related Personal Data [V1.2]
Research & Related Senior/Key Person Profile [V3.0]

Submitted documentation should be in PDF format and include in a single document:

- A cover letter (optional), not to exceed one page.
- A cover page, labeled “APPLICATION FULL PROPOSAL,” that includes the NFO number, proposed project title, and prospective applicant's technical point of contact with telephone number, e-mail address, and most relevant topic number(s) and title(s) (see Appendix One: Research Topics).
- Curriculum vitae (CV) of key investigators
- The narrative proposal (twenty (20) page limit) including:
 - Identification of the research and issues including the state of the field
 - Proposed methods
 - Potential contribution to fundamental social science basic research
 - Potential implications for national defense
 - Team and management plan
 - Data management plan for data or tools to be generated in the course of research
 - Summary of estimated costs

Reference citations are not required but may be included outside the 20-page limit

iv. GRANTS.GOV APPLICATION SUBMISSION PROCEDURES AND RECEIPT

This section provides the application submission and receipt instructions for WHS/AD program applications. Please read the following instructions carefully and completely. WHS/AD is participating in the Grants.gov initiative to provide the grant community with a single site to find and apply for grant funding opportunities. WHS/AD requires applicants to submit their applications online

through Grants.gov.

1. GRANTS.GOV ACCOUNTS

1. Unique Entity Identifier and System for Award Management

Several one-time actions must be completed in order to submit an application through Grants.gov. These include obtaining a Dun and Bradstreet Data Universal Numbering System (DUNS) number, registering with the System for Award Management (SAM), registering with the credential provider, and registering with Grants.gov. See <http://www.grants.gov/GetStarted>.

The awardee shall use the Grants.gov organization Registration Checklist at http://www.grants.gov/applicants/register_your_organization.jsp, which will provide guidance through the process. Designating an E-Business Point of Contact (EBiz POC) and obtaining a special password called “MPIN” are important steps in the SAM registration process. Applicants who are not registered with SAM and Grant.gov should allow at least 21 days for completing these requirements. The process should be started as

soon as possible. Any questions relating to the registration process, system requirement, how an application form works, or the submittal process must be directed to Grants.gov at 1-800-518-4726 or support@grants.gov. Successful Applicants not already registered in the System for Award Management (SAM) will be required to register in SAM prior to award of any grant, or cooperative agreement. Information on SAM registration is available at <https://www.sam.gov>.

2. **TIMELY RECEIPT REQUIREMENTS AND PROOF OF TIMELY SUBMISSION**

All applications must be received no later than 3:00 p.m. Eastern Time on January 5, 2024. NOTE: White Papers should not be submitted through the Grants.gov Apply process, but rather by email as described in Section IV.F.2.b.

SECTION E: APPLICATION REVIEW INFORMATION

1. **SELECTION CRITERIA**

The Minerva program seeks to invest in basic research and to identify challenging fundamental scientific areas of investigation that may have potential for long term benefit to DoD. Proposed research should describe cutting-edge efforts on basic scientific problems. Subject to funding availability, white papers and proposals will be evaluated under the following criteria:

Principal Criteria

- **Scientific merit**, soundness, and programmatic strategy of the proposed basic social science research; and
- Relevance and potential contributions of the proposed research to research areas of DoD interest as described in Appendix One: Research Topics. The Minerva Research Initiative is *particularly interested* in applications that align with and support the 2022 [National Defense Strategy](#).

Other Criteria

- Potential **impact** of the basic research on the defense-relevant social sciences and defense communities that apply them. DoD encourages innovative submissions that, in addition to knowledge generation in critical areas, also build new communities, new frameworks, and new opportunities for dialogue.
- The **qualifications** and availability of the civilian university Principal Investigators and PME co-PI, and other key investigators (if applicable) and the **overall management approach**; and
- The realism and reasonableness of **cost**.

The Principal Criteria are of equal importance and are more important than Other Criteria. Other Criteria are of equal importance to each other. The U.S. Government

does not guarantee an award in each research area. Further, be advised that as funds are limited, otherwise meritorious applications may not be funded.

2. REVIEW AND SELECTION PROCESS

The Minerva Research Initiative selects awards using merit-based competitive procedures according to 32 CFR 22.315. Preparation and submission requirements for the two-stage proposal process are described in Section IV of this document. Evaluation processes are described below.

WHITE PAPERS

White papers will be reviewed by the responsible Research Area POC for the interest area and may be reviewed by one or more subject matter experts. Systems Engineering and Technical Assistance (SETA) contractor employees may provide technical and administrative assistance to the evaluation team. Individuals other than the POC will sign a conflict-of-interest statement prior to receiving white papers.

White papers that best fulfill the evaluation criteria will be identified by the white paper reviewers and recommended to the OSD Minerva Steering Committee. The Steering Committee is composed of representatives from the research and policy organizations within OSD and may include representatives from the DoD Military Components and/or Defense Agencies. The Minerva Steering Committee expects to invite up to twenty (20) PIs to submit full proposals. Thorough feedback on white papers will be provided to those invited to submit a full proposal. Feedback will be provided to all other proposers upon request.

FULL APPLICATIONS

Full applications submitted under this NFO undergo another multi-stage evaluation procedure. Technical applications will be evaluated through a peer or scientific review process. Reviewers may include Government personnel and Non-Government reviewers including university faculty and staff researchers. Each reviewer is required to sign a conflict-of-interest and confidentiality statement attesting that the reviewer has no known conflicts of interest, and that application and evaluation information will not be disclosed outside the evaluation panel. The names and affiliations of reviewers are not disclosed.

Cost proposals will be evaluated by Government business professionals and support contractors. Findings of the various interest area evaluators will be forwarded to senior DoD officials who will make funding recommendations to the awarding officials. Restrictive notices notwithstanding, one or more support contractors or peers from the university community will be utilized as subject-matter-expert technical consultants. However, proposal selection and award decisions are solely the responsibility of Government personnel. Each support contractor's employees and peers from the university community having access to technical and cost proposals submitted in response to this NFO will be required to sign a non-disclosure statement prior to receipt of any proposal submission.

The recommendations of the various area POCs will be forwarded to senior officials from the OSD who will make final funding recommendations to the awarding officials based on reviews, portfolio balance interests, and funds available.

Due to the nature of the Minerva program, the reviewing officials may recommend that less than an entire Minerva proposal be selected for funding. This may be due to several reasons, such as insufficient funds, research overlap among proposals received, or potential synergies among proposals under a research interest area. In such cases, the government will discuss proposal adjustments with the applicant prior to final award.

3. ANTICIPATED AWARD ANNOUNCEMENT AND FEDERAL AWARD DATES

Event	Date	Time
Last day for White Paper questions to Interest Area POCs	27 September 2023	
White Papers Due	4 October 2023	1500 Eastern Time
Notification of White Paper Evaluations*	3 November 2023	
Last day for Full Application questions to Interest Area POCs	5 December 2023	
Full Applications Due	5 January 2024	1500 Eastern Time
Notification of Selection for Award*	13 February 2024	
Contract Awards*	7 May 2024	

*Dates are estimated as of the date this NFO is published on Grants.gov

a. HANDLING OF SELECTION INFORMATION

Generally, application information will not be disclosed to individuals outside of the evaluation process. The evaluation team will treat application information as equivalent to source selection information as defined in the Federal Acquisition Regulation (FAR) (see FAR 2.101 and FAR 3.104). Evaluation team members will be required to complete and submit a Non-Disclosure Agreement and Conflict of Interest declaration prior to receiving or handling application materials.

SECTION F: FEDERAL AWARD ADMINISTRATION INFORMATION

1. AWARD NOTICES

The Applicant whose application is recommended for award may be contacted by a Grants Officer or his/her representative. This may include representations and certifications, revised budgets or budget explanations, certificate of current cost or

pricing data, subcontracting plan for small businesses, and/or other information as applicable to the proposed award.

The notification e-mail regarding a selection is not authorization to commit or expend DoD funds. A DoD grants officer is the only person authorized to obligate and approve the use of Federal funds. This authorization is in the form of a signed Notice of Award.

Applicants who did not receive an award are not entitled to a de-brief.

2. For detailed assistance with the registration process, visit <https://piee.eb.mil/xhtml/unauth/help/help.xhtml>.

3. ADMINISTRATIVE AND NATIONAL POLICY REQUIREMENTS

NP Article I. Nondiscrimination national policy requirements. (December 2014)

Section A. Cross-cutting nondiscrimination requirements. By signing this award or accepting funds under this award, you assure that you will comply with applicable provisions of the national policies prohibiting discrimination:

1. On the basis of race, color, or national origin, in Title VI of the Civil Rights Act of 1964 (42 U.S.C. 2000d et seq.), as implemented by Department of Defense (DoD) regulations at 32 CFR part 195.
2. On the basis of gender, blindness, or visual impairment, in Title IX of the Education Amendments of 1972 (20 U.S.C. 1681 et seq.), as implemented by DoD regulations at 32 CFR part 196.
3. On the basis of age, in the Age Discrimination Act of 1975 (42 U.S.C. 6101 et seq.), as implemented by Department of Health and Human Services regulations at 45 CFR part 90.
4. On the basis of disability, in the Rehabilitation Act of 1973 (29 U.S.C. 794), as implemented by Department of Justice regulations at 28 CFR part 41 and DoD regulations at 32 CFR part 56.
5. On the basis of disability in the Architectural Barriers Act of 1968 (42 U.S.C. 4151 et seq.) related to physically handicapped persons' ready access to, and use of, buildings and facilities for which Federal funds are used in design, construction, or alteration.

Section B. [Reserved]

Appendix B to Part 1122—Terms and Conditions for NP Article II, “Environmental National Policy Requirements”

NP Article II. Environmental national policy requirements. (December 2014)

Section A. Cross-cutting environmental requirements. You must:

1. You must comply with all applicable Federal environmental laws and regulations. The laws and regulations identified in this section are not intended to be a complete list.
2. Comply with applicable provisions of the Clean Air Act (42 U.S.C. 7401, et seq.) and Clean Water Act (33 U.S.C. 1251, et seq.).
3. Comply with applicable provisions of the Lead-Based Paint Poisoning Prevention Act (42 U.S.C. 4821–4846), as implemented by the Department of Housing and Urban Development at 24 CFR part 35. The requirements concern lead-based paint in buildings owned by the Federal Government or housing receiving Federal assistance.
4. Immediately identify to us, as the Federal awarding agency, any potential impact that you find this award may have on:
 - a. The quality of the “human environment”, as defined in 40 CFR 1508.14, including wetlands; and provide any help we may need to comply with the National Environmental Policy Act (NEPA, at 42 U.S.C. 4321 et seq.), the regulations at 40 CFR 1500–1508, and E.O. 12114, if applicable; and assist us to prepare Environmental Impact Statements or other environmental documentation. In such cases, you may take no action that will have an environmental impact (*e.g.*, physical disturbance of a site such as breaking of ground) or limit the choice of reasonable alternatives to the proposed action until we provide written notification of Federal compliance with NEPA or E.O. 12114.
 - b. Flood-prone areas and provide any help we may need to comply with the National Flood Insurance Act of 1968, as amended by the Flood Disaster Protection Act of 1973 (42 U.S.C. 4001 et seq.), which require flood insurance, when available, for federally assisted construction or acquisition in flood-prone areas.
 - c. A land or water use or natural resource of a coastal zone that is part of a federally approved State coastal zone management plan and provide any help we may need to comply with the Coastal Zone Management Act of 1972 (16 U.S.C. 1451, et seq.) including preparation of a Federal agency Coastal Consistency Determination.
 - d. Coastal barriers along the Atlantic and Gulf coasts and Great Lakes' shores and provide help we may need to comply with the Coastal Barrier Resources Act (16 U.S.C. 3501 et seq.), concerning preservation of barrier resources.
 - e. Any existing or proposed component of the National Wild and Scenic Rivers system and provide any help we may need to comply with the Wild and Scenic Rivers Act of 1968 (16 U.S.C. 1271 et seq.).
 - f. Underground sources of drinking water in areas that have an aquifer that is the sole or

principal drinking water source and in wellhead protection areas, and provide any help we may need to comply with the Safe Drinking Water Act (42 U.S.C. 300f et seq.).

5. You must comply fully with the Endangered Species Act of 1973, as amended (ESA, at 16 U.S.C. 1531 et seq.), and implementing regulations of the Departments of the Interior (50 CFR parts 10–24) and Commerce (50 CFR parts 217–227). You also must provide any help we may need in complying with the consultation requirements of ESA section 7 (16 U.S.C. 1536) applicable to Federal agencies or any regulatory authorization we may need based on the award of this grant. This is not in lieu of responsibilities you have to comply with provisions of the Act that apply directly to you as a U.S. entity, independent of receiving this award.

6. You must fully comply with the Marine Mammal Protection Act of 1972, as amended (MMPA, at 16 U.S.C. 1361 et seq.) and provide any assistance we may need in obtaining any required MMPA permit based on an award of this grant.

Section B. [Reserved]

Appendix C to Part 1122—Terms and Conditions for NP Article III, “National Policy Requirements Concerning Live Organisms”

NP Article III. National policy requirements concerning live organisms. (December 2014)

Section A. Cross-cutting requirements concerning live organisms.

1. Human subjects.

a. You 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, DoD Instruction (DoDI) 3216.02, 10 U.S.C. 980, and when applicable, Food and Drug Administration (FDA) regulations.

b. You 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 your documentation of planned HSR activities and has officially furnished a concurrence with your determination as presented in the documentation.

c. In order for the HRPO to accomplish this concurrence review, you must provide sufficient documentation to enable his or her assessment as follows:

i. If the HSR meets an exemption criterion 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 your activity is determined as “non-exempt research involving human subjects”, the documentation must include:

(A) Assurance of Compliance (*i.e.*, Department of Health and Human Services Office for Human Research Protections (OHRP) Federalwide Assurance (FWA)) appropriate for the scope of work or program plan; and

(B) 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 1.a of this section.

e. You 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 your 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 paragraph 1 of this article are found in DoDI 3216.02.

2. *Animals.*

a. Prior to initiating any animal work under the award, you must:

i. Register your research, development, test, and evaluation or training facility with the Secretary of Agriculture in accordance with 7 U.S.C. 2136 and 9 CFR 2.30, unless otherwise exempt from this requirement by meeting the conditions in 7 U.S.C. 2136 and 9 CFR parts 1–4 for the duration of the activity.

ii. Have your proposed animal use approved in accordance with Department of Defense Instruction (DoDI) 3216.01, Use of Animals in DoD Programs by a DoD Component Headquarters Oversight Office.

iii. Furnish evidence of such registration and approval to the grants officer.

b. You must make the animals on which the research is being conducted, and all premises, facilities, vehicles, equipment, and records that support animal care and use available during business hours and at other times mutually agreeable to you, the United States Department of Agriculture Office of Animal and Plant Health Inspection Service (USDA/APHIS) representative, personnel representing the DoD component oversight offices, as well as the grants officer, to ascertain that you are compliant with 7 U.S.C. 2131 et seq., 9 CFR parts 1–4, and DoDI 3216.01.

c. Your care and use of animals must conform with the pertinent laws of the United States, regulations of the Department of Agriculture, and regulations, policies, and procedures of the Department of Defense (see 7 U.S.C. 2131 et seq., 9 CFR parts 1–4, and DoDI 3216.01).

d. You must acquire animals in accordance with DoDI 3216.01.

3. *Use of Remedies.*

Failure to comply with the applicable requirements in paragraphs 1–2 of this section may result in the DoD Component's use of remedies, *e.g.*, wholly or partially terminating or suspending the award, temporarily withholding payment under the award pending correction of the deficiency, or disallowing all or part of the cost of the activity or action (including the federal share and any required cost sharing or matching) that is not in compliance. See OAR Article III.

Section B. [Reserved]

Appendix D to Part 1122—Terms and Conditions for NP Article IV, “Other National Policy Requirements”

NP Article IV. Other National Policy Requirements. (December 2014)

Section A. *Cross-cutting requirements.*

1. ***Debarment and suspension.*** You must comply with requirements regarding debarment and suspension in Subpart C of 2 CFR part 180, as adopted by DoD at 2 CFR part 1125. This includes requirements concerning your principals under this award, as well as requirements concerning your procurement transactions and subawards that are implemented in PROC Articles I through III and SUB Article II.

2. ***Drug-free workplace.*** You must comply with drug-free workplace requirements in Subpart B of 2 CFR part 26, which is the DoD implementation of 41 U.S.C. chapter 81, “Drug-Free Workplace.”

3. *Lobbying.*

a. You must comply with the restrictions on lobbying in 31 U.S.C. 1352, as implemented by DoD at 32 CFR part 28, and submit all disclosures required by that statute and regulation.

b. You must comply with the prohibition in 18 U.S.C. 1913 on the use of Federal funds, absent express Congressional authorization, to pay directly or indirectly for any service, advertisement or other written matter, telephone communication, or other device intended to influence at any time a Member of Congress or official of any government concerning any legislation, law, policy, appropriation, or ratification.

c. If you are a nonprofit organization described in section 501(c)(4) of title 26, United States Code (the Internal Revenue Code of 1968), you may not engage in lobbying activities as defined in the Lobbying Disclosure Act of 1995 (2 U.S.C., chapter 26). If we determine that you have engaged in lobbying activities, we will cease all payments to you under this and other awards and terminate the awards unilaterally for material failure to comply with the award terms and conditions.

4. ***Officials not to benefit.*** You must comply with the requirement that no member of Congress shall be admitted to any share or part of this award, or to any benefit arising from it, in accordance with 41 U.S.C. 6306.

5. ***Hatch Act.*** If applicable, you must comply with the provisions of the Hatch Act (5 U.S.C. 1501–1508) concerning political activities of certain State and local government employees, as implemented by the Office of Personnel Management at 5 CFR part 151, which limits political activity of employees or officers of State or local governments whose employment is connected to an activity financed in whole or part with Federal funds.

6. ***Native American graves protection and repatriation.*** If you control or possess Native American remains and associated funerary objects, you must comply with the requirements of 43 CFR part 10, the Department of the Interior implementation of the Native American Graves Protection and Repatriation Act of 1990 (25 U.S.C., chapter 32).

7. ***Fly America Act.*** You must comply with the International Air Transportation Fair Competitive Practices Act of 1974 (49 U.S.C. 40118), commonly referred to as the “Fly America Act,” and implementing regulations at 41 CFR 301–10.131 through 301–10.143. The law and regulations require that U.S. Government financed international air travel of passengers and transportation of personal effects or property must use a U.S. Flag air carrier or be performed under a cost sharing arrangement with a U.S. carrier, if such service is available.

8. ***Use of United States-flag vessels.*** You must comply with the following requirements of the Department of Transportation at 46 CFR 381.7, in regulations implementing the Cargo Preference Act of 1954:

a. Pursuant to Public Law 83–664 (46 U.S.C. 55305), at least 50 percent of any equipment, materials or commodities procured, contracted for or otherwise obtained with funds under this award, and which may be transported by ocean vessel, must be transported on privately owned United States-flag commercial vessels, if available.

b. Within 20 days following the date of loading for shipments originating within the United States or within 30 working days following the date of loading for shipments originating outside the United States, a legible copy of a rated, “on-board” commercial ocean bill-of-lading in English for each shipment of cargo described in paragraph 8.a of this section must be furnished to both our award administrator (through you in the case of your contractor's bill-of-lading) and to the Division of National Cargo, Office of Market Development, Maritime Administration, Washington, DC 20590.

9. *Research misconduct.* You must comply with requirements concerning research misconduct in Enclosure 4 to DoD Instruction 3210.7, “Research Integrity and Misconduct.” The Instruction implements the Governmentwide research misconduct policy that the Office of Science and Technology Policy published in the Federal Register (65 FR 76260, December 6, 2000, available through the U.S. Government Printing Office website: <https://www.federalregister.gov/documents/2000/12/06/00-30852/executive-office-of-the-president-federal-policy-on-research-misconduct-preamble-for-research>).

10. *Requirements for an Institution of Higher Education Concerning Military Recruiters and Reserve Officers Training Corps (ROTC).*

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

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

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

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

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

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

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

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

11. *Historic preservation.* You must identify to us any:

a. Property listed or eligible for listing on the National Register of Historic Places that will be affected by this award, and provide any help we may need, with respect to this award, to comply with Section 106 of the National Historic Preservation Act of 1966 (54 U.S.C. 306108), as implemented by the Advisory Council on Historic Preservation regulations at 36 CFR part 800 and Executive Order 11593, “Identification and Protection of Historic Properties,” [3 CFR, 1971–1975 Comp., p. 559]. Impacts to historical properties are included in the definition of “human environment” that require impact assessment under NEPA (See NP Article II, Section A).

b. Potential under this award for irreparable loss or destruction of significant scientific, prehistorical, historical, or archeological data, and provide any help we may need, with respect to this award, to comply with the Archaeological and Historic Preservation Act of 1974 (54 U.S.C. chapter 3125).

12. *Relocation and real property acquisition.* You must comply with applicable provisions of 49 CFR part 24, which implements the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970 (42 U.S.C. 4601, *et seq.*) and provides for fair and equitable treatment of persons displaced by federally assisted programs or persons whose property is acquired as a result of such programs.

13. *Confidentiality of patient records.* You must keep confidential any records that you maintain of the identity, diagnosis, prognosis, or treatment of any patient in connection with any program or activity relating to substance abuse education, prevention, training, treatment, or rehabilitation that is assisted directly or indirectly under this award, in accordance with 42 U.S.C. 290dd–2.

14. *Pro-Children Act.*

You must comply with applicable restrictions in the Pro-Children Act of 1994 (Title 20, Chapter 68, subchapter X, Part B of the U.S. Code) on smoking in any indoor facility:

a. Constructed, operated, or maintained under this award and used for routine or regular provision of kindergarten, elementary, or secondary education or library services to children under the age of 18.

b. Owned, leased, or contracted for and used under this award for the routine provision of federally funded health care, day care, or early childhood development (Head Start) services to children under the age of 18.

15. *Constitution Day.* You must comply with Public Law 108–447, Div. J, Title I, Sec. 111 (36 U.S.C. 106 note), which requires each educational institution receiving Federal funds in a Federal fiscal year to hold an educational program on the United States Constitution on September 17th during that year for the students served by the educational institution.

16. *Trafficking in persons.* You must comply with requirements concerning trafficking in persons specified in the award term at 2 CFR 175.15(b), as applicable.

17. **Whistleblower protections.** You must comply with 10 U.S.C. 2409, including the:

- a. Prohibition on reprisals against employees disclosing certain types of information to specified persons or bodies; and
- b. Requirement to notify your employees in writing, in the predominant native language of the workforce, of their rights and protections under that statute.

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 (latest version, September 2021) are located at <https://www.nre.navy.mil/media/document/dod-research-terms-and-conditions-september-2021pdf>. These terms and conditions are incorporated by reference in this announcement.

1 REPORTING REQUIREMENTS

Grants typically require annual and final technical reports, financial reports, and final patent reports. Copies of publications and presentations should be submitted in accordance with award documentation. Additional deliverables may be required based on the research being conducted.

a. ANNUAL REPORTS

Submit an interim DD882 at least annually, within 60 calendar days of the end of the period of performance. Negative reports are required.

b. FINAL REPORTS

i. CLOSEOUT REPORT

Detail the full programmatic accomplishments summarized from prior reports and a forecast for ongoing program sustainability and contribution to DECUR workforce needs as the funding ends. Include, as feasible, examples of educational materials produced, success stories, accomplishments, links to digital materials, and other resultant material from the award.

ii. FINAL FEDERAL FINANCIAL REPORT (SF425)

A final SF425 is required within 90 calendar days of the completion date for the term of any resulting grant(s) and must include in the remarks the location of financial records and a point of contact for the Government to obtain access to the financial records associated with any resulting grant(s).

iii. INVENTION REPORT

Submit a final DD882 within 90 calendar days after the expiration of any resulting grant(s). Negative reports are required.

2 OTHER ADMINISTRATIVE REQUIREMENTS

Not applicable.

3 FEDERAL CONTACTS

General questions regarding the Minerva Research Initiative should be directed to: <https://minerva.defense.gov/Contact/>. Many questions may also be answered at <https://minerva.defense.gov/FAQ/>.

Technical questions should be directed to:

Dr. David Montgomery

Basic Research Office

Office of the Undersecretary of Defense for Research and Engineering (OUSD(R&E))
and OUSD(Policy)

E-mail: David.w.montgomery61.civ@mail.mil

Questions regarding the application process should be directed to the Grants Officer listed on the cover page of this NFO. Regarding any resulting awards, questions should be directed to the cognizant Awarding Grants Officer (e.g., the warranted Grants Officer who signed the grant on behalf of the Federal Government). For post-award administrative issues that cannot be resolved by the Grants Officer, questions should be directed to the Administrative Grants Officer listed in the payment instructions on any resulting grant award(s).

Questions regarding the use of Grants.gov should be directed to either the toll-free telephone number (1-800-518-4726) or via E-mail to support@grants.gov.

4 OTHER INFORMATION

The Federal government is not obligated to make any Federal award as a result of the announcement. Only grants officers can bind the Federal government to the expenditure of fund.

Applicants are advised to monitor Grants.gov for potential amendments to this Notice of Funding Opportunity. You can also elect to be automatically notified by Grants.gov whenever there is a change to the opportunity.

Applications must not include any information that has been identified as classified national security information under authorities established in Executive Order 12958, Classified National Security Information.

a. FEDERAL FUNDING ACCOUNTABILITY AND TRANSPARENCY ACT OF 2006

The Federal Funding Accountability and Transparency Act of 2006 (Public Law 109-282), as amended by Section 6202 of Public Law 110-252, requires that all agencies

establish requirements for recipients reporting information on sub-awards and executive total compensation as codified in 2 CFR Part 170. Any company, non-profit agency or university that applies for financial assistance as either a prime or sub-recipient under this NFO must provide information in its application that describes the necessary processes and systems in place to comply with the reporting requirements identified in 2 CFR Part 170 Appendix A. Entities are required to meet reporting requirements unless an exception or exemption applies. Refer to 2 CFR Part 170, including Appendix A, for a detailed explanation of the requirements, exceptions, and exemptions.

b. CODE OF CONDUCT

Applicants for grants, cooperative agreements, or other transaction agreements as applicable are required to comply with 2 CFR 200.318(c), Codes of Conduct, to prevent real or apparent conflicts of interest in the award and administration of any contracts supported by federal funds. This provision will be incorporated into all assistance instruments awarded under this NFO.

c. HUMAN SUBJECT RESEARCH

You must protect the rights and welfare of individuals who participate as human subjects in research under this award, and comply with the requirements of the DoD Instruction 3216.02, Protection of Human Subjects and Adherence to Ethical Standards in DoD- Supported Research (2020).

For proposals containing activities that include research involving human subjects as defined in DoDI 3216.02, after award, the Applicant must submit documentation as requested by a DoD Human Research Protection Official (HRPO), outlined in the DoDI 3216.02.

Research involving human subjects must not commence until a HRPO has reviewed and approved the proposed human subject research. *NOTE: Institutional Review Board (IRB) approval isn't required for the Technical Application. However, upon notification of the award, applicants should start the process for IRB approval. Applicants selected for award must obtain an approved IRB 90 days after the start of the award and submit the IRB to HRPO. This includes IRB approved Human Research exemptions.

The following forms are required by HRPO and located under the "Related Documents" tab of this NFO on Grants.gov:

- The Human Research Protocol Submission Form
- ORP Form

Non-approval of an IRB will be subject to the Prohibition of Use of Human Subjects which will delay the start of the grant.

Animal Use Research and other activities: Research or other activities involving animals must comply with DoDI 3216.01, "Use of Animals in DoD-Conducted and DoD-Supported Research and Training", all Federal Regulations, National Policy

Requirements. Animal use activities must not commence until an Institutional Animal Care and Use Committee (IACUC) and appropriate DoD Component oversight office has reviewed and approved the proposed protocol articulating the animal use activity.

Use of Recombinant DNA or Synthetic Nucleic Acid Molecules: Proposals which call for experiments using recombinant or synthetic nucleic acid molecules must include documentation of compliance with NIH Guidelines for Research Involving Recombinant or Synthetic Nucleic Acid Molecules (NIH Guidelines), approval from the local registered Institutional Biosafety Committee (IBC), and copies of the DHHS Approval of the IBC letter.

d. INSTITUTIONAL DUAL USE RESEARCH OF CONCERN

As of September 24, 2015, all institutions and United States Government (USG) funding agencies subject to the United States Government Policy for Institutional Oversight of Life Sciences Dual Use Research of Concern must comply with all the requirements listed therein. If your research application directly involves certain biological agents or toxins, contact the cognizant Technical Point of Contact. U.S. Government Science, Safety, Security (S3) guidance may be found at <https://www.phe.gov/s3/dualuse>.

e. PROJECT MEETINGS AND REVIEWS

Individual program reviews between the Program Office, DECUR, and the recipient may be held as necessary. Department of Defense colleagues may participate in these reviews.

Program status reviews may also be held to provide a forum for reviews of the latest results from programs and any other incremental progress towards the major demonstrations. These meetings will typically be held at the Applicant's facility or in DoD facilities in the National Capital Region. Interim meetings are likely, but these will be accomplished via video telephone conferences, telephone conferences, or via web-based collaboration tools.

f. SECURITY CLASSIFICATION

OSD does not provide access to classified material under grants.

g. ORGANIZATIONAL CONFLICTS OF INTEREST (OCI)

All prospective proposers and proposed sub-awardees must affirm whether they are providing scientific, engineering, and technical assistance (SETA) or similar support to any DoD or military service technical office(s) through an active contract or subcontract. All affirmations must state which office(s) the prospective proposer supports and identify the prime grant numbers. Affirmations shall be furnished at the time of proposal submission. All facts relevant to the existence or potential existence of organizational conflicts of interest must be disclosed. The disclosure shall include a description of the action the prospective proposer has taken or proposes to take to avoid, neutralize, or mitigate such conflict. A grantee cannot simultaneously be a SETA and a research and development performer.

Proposals that fail to fully disclose potential conflicts of interests will be rejected without technical evaluation and withdrawn from further consideration for award. For additional information regarding OCI, contact the appropriate Interest Area POCs. If a prospective proposer believes that any conflict of interest exists or may exist (whether organizational or otherwise), the prospective proposer should promptly raise the issue with the appropriate Interest Area POC by sending his/her contact information and a summary of the potential conflict by e-mail to the Federal Contacts described in Appendix One: Research Topics, before time and effort are expended in preparing a proposal and mitigation plan. If, in the sole opinion of the Grants Officer after full consideration of the circumstances, any conflict situation cannot be effectively avoided, the proposal may be rejected without technical evaluation and withdrawn from further consideration for award under this NFO.

h. REPORTING EXECUTIVE COMPENSATION AND FIRST-TIER SUBAWARDS

The Federal Funding Accountability and Transparency Act of 2006 (Public Law 109-282), as amended by Section 6202 of Public Law 110-252, requires that all agencies establish requirements for recipients reporting information on subawards and executive total compensation as codified in 2 CFR 170.110. Any U.S. Institutions of Higher Education that applies for financial assistance (either grants, cooperative agreements or other transaction agreements) as either a prime or sub-recipient under this NFO must provide information in its proposal that describes the necessary processes and systems in place to comply with the reporting requirements identified in 2 CFR 170.220. This grant and any subawards are also subject to 32 CFR Part 32.

i. NDAA SECTION 889 COMPLIANCE

See Section 11 of the National Policy Article IV. Other national policy requirements. (September 2020) Section A. Cross-cutting requirements, of the DoD R&D General Terms and Conditions September 2021.

5 SPECIFIC INFORMATION REGARDING MINERVA

a. EXPECTATIONS FOR MINERVA RESEARCHERS

i. PROJECT MEETINGS AND REVIEWS

In addition to an annual Minerva-wide program review held in the Washington, DC area, individual program reviews between the Service sponsor and the performer may be held as necessary. Program status reviews may also be held to provide a forum for reviews of the latest results from experiments and any other incremental progress toward the major demonstrations. These meetings will be held at various sites throughout the country. For costing purposes, potential recipients should assume that 40% of these meetings will be at or near the appropriate Service Headquarters in the Washington, DC area and 60% at other contractor or government facilities. Interim meetings are likely, but these will be accomplished via video telephone conferences, telephone conferences, or via web-based collaboration tools.

ii. CHANGES IN THE PRINCIPAL INVESTIGATOR

Grants to a university may be terminated if the Principal Investigator (PI) severs connections with the university or is unable to continue active participation in the research. Grants to a university may also be terminated if the university severs connections with the PI. Likewise, the award to a PME institution may be terminated if the PME co-PI severs connections with the PME institution or is unable to continue active participation in the research. Awards to a PME institution may also be terminated if the PME institution severs connections with the PME co-PI.

iii. RESEARCH OUTPUT

All Minerva research is unclassified and by Federal policy is not subjected to any restrictions on publication or participation by foreign nationals. It is expected that copies of all products emerging from Minerva-supported research, such as academic papers, will be shared with the Minerva program staff.

Publications should acknowledge Minerva Research Initiative support through language such as:

“This project was supported through the Minerva Research Initiative, in partnership with [relevant Service partner issuing grant] under grant number [award_number].”

Posters and other publications should include reference to the Minerva program and/or Minerva program logo.

Over the course of the project, Minerva researchers are encouraged to produce 1000-word analytical summaries articulating the broader relevance of the findings presented in these academic papers, that could be shared within the government and/or others interested.

b. BASIC VS. APPLIED RESEARCH

Work funded under a NFO may include basic research and applied research.

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

Pursuant to DoD policy, research performed under grants that are a) funded by Budget Activity 2 (Applied Research) and NOT performed on-campus at a university does not meet the definition of fundamental research. In conformance with the USD (R&E) guidance and National Security Decision Directive 189, WHS/AD will place no restriction on the conduct or reporting of unclassified fundamental research, except as otherwise required by statute, regulation, or Executive Order. For certain research projects, it may be possible that although the research being performed by the Grantee is restricted research, a sub-awardee may be conducting fundamental research. In those cases, it is the Grantee's responsibility in the application to identify and describe the sub-awardee unclassified research and include a statement confirming that the work has been scoped, negotiated, and determined to be fundamental research according to the Grantee and research performer.

Normally, fundamental research is awarded under grants with universities. Potential prospective proposers should consult with the appropriate program Technical POCs to determine whether the proposed effort would constitute basic research or applied research. Minerva funds basic, not applied, research.

APPENDIX ONE: RESEARCH TOPICS

SPECIFIC MINERVA RESEARCH INITIATIVE TOPICS

The following Minerva topics indicate domains of inquiry relevant to the Department of Defense. Interest areas are not mutually exclusive and proposers are not limited to the questions, scope, or regions listed. Researchers should aim to balance the specificity of their proposed research with the generalizability of the expected results. The Minerva Research Initiative is particularly interested in applications that align with and support the National Defense Strategy.

In framing applications, it is important to articulate the basic science contribution of the research proposed, and how its theoretical and methodological approach is generalizable such that it could influence how similar problem sets are approached in the future. Applications that reflect basic research and engage PME students research on the strategic priorities in this document may be reviewed more favorably (See Section V for application evaluation criteria).

Applications may leverage existing data or, with justification, collect new data. Preference may be given to studies by experts capable of analyzing source material in the original languages and to studies that exploit materials that have not been previously translated. The DoD also values geospatially-referenced data across multiple geographic scales gathered in the course of research. It is expected that collecting viable empirical data relevant to context and situation may require field research, which is looked upon favorably.

Researchers are encouraged to incorporate novel research methods. Well-theorized models linking micro and macro analyses and cross-method approaches, such as simultaneously using both inductive and deductive analytic strategies, and qualitative and quantitative methods are also of interest. applications should be fundamentally rooted in the existing social science research literature and have a clear basic science component that describes the future utility of the insights the research will generate for social science.

In framing any Minerva application, it is important to articulate the basic science contribution of the research proposed. It is expected that all applications will have sufficient area and subject-matter experience to appreciate the nuances of diverse local contexts—including the (ethical) challenges posed by different value systems—and proposers are strongly encouraged to review the 2019 Future Directions in Social Science report on the Emergence of Problem-based Interdisciplinarity as a reference for the program's strong interest in supporting projects that are disciplinarily diverse and committed to addressing problems in innovative ways. It is also expected that applications utilize both qualitative and quantitative approaches and include validation strategies of the research findings and potential impacts. Further, the program is interested in how the theoretical and methodical approach of the proposed research is generalizable such that it could influence how similar problem sets are approached.

Furthermore, there is strong interest in research applications partnered with Historically Black Colleges and Universities/Minority Institutions (HBCU/MI) and other appropriately diverse teams, especially as they contribute different perspectives on the social dynamics of the challenges posed below.

i. TOPIC 1: SOCIO-ECONOMIC VULNERABILITY TO CLIMATE CHANGE

POC: David Montgomery, OUSD-R&E, Basic Research Office,
david.w.montgomery61.civ@mail.mil

Climate and environmental change is increasingly accepted as a major issue facing societies, and a defining global challenge with significant potential to reshape future security and stability. As outlined in the [DoD Climate Risk Analysis Report \(2021\)](#) the associated risks include mass migration, altered patterns of infectious disease, water and food insecurity, degraded livelihood systems, political instability, global conflict, and social dis cohesion, as well as adverse effects on key economic sectors. The varying pace that developed and emerging economies can develop and implement climate change policies, may also be a consideration for political activism and national security.

Socio-economic impacts of climate change will vary across spatial scales, with some societies less resilient to climate-related shocks. Socio-economic factors that determine a region's adaptive capacity can include technology and infrastructure, information, knowledge and skills, institutions, equity, social capital, and economic development. Developing nations are sometimes considered more vulnerable because of relatively high dependence on climate-sensitive sectors, low incomes, and weak adaptive capacity.

This Minerva topic seeks to develop new approaches to studying dynamic relationships between climate change impacts and socio-economic systems, and to assess the implications of those relationships for national security and future Defense policy. Ideally, data and models will capture longitudinal relationships and identify potential policy considerations. Questions of interest for this topic could include:

- What are the relationships between climate change, the performance of economic institutions and critical economic sectors, and national security? How are different types of economic systems affected by the social and political responses environmental change?
- How have state actors exploited environmental vulnerabilities or crises for coercive means, and what lessons can we draw for a world of increasing climate-related hazards?
- How do we measure the impacts of climate change on the value of ecosystem services across different levels of society, and how will these impacts affect different aspects of national security?

- How does the nature of economic interdependence (or isolation) affect the management of environmental challenges across various geographic and political-economic scales?
- How can emerging technologies help to mitigate the negative socio-economic impacts of climate change? How does this vary across different societies? Where might these opportunities intersect with existing DoD technology programs?

ii. TOPIC 2: DETERRENCE IN THE FUTURE OPERATING ENVIRONMENT

POC: David Montgomery, OUSD-R&E, Basic Research Office,
david.w.montgomery61.civ@mail.mil

Integrated deterrence is at the center of the forthcoming [2022 National Defense Strategy](#) and entails working seamlessly across warfighting domains, theaters, the spectrum of conflict, other instruments of U.S. national power, and America's network of Alliances and partnerships.

This topic focuses on predictive models of deterrence and/or escalation management strategies and seeks to develop understanding on whether generalized theories allow lessons learned in one global region to be applied to another region. Theories that enable causality or forecasting between strategic action and outcome are also sought. Specific areas of interest include deterrence logic for hostile states, non-states and proxy actors. A multidisciplinary approach to generating new theories and methodologies is needed, as well as an emphasis on empirically tested or theoretically founded strategic decision support tools.

Specific foci may include, but are not limited to:

- How do different deterrence logics apply across a range of circumstances and domains?
- What are the perspectives of deterrence across different government agencies, allies and partners? Where and why can perspectives be misaligned or deviate? How can we better understand and measure the effects of assurance on partner's and allies' defense policies?
- How do we understand competitors' perceptions of military and non-military signals, and integration of multiple sources of information, messaging and other gray zone activities?
- Scientific evidence to understand how a potential adversaries' domestic political considerations can influence decision-making on the use of force.
- How can historical lessons on successes and failures of coordination between diplomatic and military strategies inform the development of future deterrence strategies?
- How can the deterrence effects of diplomatic, informational, military and economic activities be measured and assessed?

- How does perceived or realized resource competition influence thinking about escalation and deterrence?
- How does technology (current and emerging) impact traditional deterrence-thinking and does it do so differently across different domains?
- Theory and empirical evidence to understand the deterrence effects of revealing or concealing capabilities in different technological and strategic contexts.
- What are the implications of cyber and space-related technologies for general and immediate deterrence, and nuclear escalation risks?
- Empirical evidence to understand nuclear-escalation risk in immediate deterrence crises and early stages of armed conflict.
- How can deterrence thresholds be set, and how can these be effectively communicated to potential opponents?
- How can deterrence strategic outcomes be assessed as well as account for outcomes connected to unrelated events and circumstances?
- What are the approaches for validating causal dynamics between specific deterrence strategies and outcomes?
- For deterrence drivers, what observables can be used to determine if actions are effective across multiple domains? How can they help predict second and third order consequences of these deterrence drivers?
- Scientific evidence to understand how to identify the *what* and *where* to increase defense resilience in order to strengthen deterrence.

iii. TOPIC 3: RUSSIAN SPEAKERS IN ONLINE SPACES

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Russian-speaking diasporas and populations express their opinions, viewpoints and knowledge about social, economic and political affairs in social media, though these discourses are difficult to locate (using current methods) and difficult to interpret, given the problem of language and cultures. Russian speakers have a significant global reach and online users occupy many platforms, including platforms rarely studied for example, Vkontakte and Odnoklassnik, as well as more popular platforms such as YouTube. Recent events in Ukraine are capable of causing substantive ripples in Russian popular culture as expressed in digital and social media; and information conflicts with the propaganda efforts of the Russian media complex of state-owned and state-dominated platforms.

An important feature of information conflicts online is the implicit difficulty of controlling counter-narratives in online spaces. This effort should aim to characterize the landscape of stance, opinions and themes and the techniques of influence in Russian-language discourses, such as the role of trolling and its techniques, the use of disinformation and propaganda, and the social networks and communities that both support and resist state narratives. Implicit in this

effort would be an exploration of modern Russian youth culture and the efforts by the Russian state to contain their opinions and perspectives. The successful effort would provide important, breakthrough understandings of online influence, particularly as practiced by determined propagandists in new (Tiktok), legacy (Facebook, Twitter) and language-niched spaces (Vkontakte, OrdnoKlassnik) or similar.

Respondents should have cultural expertise in Russian language, and in the social platforms where narratives are propagated. Expertise in social movement theory, influence theory, and media criticism would be helpful and expected. A strong understanding of social media algorithmic manipulation and its application to common Russian social media platforms is also likely to be helpful. “Culture-at-a-distance” techniques to study the Ukrainian war in particular would be advantageous. Researchers in communications, journalism, sociology, anthropology, social psychology, and Russian studies are encouraged to apply. Expertise in social media on a variety of platforms such as Tiktok, Vkontakte, OdnoKlassnik and other social media platforms is expected so that information scientists and computer scientists with appropriate social science background and experience are also encouraged.

This Minerva topic aims to expand the description of advanced information warfare techniques and maneuvers and provide an understanding of adversarial disinformation architectures, methods and techniques. The research should contribute to strategic information environment assessment, providing insights, metrics, and descriptions that will inform the development of new theories of information warfare in online contexts.

Specific areas of interest include:

- Improved scientific understanding of techniques and methods of propaganda targeted at Russian speakers, particularly in online spaces.
- New metrics to measure effectiveness of competitive narratives that offer an alternative to Russian narratives.
- Improved scientific understanding of how to identify and assess coordinated attempts to influence populations through intermediaries.
- Descriptive models that assess the expected outcomes of Russian online propaganda techniques.
- New methods that measure the behavioral effects of online propaganda on Russian speaking populations.

iv. TOPIC 4: POWER AND INFLUENCE IN THE ERA OF STRATEGIC COMPETITION

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Power and influence are prevalent social science terms, and they often overlap/intersect in their application to relationships between/among individual(s) and group(s) that often extend to other, sometimes larger, systemic socio-political, economic, and/or legal relationships. While the concepts of power and influence are ancient, the definitions and usage of these terms have shifted over time to reflect the changing nature of governance, warfare, technology, and even the international order. The historical philosophical bases for these concepts, at least from a Western lens, date back at least to Aristotle in written format, and despite healthy debate and growth, the succeeding literature has often maintained a pro-Western bias that has, perhaps unintentionally, limited the amount of non-Western perspectives that contributed to the scholarship. While translation and other dissemination issues may be compounding factors, the lack of available non-Western or decolonized conceptualizations complicates comparisons and assessments of how other nations and/or subnational groups utilize these concepts in ways that might be less visible or even invisible to the West. Historically, for example, power has been considered finite in some parts of the world, with losses or gains transferred through land, property, or other exchange and then perpetuated through societal memory to cement one person/group benefiting over another. In contrast, the rags-to-riches genre suggests that power can be gained and lost in other parts of the world, albeit not necessarily at a cost to another person or entity.

Social media has introduced more fluid concepts of power that permit individuals to become “influencers,” although the magnitude of this trend may vary across societies. The existence of technology-enabled influence is hardly novel, but how critical is the role of technology in establishing power and asserting influence? The extent to which technology has altered or redefined power and influence in policy and practice is underexplored and has potential implications for national security and deterrence. It seems plausible that technology would augment power and influence to some degree, yet it is unknown whether it could become a standalone lever. Should or could technology equate to a lever of national power or as a component thereto are open questions, and technology may not be alone as a potential lever or component thereto; there may be additional elements that merit further consideration in the context of power and influence.

To further situate one relevant historical evolution of power and influence, British diplomat and historian Edward Carr produced a framework for national power in 1939. He described political power as being the sum of military power, economic power, and power over [public] opinion. This model later transitioned to DIME (Diplomacy, Information, Military, Economy) at the start of the Cold War and, through the counterterrorism community in the early 2000s, evolved to DIMEFIL, MIDLIFE, MIDFIELD, and other derivative acronyms to analyze and craft policy. In today’s era of strategic competition, a time that is still redefining itself in terms of interconnectedness, ideology, and geopolitical recalibration, some

researchers have started to consider whether other instruments of power may exist, and how they affect an actor's ability to exert or succumb to influence. Other potential instruments range from technology to economics, education, culture, [outer] space, etc., and explore what threshold an instrument must reach, whether instruments should be weighted the same and, if not, what circumstances require redistributed weighting. Interrogating these models and addressing any deficiencies is only part of the issue, however, as other nations, subnational groups, and international organizations may conceive power and influence differently. Thus, there may be multiple entities playing by different rules who translate alternative concepts into levers that increase their international power projection capabilities.

This topic seeks research that, at minimum, interrogates the concepts of power and influence from multiple perspectives, identifies similarities and differences where they are present, and considers the implications of these findings. Further, the topic seeks efforts that develop and test models related to national levers of power and influence, from Western and non-Western perspectives, with consideration for determining which model(s) best align with the era—and evolution—of strategic competition.

Suggested empirical questions:

- How do concepts such as power and influence differ by nation and, when relevant, entity? To what extent are definitions from Western and non-Western perspectives comparable? If they vary, what are the gaps between/among them? What opportunities might these differences reveal?
- What role does technology play in current and/or emerging levers of national power? If it can stand alone, what implications does it have for current and future policy? If not, what are the dependencies?
- What is the threshold for a concept or capability to become a lever of national power? If there is a threshold, do the traditional instruments still exceed it? What emerging instruments meet or exceed it? To what extent can entities influence this threshold or instantiate/neutralize a lever?
- Should instruments of power be weighted, and if so, how? What role might context (e.g. global, local, cultural, societal, etc.) play in changing or maintaining a proposed weighting system?
- With the many types of power, such as hard, soft, smart, sharp, etc. but may not be exhaustive, which of these types are equivalent across [sub]national definitions? Different? Which actors may use other, as yet unidentified, types of power? What implications do these findings have for integrated deterrence, which must consider influence across multiple domains and the spectrum of conflict?

- To what extent are nations and entities using the same levers? If they conceive power and/or influence differently, what are the similarities and differences, or how might they be identified?
- How do differences in power and influence inform concepts such as surprise and deterrence? Once understood, how do they enrich and/or complicate emerging understanding? To what extent might they differ in specific domains, such as space and cyber?
- What indication(s) may exist to suggest that an action will/will not occur based on another actor's definitions of power and/or influence?
- How do new levers, should they be identified, translate into emerging international power projection capabilities?
- What framework(s) and/or model(s) most accurately reflect power and influence in strategic competition? What extensions, if any, are needed to consider it holistically and across multiple domains? How can these concepts be measured?

v. TOPIC 5: THE ARCTIC AS A POLAR CROSSROADS

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The Arctic is growing in its geostrategic and geopolitical importance. The region is comprised of multinational actors to include the Arctic states, indigenous peoples and their organizations, many of which are recognized sovereign nations, and international observers, many of whom have no geographic proximity to the region, at a time when it is experiencing increasing socio-economic, governmental, environmental, and international pressures that make the region a “polar crossroads of globalization, commodity extraction, and environmental protection/degradation” (Moscato, 2020). It is also becoming more interconnected with [outer] Space for reasons of security, communications, astronomy, and meteorology, among others, adding additional complexity to its importance as a geographic region. At the same time, as the region experiences change it is opening, allowing for new industries such as increased tourism that economically enhance and environmentally challenge the region with greater human mobility. In addition, retreating sea ice and glaciers are creating new passageways for transportation and shipping, yet also increasing negative impacts, such as pollution, that will cause further ecological impact to marine environments. Taking all of these factors into account, it becomes clear that humans are fundamental actors at these crossroads. Humans are critical agents who simultaneously drive and experience the effects of change, whether these changes occur from climate change, environmental transformation, technology... or to culture, security, and sustainability. The presumed opening of the Arctic, as well as growing global interest in its lands and resources, will undoubtedly continue to introduce opportunities and tensions.

Strikingly, despite the immense role that people have in and on the Arctic, as acknowledged in Arctic policies and actors, such as those of the Arctic Council, that reference the human dimension, peoples, and communities; governance; and indigenous knowledge and rights; social science research is substantially under-supported compared to the natural and physical sciences. Several recent analyses on the breadth of Arctic research confirm the need for social and multidisciplinary research on the region to understand the issues affecting it. Such studies are of particular importance to security and defense. The 2021 US Interim National Security Strategy calls to “promote a favorable distribution of power to deter and prevent adversaries from directly threatening the United States and our allies, inhibiting access to the global commons, or dominating key regions” and “lead and sustain a stable and open international system, underwritten by strong democratic alliances, partnerships, multilateral institutions, and rules.” There is a need to understand the humans and activities directing and affecting the future of the crossroads that drive [un]intentional change and how the transformations occurring in the region are shaping the lives and futures of Arctic peoples, states, and global interests.

This topic seeks research that explores the opportunities and challenges in the Arctic that stem from multiple, simultaneous realities such as a changing physical and ecological environment, increasing access and human activity, introduction and adoption of new technologies, and evolving strategic competition. All research proposed must, to some degree, address the human dimension of the Arctic. Proposers anticipating fieldwork in indigenous territories are strongly encouraged to provide evidence in the technical narrative and/or letters of support to demonstrate local concurrence for and/or partnering in the research.

Specific areas of interest include:

- Cooperation and competition in the Arctic, e.g. how these activities may be occurring simultaneously among actors, the mechanisms that affect cooperation and competition, modeling and/or predicting current and future trends
- Opportunities and challenges to developing culturally-appropriately regional digital infrastructure and digital security, which may include consideration for new technologies that could introduce additional societal disruption(s), resiliencies, and vulnerabilities across the region
- Factors that affect mutual understanding and cooperation in the region, to include consideration for local peoples and/or regional and international influence
- Impact of societal change due to trends in development, climate and environmental stressors, international interests, and increasing human activity

Moscato, D. (2020). The Amplification of Polar Diplomacy: A Textual Analysis of Arctic Council Declarations. *Arctic Yearbook*, 1-14.

vi. TOPIC 6: MANAGEMENT AND INFORMATION IN THE DEFENSE ENVIRONMENT

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This topic evolves out of the Department's emphasis on Defense Reform as a pillar of the National Defense Strategy, the continual identification of DoD management activities on the GAO's High Risk List, and the 2018 Future Directions Workshop on the intersection of Management and Information Sciences and its corresponding report on the [Emerging Sciences and Their Applicability to DoD R&D Management Challenges](#). Management science and information science emerged in response to particular organizational needs: management science to the global scale of military and industrial global operations and information science to the growing presence/influence of digital data in contemporary society. Each of these two sciences afford rich opportunities to fundamentally understand and provide insights into management and information challenges facing DoD as it seeks to modernize and reform its management and business practices, and make better use of its management data collection and analysis capabilities. This topic seeks to explore how management and information science can contribute to understanding organizational structures and the challenges to and opportunities in efforts to modernize DoD management, scientific, and bureaucratic processes and ecosystems. Research activities will also help elucidate what data sets and sources should be made available to researchers by the DoD to support further constructive engagement with the management science and information science academic community.

Motivating research questions and issues that can be addressed include, but are not limited to:

Organizational Change and Development

- Develop models that take into account the need for strategy formulation, not just strategy execution; the challenge presented by multiple stakeholders without a unified overarching hierarchy; the multiplicity of interests involved in any prospective change; the accelerating and highly variable rates of technological and social change; challenge of organizationally incentivizing collective interests over more narrowly-defined interests; etc.
- Develop sophisticated theory and models to guide the transformation of institutions into agile organizations that enable rapid adaptation of policies, priorities, and investment to maintain competitive advantage;
- How can we better understand cultural change and development, across a multigenerational workforce operating in the DoD hierarchy?
- How can we best mitigate risk aversion in complex, bureaucratic organizations such as the DoD?
- How can a "systems of systems" architecture be developed—and data be aggregated—that facilitates portfolio management beyond the program level; enhances Joint Force, Service, and OSD coordination and cooperation; assists the transition of research insights across the Department; etc.
- How can the DoD assess costs and impact with imperfect information, particularly as it relates to evaluating institutional inertia relative to the

challenges of managing risk in an ever-evolving research and operational environment?

- How can the DoD maintain the current structure and processes needed for addressing current operational challenges while concurrently experimenting with developing alternative structures and processes needed for emerging operational challenges?
- How can the DoD measure the warfighting advantage provided by the department's diversity and inclusion policies?

Research and Development Pipeline

- Identify alternative frameworks to the current linear progression of research to understand the reciprocal relationship between the different research activities (Basic, Applied), Development, and Application to understand the development life-cycle, resource requirements, and DoD stakeholders;
- Develop advanced models accounting for current federal government and industry R&D activities to create for DoD a diversified R&D research portfolio that will inform investment prioritization (lead versus support) and level (amount).
- How can planning, budgeting, and financial management policies be tailored to match the speed needed to counter emerging threats and take advantage of new technological opportunities?

Supply Chain Management

- What approaches can enable the DoD to identify fair pricing in acquisition circumstances where there is only one prime contractor and only one customer? What are the best models to establish a fair price in the absence of a true market? How can DoD identify fair prices for weapons systems and capabilities that are intended to have a deterrent effect and not intended for operational use?
- How can we anticipate and address the erosion or complete collapse of a sub-tier capability in the supply chain? How can we assess what supply chain logistics reform is needed?
- How can we model the department's supply chain human resources and manufacturing capacity needs? What approaches can enable the DoD to assess the Science, Technology, Engineering and Mathematics (STEM) talent pipeline and national and global ecosystem?
How can we better understand and assess trust in the sociotechnical supply chain system?