

MINERVA RESEARCH INITIATIVE
FUNDING OPPORTUNITY ANNOUNCEMENT (FOA)

INTRODUCTION:

This publication constitutes a Funding Opportunity Announcement (FOA) as contemplated in the 32 CFR 22.315(a). A formal Request for Proposals (RFP), solicitation, and/or additional information regarding this announcement will not be issued.

The Office of the Secretary of Defense (OSD) will not issue paper copies of this announcement. OSD reserves the right to select for award all, some or none of the proposals in response to this announcement. OSD and other participating Department of Defense (DoD) agencies provide no funding for direct reimbursement of proposal development costs. Technical and cost proposals (or any other material) submitted in response to this FOA will not be returned. It is the policy of OSD to treat all proposals as sensitive competitive information and to disclose their contents only for the purposes of evaluation.

Awards will take the form of grants. Therefore, proposals submitted as a result of this announcement will fall under the purview of the Department of Defense Grant and Agreement Regulations, 32 CFR Part 22 (DODGARs). This grant and any Subawards are also subject to 32 CFR Part 32.

Any assistance instrument awarded under this announcement will be governed by the award terms and conditions that conform to DoD's implementation of OMB circulars applicable to financial assistance.

Offerors shall include responses to Representation Regarding an Unpaid Delinquent Tax Liability or a Felony Conviction Under any Federal Law-DoD Appropriations, Prohibition on Contracting with Entities that Require Certain Internal Confidentiality Agreements, and Certification Regarding Restrictions on Lobbying in proposal submission. See page 20 for additional information.

Potential offerors may obtain information by checking the following websites:

- Information regarding this FOA and amendments:
www.grants.gov or <http://www.defenseinnovationmarketplace.mil>
- Information regarding submission of white papers and full proposals:
<http://www.minerva.defense.gov>
- Information regarding Research Directorate (RD), Office of Assistant Secretary of Defense for Research & Engineering:
<http://www.acq.osd.mil/rd/>

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I. GENERAL INFORMATION

1. Agency Name/Address

Washington Headquarters Services/ Acquisition Directorate

2. Research Opportunity Title

Minerva Research Initiative

3. Program Name

Department of Defense Minerva Research Initiative

4. Research Opportunity Number

WHS-AD-FOA-17-01

5. Response Date

White Papers: Tuesday, March 7, 2017 3:00 PM EST
Full Proposals: Wednesday, June 21, 2017 3:00 PM EST

6. Research Opportunity Description

Just as the Cold War gave rise to new ideas and fields of study such as game theory and Kremlinology, the challenges facing the world today call for a broader conception and application of national power that goes beyond military capability. The Office of the Secretary of Defense (OSD) is interested in receiving proposals for the Minerva Research Initiative (<http://www.minerva.defense.gov>), a university-led defense social science program seeking fundamental understanding of the social and cultural forces shaping U.S. strategic interests globally.

The Minerva Research Initiative (Minerva) emphasizes questions of strategic importance to U.S. national security policy. It seeks 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 a general interest area and four (4) special interest areas, all listed below. Innovative white papers and proposals related to these research areas are highly encouraged. Detailed descriptions¹ of the interest areas can be found in Section IX, "Specific Minerva Research Initiative Interest Areas."

- I. General Interest Area: Sociality, Security, & Interconnectivity**
- II. Special Interest Area 1: Understanding the Social Impact of Autonomy**
- III. Special Interest Area 2: Societal Resilience & Sociopolitical (In)stability**
- IV. Special Interest Area 3: Power & Deterrence for Shaping Operations**
- V. Special Interest Area 4: Military Cyber Defense**

¹ The detailed descriptions are intended to provide the proposer a frame of reference and are not meant to be restrictive.

Proposals will be considered both for single-investigator awards as well as larger teams. A team of university investigators may be warranted because the necessary expertise in addressing the multiple facets of the interest areas may reside in different universities, or in different departments of the same university. The research questions addressed should extend across a fairly broad range of linked issues where there is clear potential synergy among the contributions of the distinct disciplines represented on the team. Team proposals must name one Principal Investigator as the responsible technical point of contact. Similarly, one institution will be the primary recipient for the purpose of award execution. The relationship among participating institutions and their respective roles, as well as the apportionment of funds including sub-awards, if any, must be described in both the proposal text and the budget.

The Minerva Research Initiative is a multi-service effort. Ultimately, however, funding decisions will be made by OSD personnel, with technical inputs from the Services.

7. Point(s) of Contact (POC)

Questions of a technical nature shall be directed to the cognizant Technical Points of Contact:

Science and Technology Point of Contact:

Dr. Lisa Troyer

Basic Research Office, ASD (Research & Engineering) and Army Research Office,

Email Address: lisa.l.troyer.civ@mail.mil

Science and Technology Co-Point of Contact:

Dr. David Montgomery

Basic Research Office, ASD (Research & Engineering) and Strategy and Force Development, OSD (Policy)

Email Address: david.w.montgomery61.ctr@mail.mil

Questions of a business nature shall be directed to the cognizant Contracting Specialist:

Ms. Christina Gess

Washington Headquarters Services/ Acquisition Directorate (WHS/AD)

Email Address: christina.l.gess.civ@mail.mil

Note that many questions may be included in the *Frequently Asked Questions* section of

www.minerva.defense.gov. **Proposers should raise questions they have with the point-of-contact (POC) listed on the proposal description in Section IX at least two weeks before the deadline; queries after that point may not receive a response. Additionally, the due dates for submission of the white paper and/or full proposal will not be extended.**

Applicants should be alert for any amendments that may modify the announcement. Amendments to the original FOA will be posted to one or more of the following web pages:

- Grants.gov Webpage – <http://www.grants.gov/>
- The DoD Minerva program website – <http://www.minerva.defense.gov>

8. Instrument Type(s)

It is anticipated that all awards resulting from this announcement will be grants. Grants awarded under this announcement will be governed by the award terms and conditions that conform to DoD's implementation of OMB circulars applicable to financial assistance.

9. Catalog of Federal Domestic Assistance (CFDA) Numbers

12.630

10. Catalog of Federal Domestic Assistance (CFDA) Titles

Office of the Secretary of Defense (OSD) Basic, Applied, and Advanced Research in Science and Engineering

11. Other Information

Work funded under a FOA may include basic research and applied research. With regard to any restrictions on the conduct or outcome of work funded under this FOA, DoD will follow the guidance on and definition of fundamental research as provided in the Under Secretary of Defense (Acquisition, Technology and Logistics) memorandum of 24 May 2010.

As defined therein the definition of 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 (AT&L) 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 proposal 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 Offerors 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.

II. AWARD INFORMATION

A. Award Amount and Period of Performance:

- Total Amount of Funding Available: \$15.0M over 3 years.
- Anticipated Number of Awards: 10–12
- Anticipated Range of Individual Award Amounts: \$150 K/year to \$1.0 M/year
- Previous Years' Average Individual Award Amounts: \$400 K/year
- Anticipated Period of Performance: 3-5 years

It is anticipated that awards will be made in the form of grants to U.S. institutions of higher education (universities).

There is no guarantee that any of the proposals submitted in a particular category will be recommended for funding. More than one proposal may be recommended for funding for a particular category. The Government reserves the right to select for negotiation all, some, one, or none of the proposals received in response to this announcement.

B. Funding Restrictions

An institution may, at its own risk and without prior approval, incur obligations and expenditures to cover costs up to 90 days before the beginning date of the initial budget period of a new or renewal award if such costs: 1) are necessary to conduct the project, and 2) would be allowable under the grant, if awarded, without prior approval.

All pre-award costs are incurred at the recipient's risk. OSD and the military service research organizations are under no obligation to reimburse such costs, if for any reason the institution does not receive an award or if the award is less than anticipated and inadequate to cover such costs.

C. Expectations for Minerva Researchers

1. 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 towards the major demonstrations. These meetings will be held at various sites throughout the country. For costing purposes, offerors should assume that 40% of these meetings will be at or near 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.

2. 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 800-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.

3. 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.

III. ELIGIBILITY INFORMATION

A. Eligible Institutions

All responsible sources from academia, including DoD institutions of higher education and foreign universities, may submit proposals under this FOA. Historically Black Colleges and Universities (HBCUs) and Minority Institutions (MIs) are encouraged to submit proposals and join others in submitting proposals. No portion of this FOA, however, will be set aside for HBCU and MI participation.

Teams are encouraged and may submit proposals in any and all areas. 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 & Development Centers (FFRDCs), including Department of Energy National Laboratories, are not eligible to receive awards under this FOA. However, teaming arrangements between FFRDCs and eligible principal bidders are allowed so long as they are permitted under the sponsoring agreement between the Government and the specific FFRDC.

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.

B. Other Eligibility Criteria

Number of PIs: A single PI must be designated on the application to serve as administrative and technical project lead. 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.

Number of Applications: There is no limit to the number of applications that an institution or individual PI may submit in response to this FOA.

Cost Sharing: Cost sharing is not required.

IV. APPLICATION AND SUBMISSION INFORMATION

The Minerva application process is conducted in two stages:

1. White Paper submission (via email)
Deadline: March, 07, 2017 3:00 PM EST
2. Full Proposal submission (via grants.gov)
Deadline: June 21, 2017 3:00 PM EST

Stage 1 – Prospective offerors are strongly encouraged to submit white papers, an opportunity for reviewer feedback intended to minimize the labor and cost associated with the production of detailed proposals that have little chance of being selected for funding. Based on an assessment of the white papers submitted, the responsible point-of-contact (POC) (see Section IX) will advise offerors whether the proposals outlined in their white papers were judged to be competitive for Minerva award selection, and will then invite the most promising subset of proposals to submit a full proposal for funding consideration.

Offerors are strongly encouraged to contact the appropriate POC two or more weeks prior to white paper submission to discuss their ideas. White papers and other technical queries arriving after the deadline are unlikely to receive feedback unless an invitation for full proposal submission has been extended.

Stage 2 – Subsequent to white paper feedback, interested offerors are required to submit full proposals. All proposals submitted under the terms and conditions cited in this FOA will be evaluated in accordance with the evaluation criteria stated herein. Offerors may submit a proposal without submitting a white paper, though this is discouraged. Interested parties who do not participate in the white paper review stage should contact the appropriate POC prior to submission to discuss options, though feedback at that late stage is not guaranteed. **Full proposals submitted after the posted deadline will not be evaluated for funding consideration.**

A. General requirements

1. Document format

All documents included in both White Paper and Full Proposal packages must be submitted in Adobe Portable Document Format (PDF) in compliance with the guidelines below. Proposals 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 Proposals 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 name and institution in header or footer
- Appropriate markings on each page that contains proprietary or confidential information, if applicable.

White Papers, Supporting Documentation, and Full Proposals submitted under this FOA are expected to be unclassified. All proposals shall be submitted in accordance with Section IV.

2. Marking proprietary or confidential information

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

It is the offerors responsibility to notify WHS/AD of proposals containing proprietary information and to identify the relevant portions of their proposals that require protection. The entire proposal (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 proposals as privileged information before the award and to disclose their contents only for the purpose of evaluation. White papers may also be disclosed to reviewers for training purposes in future competitions.

B. White Paper Preparation and Submission

1. White Paper package components

Submitted documentation should be in PDF format and include:

- A cover letter (optional), not to exceed one page.
- A cover page, labeled “PROPOSAL WHITE PAPER,” that includes the FOA number, proposed project title, and offeror's technical point of contact with telephone number, e-mail address, and most relevant area number(s) and title(s) (see Section IX).
- 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 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 within 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 Standard Time on March 07, 2017**. 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 offeror is responsible for allowing enough time to complete the required application components, upload the documents, 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 Section IX), written as:
FY17 Minerva WP - Area [area number(s)]

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

C. Full Proposal Package Preparation and Submission

Full Proposal packages must be submitted electronically to Grants.gov (<http://www.grants.gov/>) no later than **3:00 p.m. Eastern Time on June 21, 2017**. The forms required for Grants.gov submission are summarized in Table 1 and described in detail below.

Table 1. Summary of Full Proposal Submission Forms

Form	Attachment	Action
SF-424 (R&R) Application for Federal Assistance	SF-LLL if there are lobbying activities to disclose	Enter appropriate information in the data fields as described in Section IV.C.i. Attach SF-LLL to box 18 if necessary. (Last_Name_SFLLL.pdf) Attach Representation Regarding an Unpaid Delinquent Tax Liability or a Felony Conviction Under any Federal Law – DoD Appropriations to box 18 with other documentation.
R&R Senior/Key Person Profile Form	PI Curriculum Vitae (5-page limit)	Attach to PI Biographical Sketch field (LastName_CV.pdf)
	Key Personnel Biographical Sketches (2-page limit)	Attach to Biographical Sketch field for each senior/key person (LastName_Bio.pdf)
	Statement of Current and Pending Support	Attach to Support field for each senior/key person (LastName_Support.pdf)
R&R Project/Performance Site Locations Form	None	Enter appropriate information in the data fields as described below.
R&R Other Project Information Form	Project Summary	Attach to Field #7 (LastName_Abstract.pdf)
	Project Narrative	Attach to Field #8 (LastName_Narrative.pdf)
R&R Budget Form	Budget Justification	Enter appropriate information in the data fields as described below. Attach budget justification to Section K of the budget form for each applicable year (LastName_Budget.pdf)
Attachments Form	Comprehensive budget chart	Upload as attachment 1
	Letters of Support (optional)	Optional upload

Full Proposal package form descriptions:

i. SF-424 Research & Related (R&R) Application for Federal Assistance Form

The SF-424 (R&R) form must be used as the cover page for all proposals. Complete all required fields in accordance with the “pop-up” instructions on the form and the following instructions for specific fields. To see the instructions, roll the mouse over the field to be filled out and additional information about that field will be displayed. For example, on the SF-424 (R&R) the Phone Number field says “PHONE NUMBER (Contact Person): Enter the daytime phone number for the person to contact on matters relating to this application. This field is required.” Mandatory fields will have an asterisk marking the field and will appear yellow on most computers. In Grants.gov, some fields will self-populate based on the FOA selected.

Please fill out the SF-424 first, as some fields on the SF-424 are used to auto populate fields in other forms. The completion of most fields is self-explanatory except for the following special instructions:

Field 3 - Date Received by State. The Date Received by State and the State Application Identifier are not applicable to research.

Field 4a - Federal Identifier. No identifier required.

Field 4b - Agency Routing Identifier. Input “RD [Troyer, Lisa]”

Field 7 - Type of Applicant. Complete as indicated. If the organization is a Minority Institution, select “Other” and under “Other (Specify)” note that the institution is a Minority Institution (MI).

Field 9 - Name of Federal Agency. List the “Washington Headquarters Services/ Acquisition Directorate” as the reviewing agency. This field is pre-populated in Grants.gov.

Field 16 - Is Application Subject to Review by State Executive Order 12372 Process? Choose “No”. Check “Program is Not Covered by Executive Order 12372.”

Field 17 – Certification. All awards require some form of certifications of compliance with national policy requirements. By checking the “I agree” box in field 17, and attaching the representation to field 18 of the SF424 (R&R) as part of the electronic proposal submitted via Grants.gov, the Grant Applicant is providing the certification on lobbying required by 32 CFR Part 28 and representation regarding an unpaid delinquent tax liability or a felony conviction under any federal law – DoD appropriations.

ii. Research & Related Senior/Key Person Profile Form

Complete the *R&R Senior/Key Person Profile* form for those key persons who will be performing the research. Information about an individual is subject to the requirements of the Privacy Act of 1974 (Public Law 93 579). The information is requested under the authority of Title 10 USC, Sections 2358 and 8013.

The principal purpose and routine use of the requested information are for evaluation of the qualifications of those persons who will perform the proposed research. Failure to provide such information will delay award. Attach curricula vitae (CVs) and/or a Biographical Sketch for the principal investigator and senior staff. CVs should **list any previous DoD funding and engagement within the last eight years** including project titles.

Attach statements of current and pending support for the Principal Investigators and co-investigators listed in the proposal, as applicable. These statements require that each investigator specify all grants and contracts through which he or she is currently receiving or may potentially receive financial support. Describe the research activities and amount of funding.

Page limits for attachments:

- Key Personnel Curriculum Vitae (five (5) page limit)
- Key Personnel Biographical Sketches (two (2) page limit each)

iii. Project/Performance Site Locations Form

Complete all information as requested.

iv. Research And Related Other Project Information Form

Fields 1 and 1a - Human Subject Use. Each proposal must address human subject involvement in the research by addressing *Fields 1 and 1a* of the *R&R Other Project Information* form.

For any proposal for research involving human subjects, the Offeror must submit or indicate an intention to submit prior to award: documentation of approval from an Institutional Review Board

(IRB); IRB-approved research protocol; IRB-approved informed consent form; proof of completed human research training (e.g., training certificate or institutional verification of training); and any other relevant requirements². In the event that an exception criterion under 32 CFR.219.101(b) is claimed, provide documentation of the determination by the Institutional Review Board (IRB) Chair, IRB vice Chair, designated IRB administrator or official of the human research protection program including the category of exemption and short rationale statement. If research is determined by the IRB to be greater than minimal risk, the Offeror also must provide the name and contact information for the independent medical monitor. For assistance with submission of human subject research related documentation, contact the relevant point of contact (POC) below.

- **Army:** laura.brosch@us.army.mil, Director, ORP Human Research Protection Office
- **Air Force:** stephanie.a.bruce4.civ@mail.mil, DoD Human RDT&E Protection Programs
- **Navy:** sevgi.bullock@navy.mil, Human Research Protection Official

Fields 2 and 2a - Animal Use. Each proposal must address animal use protocols by addressing Fields 2 and 2a of the R&R Other Project Information form.

If animals are to be utilized in the research effort proposed, the Offeror must submit prior to award a DoD Animal Use Protocol with supporting documentation (copies of Association for Assessment and Accreditation of Laboratory Animal Care (AAALAC) accreditation and/or National Institute of Health assurance, Institutional Animal Care and Use Committee (ACUC) approval, research literature Database searches, and the two most recent USDA inspection reports). For assistance with submission of animal research related documents, contact Minerva staff to identify the appropriate point of contact.

Fields 4a through 4d - Environmental Compliance. Federal agencies making grant or cooperative agreement awards and recipients of such awards must comply with various environmental requirements. The National Environmental Policy Act of 1969 (NEPA), 42 U.S.C. Sections 4321-4370 (a), requires that agencies consider the environmental impact of “major Federal actions” prior to any final agency decision. With respect to those awards which constitute “major Federal actions,” as defined in 40 CFR 1508.18, federal agencies may be required to comply with NEPA and prepare an environmental impact statement (EIS), even if the agency does no more than provide grant funds to the recipient.

Questions regarding NEPA compliance should be referred to Minerva program staff. Most research efforts funded through the Minerva program will, however, qualify for a categorical exclusion from the need to prepare an EIS. For those proposing under Navy projects, Navy instructions/regulations provide for a categorical exclusion for basic and applied scientific research usually confined to the laboratory, if the research complies with all other applicable safety, environmental and natural resource conservation laws. Each proposal shall address environmental impact by filling in Fields 4a through 4d of the R&R Other Project Information form. This information will be used by DoD to make a determination if the proposed research effort qualifies for categorical exclusion.

Field 7 – Project Abstract/Summary. In a single page, describe the research problem, proposed methods, anticipated outcome of the research, if successful, and impact on DoD capabilities or broader implications for national defense. Identify the Principal Investigator, the university/research institution (and other institutions involved in the Minerva team, if applicable), the proposal title, the

² Proposals with POCs based at the Office of Naval Research will require an application for a DoD-Navy Addendum to the Offeror’s DHHS-issued Federal-Wide Assurance (FWA) or the Offeror’s DoD-Navy Addendum.

Minerva interest area number, and the total funds requested from DoD for the 3-year base period (and, in the case of 5-year proposals, the additional 2-year option period and the potential 5-year total period).

Field 8 – Project Narrative. Describe clearly the research, including the objective and approach to be performed, keeping in mind the evaluation criteria listed in Section V (“Evaluation Criteria”).

Generate a single PDF file containing all proposal narrative sections described below and attach as the *R&R Other Project Information* form in Field 8. **Full proposals exceeding the page limits defined below may not be evaluated.**

- **Cover page**, including:
 - Proposal title
 - Institution proposal number
 - Interest area number and title
 - Principal Investigator name
 - Phone number, fax number, and e-mail address
 - Institution, Department, Division
 - Institution address
 - Other institutions involved in the Minerva team, if applicable
 - Whether the PI is a past or current DoD Contractor or Grantee.
If yes, provide agency and point of contact information.
- **Table of Contents.** List project narrative sections and corresponding page.
- **Technical Narrative** (*25-page limit for this section, excluding list of references*). Describe the basic scientific or technical concepts that will be investigated, giving the complete research plan. Describe the technical approach and what makes it innovative. Discuss the relationship of the proposed research to the state-of-the-art knowledge in the field and to related efforts in programs elsewhere, and discuss potential scientific breakthroughs, including appropriate literature citations/references. Discuss the nature of expected results. Discuss potential applications to defense missions and requirements. Describe plans for the research training of students. Include the number of full time equivalent graduate students and undergraduates, if any, to be supported each year. Discuss the involvement of other students, if any.
- **Project Schedule, Milestones, and Deliverables.** A summary of the schedule of events, milestones, and a detailed description of the results and products to be delivered. Any proposed option period beyond three years should be explicitly scoped accordingly.
- **Management Approach.** A discussion of the overall approach to the management of this effort, including brief discussions of: required facilities; relationships with any subawardees and with other organizations; availability of personnel; and planning, scheduling, and control procedures.
 - (a) Designate one Principal Investigator for the award to serve as the primary point-of-contact. Briefly summarize the qualifications of the Principal Investigators and other key investigators to conduct the proposed research.
 - (b) Describe in detail proposed subawards to other eligible universities or relevant collaborations (planned or in place) with government organizations, industry, or other appropriate institutions. Particularly describe how collaborations are expected to

facilitate the transition of research results to applications. If subawards to other universities/institutions are proposed, make clear the division of research activities, to be supported by detailed budgets for the proposed subawards.

- (c) Describe plans to manage the interactions among members of the proposed research team, if applicable.
- (d) Identify other parties to whom the proposal has been, or will be sent, including agency contact information.

- **Facilities.** Describe facilities available for performing the proposed research and any additional facilities or equipment the organization proposes to acquire at its own expense. Indicate government-owned facilities or equipment already possessed that will be used. Reference the facilities grant and/or contract number or, in the absence of a facilities grant/contract, the specific facilities or equipment and the number of the award under which they are accountable.

Field 9 – Bibliography and References Cited. Attach a listing of applicable publications cited in above sections.

Fields 10 and 11 – These fields are not required.

Field 12 – Other Attachments. In addition to the *Research and Related Budget* form, researchers are encouraged to submit a comprehensive, single page version of the budget for the prime and subawardee institutions, where rows are budget categories and columns indicate budget periods.

Letters of support are neither required nor expected in application packages. Some offerors may feel a letter of support demonstrating the importance of the research to the national security community may strengthen their proposals. Such letters should not exceed 2 pages.

v. **Research & Related Budget Form**

You must provide a detailed cost breakdown of all costs, by year and cost category, corresponding to the proposed Technical Approach which was provided in Field 8 of the *R&R Other Project Information Form*. Any proposed option years must be separately priced. For planning purposes, assume that grant awards will begin in January 2018.

Budget elements:

Annual budgets should be driven by program requirements. Elements of the budget should include:

- **Direct Labor** — Individual labor category or person, with associated labor hours and unburdened direct labor rates. Provide escalation rates for out years. Provide the basis for the salary proposed. If labor costs are not provided for listed principal investigators, the budget justification document should include an explanation.
- **Administrative and clerical labor** — Salaries of administrative and clerical staff are normally indirect costs (and included in an indirect cost rate). Direct charging of these costs may be appropriate when a major project requires an extensive amount of administrative or clerical support significantly greater than normal and routine levels of support. Budgets proposing direct charging of administrative or clerical salaries must be supported with a budget justification which adequately describes the major project and the administrative and/or clerical work to be performed.

- Indirect Costs — Fringe benefits, overhead, G&A, etc. (must show base amount and rate). Provide the most recent rates, dates of negotiations, the period to which the rates apply, and a statement identifying whether the proposed rates are provisional or fixed. If the rates have been negotiated by a Government agency, state when and by which agency. Include a copy of the current indirect rate agreement (via Field 12 of the *Research and Related Other Project Information Form*).
- Travel — Identify any travel requirements associated with the proposed research and define its relationship to the project. List proposed destinations, cost estimate, and basis of cost estimate. Please include all Service or Minerva program travel needs, described further in Section II, Part C (“Expectations for Minerva Researchers”).
- Subawards — Provide a description of the work to be performed by the subrecipients. For each subaward, a detailed cost proposal is required to be included in the principal investigator’s cost proposal. Fee/profit is unallowable.
- Consultant — Consultants are to be used only under exceptional circumstances where no equivalent expertise can be found at a participating university; strong justification required. Provide consultant agreement or other document that verifies the proposed loaded daily/hourly rate. Include a description of the nature of and the need for any consultant’s participation. Provide budget justification.
- Materials — Specifically itemized with costs or estimated costs. Justify.
- Other Directs Costs — Provide an itemized list of all other proposed direct costs such as Graduate Assistant tuition, laboratory fees, report and publication costs and the basis for the estimate (e.g., quotes, prior purchases, catalog price lists).
NOTE: If the grant proposal is for a conference, workshop, or symposium, the proposal should include the following statement: “The funds provided by the Department of Defense will not be used for food or beverages.”
- Fee/Profit — Fee/profit is unallowable.

Budget justification

The budget proposal should include a budget justification for each year, clearly explaining the need for each item and attached to Section K of the *R&R Budget* form.

Budget summary

In addition to the *Research and Related Budget* form, researchers are encouraged to submit a comprehensive, single page version of the budget for the prime and subawardee institutions, where rows are budget categories and columns indicate budget periods. Include as an attachment to *R&R Other Project Information Form* Field 12 (“Other Attachments”).

Cost sharing is not a factor in the evaluation but is permitted. Cost sharing may support items such as salaries, indirect costs, operating expenses, or new equipment. In each category, show the amount and nature of the planned expenditure share (e.g., equipment, faculty release time for research). A signed statement of commitment regarding the cost sharing or matching funds described above must be obtained from the appropriate institutional and/or private sector officials, and included at time of submission. Any cost sharing or matching plan should be included in the budget justification.

D. Submission of Grant Proposals through Grants.gov

This announcement package, including forms and instructions, may be accessed from the Internet at the Grants.gov web site. To access these materials, go to <http://www.grants.gov>, select “Apply for Grants,” followed by “Step 1 – Download a Grant Application Package.” In the search function, enter the funding opportunity number for this announcement #WHS-AD-FOA-17-01. In the search results, click on “download” under the heading “Instructions and Application” to download the instructions and application package. Offerors can also search for the CFDA Number “12.630” or Funding Opportunity Competition ID “Minerva” to download the instructions and application.

Due to high traffic volume, applicants are highly encouraged to submit applications early. Waiting until the due date and time may result in applications being late. Common closing dates include the first, fifteenth and last day of any month. Potential applicants are reminded to plan accordingly. Also, please check Grants.gov prior to submission for any notices posted on Grants.gov offering alternate submission options as a result of system saturation. Note: All attachments to all forms must be submitted in PDF format (Adobe Portable Document Format).

Full Proposal packages must be submitted electronically to Grants.gov (<http://www.grants.gov/>) **no later than 3:00 p.m. Eastern Time on June 21, 2017.** NOTE: White Papers should not be submitted through the Grants.gov Apply process, but rather by email as described in Section IV, subsection B.

1. Preparing for submission

For electronic submission of full grant proposals, there are several one-time actions that 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 System for Award Management (SAM) (see page 20), registering with the credential provider, and registering with Grants.gov. See www.grants.gov, specifically www.grants.gov/GetStarted.

Use the Grants.gov Organization Registration Checklist at <https://apply07.grants.gov/apply/OrcRegister> which will provide guidance through the process. Designating an E-Business Point of Contact (E-Biz POC) and obtaining a special password called ‘MPIN’ are important steps in the SAM registration process. Applicants who are not registered with SAM.gov and Grants.gov should allow at least 21 days to complete these requirements. **This process should be started as soon as possible.**

Any questions relating to the registration process, system requirements, how an application form works, or the submittal process must be directed to Grants.gov at 1-800-518-4726 (1-606-545-5035 for foreign applicants) or support@grants.gov.

2. Full proposal submission confirmation

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

Email #1 – The applicant will receive a confirmation page upon completing the submission to Grants.gov. This confirmation page is a record of the time and date stamp that is used to determine when the proposal was submitted, and also includes a Submission Receipt Number for tracking purposes.

Email #2 – The applicant will receive an e-mail indicating that the proposal has been validated by

Grants.gov within two days of submission (This means that all of the required fields have been completed). After an institution submits an application, Grants.gov generates a submission receipt via email and also sets the application status to "Received." This receipt verifies the Application has been successfully delivered to the Grants.gov system. Next, Grants.gov verifies the submission is valid by ensuring it does not contain viruses, the opportunity is still open, and the applicant login and applicant DUNS number match. If the submission is valid, Grants.gov generates a submission validation receipt via email and sets the application status to "Validated." If the application is not validated, the application status is set to "Rejected." The system sends a rejection email notification to the institution, and the institution must resubmit the application package. Applicants can track the status of their application by logging in to Grants.gov.

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

The proposal is not considered properly received until the AOR receives email #3.

V. EVALUATION INFORMATION

A. Evaluation 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

1. **Scientific merit**, soundness, and programmatic strategy of the proposed basic social science research; and
2. **Relevance** and potential contributions of the proposed research to research areas of DoD interest as described in Section IX.

Other Criteria

3. Potential **impact** of the 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.
4. The **qualifications** and availability of the Principal Investigators and key co-investigators (if applicable) and the **overall management approach**; and
5. The realism and reasonableness of **cost**.

The Principal Criteria are of equal importance and are of more importance than the Other Criteria. The 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 proposals may not be funded.

B. Evaluation Process

The Minerva Research Initiative selects awards using merit-based competitive procedures according to 32 CFR Sec 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.

1. *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 other subject matter experts. Systems Engineering and Technical Assistance (SETA) contractor employees may provide technical and administrative assistance to inform consideration by the evaluation team. Individuals other than the POC will sign a conflict of interest statement prior to receiving proposal information.

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 service branch agencies. The Minerva Steering Committee expects to invite approximately between (30) and forty (40) individual 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.

2. *Full proposals*

Full proposals submitted under this FOA undergo another multi-stage evaluation procedure. Technical proposals 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 employee and peer from the university community having access to technical and cost proposals submitted in response to this FOA 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 on occasion 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, proposal adjustments will be agreed by the offeror and the government prior to final award.

C. Evaluating Proposed Option Periods

The Government will evaluate the total cost of the award including base award costs and stated cost of all options. Evaluation of options will not obligate the Government to exercise the options during grant performance.

Decisions for exercising additional option years of funding, should funding be available, will be based on accomplishments during the base period and potential research advances during the option years that can impact DoD research priorities and capabilities. Options should be detailed in the original proposal, though must be clearly separable from the base proposal in all documents detailing research activities and budget specifications.

VI. SIGNIFICANT DATES AND TIMES

Table 2. Anticipated Event Timeline

Event	Date	Time
Pre-Proposal Conference/Industry Day	N/A	
Last day for White Papers questions to Interest Area POCs	February 21, 2017	
White Papers Due	March 07, 2017	3:00 PM EST
Notification of Initial Evaluations of White Papers*	May 03, 2017	
Last day for Full Proposal questions to Interest Area POCs	June 07, 2017	
Full Proposals Due	June 21, 2017	3:00 PM EST
Notification of Selection for Award *	August 29, 2017	
Contract Awards*	January 2, 2018	
Kickoff Meeting*	April 4, 2018	

* Dates are estimates as of the date of this announcement.

Any full proposal submitted and validated through Grants.gov where the time and date for submission (*Email #2* described on page 16) is after the specified deadline will be considered late and will not be eligible for review. The only exception to this is if the full Grants.gov website was not operational on the due date and was unable to receive the proposal submission. If this occurs, the time specified for the receipt of proposals through Grants.gov will be extended to the same time of the day specified in this FOA on the first workday on which the Grants.gov website is operational.

Be advised that Grants.gov applicants frequently experience system slowness and validation issues which may impact the time required submitting proposals. After proposals are uploaded to Grants.gov, the submitter will receive an email indicating the proposal has been submitted and that grants.gov will take up to two days to validate the proposal. As it is possible for Grants.gov to reject the proposal during this process, **it is STRONGLY recommended that any soft-copy proposals be uploaded at least two days before the deadline** established in the solicitation so that it will not be received late and be ineligible for award consideration.

Application materials submitted in whole or in part by an electronic media or in hard copy form to Minerva program staff will not be accepted (unless the materials have also been submitted in accordance with the requirements outlined in this announcement).

VII. AWARD ADMINISTRATION INFORMATION

A. Administrative Requirements

The System for Award Management (SAM) is a free web site that consolidates the capabilities once found in CCR/FedReg, ORCA, and EPLS. Future phases of SAM will add the capabilities of other systems used in Federal procurement and awards processes.

All Offerors submitting proposals or applications must:

- 1) Be registered in the SAM prior to submission;
- 2) Maintain an active SAM registration with current information at all times during which it has an active Federal award or an application under consideration by any agency; and
- 3) Provide its DUNS number in each application or proposal it submits to the agency.

SAM may be accessed at <https://www.sam.gov/portal/public/SAM/>.

B. Access to your Grant

Hard copies of award/modification documents will **not** be mailed to Offerors. All award/modification documents will be available via the DoD Electronic Document Access System (EDA). EDA is a web-based system that provides secure online access, storage, and retrieval of awards and modifications to DoD employees and vendors.

If an offeror does not currently have access to EDA, complete a self-registration request as a "Vendor" via <http://eda.ogden.disa.mil> following the steps below:

Click "New User Registration" (from the left Menu)
Click "Begin VENDOR User Registration Process"
Click "EDA Registration Form" under Username/Password (enter the appropriate data)
Complete & Submit Registration form

Allow five (5) business days for your registration to be processed. EDA will notify you by email when your account is approved.

Registration questions may be directed to the EDA help desk toll free at 1-866-618-5988, Commercial at 801-605-7095, or via email at cscassig@csd.disa.mil (Subject: EDA Assistance).

VIII. OTHER 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 subawards and executive total compensation as codified in 2 CFR 33.110. Any company, non-profit agency or university that applies for financial assistance (either grants, cooperative agreements or other transaction agreements) as either a prime or sub-recipient under this FOA must provide information in its proposal that describes the necessary processes and systems in place to comply with the reporting requirements identified in 2 CFR 33.220. An entity is **exempt** from this requirement **UNLESS** in the preceding fiscal year it received: a) 80 percent or more of its annual gross revenue in Federal contracts (and subcontracts), loans,

grants (and subgrants), and cooperative agreements; b) \$25 million or more in annual gross revenue from Federal contracts (and subcontracts), loans, grants (and subgrants), and cooperative agreements; and c) the public does not have access to information about the compensation of the senior executives through periodic reports filed under section 13(a) or 15(d) of the Securities Exchange Act of 1934 or section 6104 of the Internal Revenue Code of 1986.

B. Military Recruiting on Campus (DoDGARs §22.520)

This applies to domestic U. S. colleges and universities. Appropriate language from 32 CFR 22.520, Campus access for military recruiting and Reserve Officer Training Corps (ROTC), will be incorporated in all university grant awards.

C. Certification regarding Restrictions on Lobbying

Grant and Cooperative Agreement awards greater than \$100,000 require a certification of compliance with a national policy mandate concerning lobbying. Grant applicants shall provide this certification by electronic submission of SF424 (R&R) as a part of the electronic proposal submitted via Grants.gov (complete Block 17). The following certification applies likewise to each cooperating agreement and normal OTA applicant seeking federal assistance funds exceeding \$100,000:

(1) No Federal appropriated funds have been paid or will be paid by or on behalf of the applicant, to any person for influencing or attempting to influence an officer or employee of an agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with the awarding of any Federal contract, the making of any Federal grant, the making of any Federal loan, the entering into of any cooperative agreement, and the extension, continuation, renewal, amendment, or modification of any Federal contract, grant, loan, or cooperative agreement.

(2) If any funds other than Federal appropriated funds have been paid or will be paid to any person for influencing or attempting to influence an officer or employee of any agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with the Federal contract, grant, loan, or cooperative agreement, the applicant shall complete and submit Standard Form-LLL, "Disclosure Form to Report Lobbying," in accordance with its instructions.

(3) The applicant shall require that the language of this certification be included in the award documents for all subawards at all tiers (including subcontracts, subgrants, and contracts under grants, loans, and cooperative agreements) and that all subrecipients shall certify and disclose accordingly.

This certification is a material representation of fact upon which reliance was placed when this transaction was made or entered into. Submission of this certification is a prerequisite for making or entering into this transaction imposed by Section 1352, title 31, U.S.C. Any person who fails to file the required certification shall be subject to a civil penalty of not less than \$10,000 and not more than \$100,000 for each such failure.

D. Representation Regarding an Unpaid Delinquent Tax Liability or a Felony Conviction Under any Federal Law - DoD Appropriations:

All grant applicants are required to complete the "Representation on Tax Delinquency and Felony Conviction" found at <http://www.onr.navy.mil/Contracts-Grants/submit-proposal/grants-proposal.aspx> by checking the "I agree" box in block 17 and attaching the representation to block 18 of the SF424 (R&R) as part of the electronic proposal submitted via Grants.gov. The representation reads as follows:

(1) The applicant represents that it is/is not a corporation that has any unpaid Federal tax liability that has been assessed, for which all judicial and administrative remedies have been exhausted or have lapsed, and

that is not being paid in timely manner pursuant to an agreement with the authority responsible for collecting the tax liability

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

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

E. Security Classification

OSD does not provide access to classified material under grants.

F. Department of Defense High Performance Computing Program

The DoD High Performance Computing Program (HPCMP) furnishes the DoD S&T and RDT&E communities with use-access to very powerful high performance computing systems. Awardees of ONR contracts, grants, and other assistance instruments may be eligible to use HPCMP assets in support of their funded activities if OSD Program Officer approval is obtained and if security/screening requirements are favorably completed.

Additional information and an application may be found at <http://www.hpcmo.hpc.mil/>.

G. Organizational Conflicts of Interest (OCI)

All Offerors and proposed subcontractors 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 offeror supports and identify the prime contract numbers. Affirmations shall be furnished at the time of proposal submission. All facts relevant to the existence or potential existence of organizational conflicts of interest must be disclosed. The disclosure shall include a description of the action the offeror has taken or proposes to take to avoid, neutralize, or mitigate such conflict. A contractor 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 offeror believes that any conflict of interest exists or may exist (whether organizational or otherwise), the offeror 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 Business Point of Contact in Section I, item 7 above, before time and effort are expended in preparing a proposal and mitigation plan. If, in the sole opinion of the Contracting Officer after full consideration of the circumstances, any conflict situation cannot be effectively avoided, the proposal may be rejected without technical evaluation and withdrawn from further consideration for award under this FOA.

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 FOA 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.

IX. SPECIFIC MINERVA RESEARCH INITIATIVE AREAS

The following Minerva interest areas 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. See **Section V** of the FY 2017 Minerva Funding Opportunity Announcement for proposal evaluation criteria.

Proposals 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. Proposals 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.

Disciplinary approaches of interest include, but are not limited to: anthropology, area studies, cognitive science, demography, economics, history, human geography, political science, psychology, sociology, and computational sciences. Interdisciplinary approaches are strongly encouraged, especially when mutually informing and/or cross-validating (methodological integration). Researchers need not focus exclusively on the contemporary period, but they must be able to explain the relevance of findings to contemporary DOD strategic priorities.

The 2017 Interest Areas are situated within DOD strategic priorities that reflect the general, department-wide interests and those more specific to each Service. There is, of course, overlap and collaboration between the respective interest areas, but in framing their proposals researchers are encouraged to consider both the area of interest and the general context of needs it represents:

- General Interest Area: Sociality, Security, and Interconnectivity
- Special Interest Area 1: Understanding the Social Impact of Autonomy
- Special Interest Area 2: Societal Resilience and Sociopolitical (In)stability

- Special Interest Area 3: Power and Deterrence for Shaping Operations
- Special Interest Area 4: Military Cyber Defense

A. General Interest Area: Sociality, Security, and Interconnectivity

POC: David Montgomery, OSD (Policy) Strategy & Force Development, and ASD (R&E) Basic Research, david.w.montgomery61.ctr@mail.mil

Recognizing that all issues of security exist within a social context, the Department of Defense seeks to enhance the basic social scientific understanding of factors contributing to social stability or conflict; processes of community formation and dissolution—including how communities construct meaning and value that drive political and collective action; and the impact of differing cultural visions on security at micro, mezzo, and macro levels. Most generally, this interest area concerns a focus on conflict vis-à-vis the mechanisms of sociality. It is interested in research that offers innovative, interdisciplinary insights into thematic topics including:

- Influence of social, political, economic, and environmental change on identity, group cohesion, and the ability to live with diversity. Such changes of interest include those influenced by labor migration, refugee displacement, urbanization, and shifts within the existing global order. Among the numerous factors worth consideration: the influence of trade and trade networks, shifting employment opportunities, and income inequality impacting livelihoods and stressing communities; how perceptions of insecurity are impacted by demographic shifts and the long-term consequences of such changes; and how changing populations and group-divisions influence various structures of governance (democratic or otherwise) differently.
- The role of great-powers in managing global stability. How are traditional and emerging great-powers'—including but not limited to China and Russia—understandings of security impacted by the social, cultural, and political environments in which they exist and what factors hold together the ability of great-powers to mobilize within and beyond their territories? How do structural changes among various states impact global order? Do changing ideological visions impact the utility of multilateral alliances? How do non-state actors influence established state mechanisms for managing conflict?
- The impact of intervention or failure to intervene. How can one more efficiently understand the social, political, economic, and environmental consequences—short, medium, and long term—of engagement? How do understandings of engagement across different international and cultural contexts influence outcome and effectiveness? How are national and regional interests managed, especially in relation to varying understandings of obligation and responsibility that are at times framed morally in individual, communal, and/or ideological terms? Are capacity building programs effective and if so, at what level are their successes context and culturally specific and where are approaches generalizable across different cultural environments?
- The evolving role of global interconnectivity in relation to understandings of connectedness within communities of belonging. How do economics, politics, environmental change, and ideological visions influence social relations at the micro, mezzo, and macro levels? What underlies changing relations within communities and how are counter-hegemonic movements understood differently by states and individuals? To what extent do these differences in understanding reflect the substance of alienation or the challenge of competing visions of community? How do different understandings regarding the primacy of individuality and communality impact the coordination of activities between states and cultures? What factors—including social media and cyber-related interactions, as well as more traditional forms of knowledge transmission and communal engagement—most influence social cohesion within and across different parts of the world?

B. Special Interest Area 1: Understanding the Social Impact of Autonomy

POC: Benjamin Knott, Air Force Office of Scientific Research, benjamin.knott.2@us.af.mil

The technologies of autonomous systems including artificial intelligence, machine learning, and robotics will be transformative to the DoD as well as have tremendous societal and economic impacts. Autonomous systems will revolutionize military operations across all services, complement and augment the capabilities of our warfighters and peacekeepers, and enhance national and homeland security. In addition these technologies will have sweeping social impacts, changing many aspects of how we live, learn, and communicate, including the potential to increase economic prosperity. The DoD is investing heavily in this area and recently commissioned a Defense Science Board Summer Study on Autonomy to make "recommendations to identify the science, engineering, and policy problems that must be solved to permit greater operational use of autonomy across all warfighting domains." While significant resources are being invested in developing the collection of technologies needed to achieve robust autonomous systems, many questions remain about the policy of autonomy including the use and ethics of autonomous weapons systems, the effects of robotics on the performance of human-machine teams, social impacts and support from local populations for US interests, and the economics / logistics of pervasive autonomy. Support is needed from the social science community to examine the social, cultural, psychological, political, economic, and ethical impacts of these advances.

Sample topics include:

- The disruptive effects of autonomous systems on military affairs and society at large
- Psychological effects on human operators of autonomous systems (e.g., it is known that the operators of remote UAVs often experience PTSD and other problems even though they are not directly vulnerable to harm)
- Issues of reliance and trust when humans team with intelligent autonomous systems which are expected to learn and therefore evolve their behavior over time
- The unintended consequences of autonomous / robotic systems on attitudes, trust, and support for US operations
- Effects of autonomous / robotic systems on decision makers willingness to take risks and use force
- The societal impacts of military autonomy technology crossing over to civilian applications
- How social and moral norms shape the adoption of autonomy
- How does reliance on autonomy shape individual and organizational decisions. For example, in human organizations, delegating serves to increase the moral distance from the consequences of one's actions. Might operating through a combat robot decrease empathy and increase dehumanization of others?

C. Special Interest Area 2: Societal Resilience and Sociopolitical (In)stability

POC: Lisa Troyer, Army Research Office, lisa.l.troyer.civ@mail.mil

The Department of Defense hopes to better anticipate and potentially mitigate instability and conflict through basic scientific research on factors that affect resilience to "shock" events (e.g., violent attacks, economic turbulence, social unrest, public health crises, environmental change). Such events have the potential to unsettle existing social structures, processes, and institutions, including markets, governance structures, population shifts, kin groups, educational systems, and delivery of healthcare, making regions vulnerable to upheaval and risks to the well-being of the population. Yet, some systems exhibit greater resilience to these shocks than others and the Department of Defense is interested in promoting greater understanding of contributors to resilience. The social structures, processes, and institutions that impact resilience and instability exist in a global system with complex relationships between components that are difficult to predict and model. They entail interdependencies between social systems (e.g., norms, values, governance, demographic trends), natural systems (e.g., environmental systems, including shifts in resource availabilities due to human-caused and naturally occurring changes), and physical systems (e.g., human-built systems like megacities, social infrastructure that includes communication, transportation, and cyber systems), which often span groups and nation states. This Minerva interest area aims to harness innovative, multidisciplinary social science research to better predict these dynamics. Areas of interest include, but are not limited to, dynamics of ungoverned, misgoverned, and contested regions; population migration and urbanization; effects of demographic trends on sociopolitical (in)stability and opportunity; security implications of changes in resource availability and resource control, including illicit trade and trafficking in all domains; and global interdependencies across trade and political systems. Approaches could incorporate different levels of analyses from small groups to cross-cultural interactions across large-scale collectives.

D. Special Interest Area 3: Power and Deterrence for Shaping Operations

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Power is projected (e.g. conventional attack, cyber/information attack, economic action, diplomatic pressure) and deterrence strategies (if-then threat involving power) are used to make it more likely that “someone” will make a decision that is more favorable to someone’s interests and values. Compared with the relative certainty and stability of the cold war, the pace of introduction of new global threats has seemingly increased in recent years. These threats are coming from resurgent near peers, rogue states as well as cross border networked terrorist organizations. Unfortunately as the numbers of hot spots raises so have power projection and deterrence options (e.g. information warfare, cyber-attacks tied to economic consequence). The current lack of decision support tools makes selecting the best power and deterrence strategies to a decision shaping objective for very diverse global hot spots challenging. New fundamental theory is needed to understand the potential and limitations of power and deterrence options and to understand how to develop predictive capabilities.

Example of power projection includes everything from information warfare/cyber to action intended to affect economic conditions; diplomacy to kinetic attacks. Deterrence strategies can include those options as threats as well as carrot and stick approaches (e.g. aid funding, Foreign Military Sales (FMS), stability force training).

This interest area asks if it is possible to know how effective a power or deterrence strategy will be in shaping the future of a specific hot spot and whether there are any generalized theories that would allow lessons learned in one region to be applied to another region. Theories that establish causality between action and outcome and action and prediction is desired.

The overall objective of this research track is to offer new theories, models, and approaches to power projection and deterrence strategies and their ability to shape an area of interest. The research hopes to make it easier for US and allies to identify the best power and /or deterrence strategy for a given situation and to recognize when a threat has selected a power/deterrence strategy that is predicted to be their most dangerous option for the US and allies.

Areas of interest include the use of power projection/deterrence actions on/between non-state institutions, rising military powers and rogue states and the use by those states on US and Allies.

Power projection

- Drivers affecting how a state or states influence others through the projection of power.
- The changing balance of power between the state and other traditional and non-traditional institutions (e.g. who can project power).
- For power projection techniques, what observables (direct and/or proxy) can be used to determine if actions are effective?
- Novel approaches for validating the causal dynamics between specific *power projection strategies* (*diplomacy, information, military, and economic* (DIME)) actions and outcomes.
- Advancing theory that allows a prediction of outcomes resulting from power used by A on B.

Deterrence Theory

- Drivers affecting how a state or states decide how to deter decisions made by others or restrict a decision space
- The changing balance of power between the state and other traditional and non-traditional institutions (e.g. who can successfully deter).

- For deterrence techniques, what observables (direct and/or proxy) can be used to determine if actions taking are effective?
- Novel approaches for validating the causal dynamics between specific deterrence strategies and outcomes.
- Advancing theory that allows a prediction of outcomes resulting from a deterrence action used by A on B.

Beyond conventional deterrence and power projection

- The development and analysis of general frameworks for escalation dynamics where power or deterrence actions cause reciprocal power and deterrence action.
- Theory governing the use of power and deterrence concurrently.
- Novel approaches for validating the relative importance of each action taken (power and deterrence) in causing observed outcomes
- Advancing theory that allows a prediction of outcomes resulting from multiple power and deterrence actions

Area studies

- Social, cultural, and historical factors affecting the success or failure of power projection or deterrence actions applied to an area to shape decision spaces.
- Social, cultural, and historical factors affecting the choice of power projection or deterrence actions taken by actors trying to shape the decision space of others.

Influence Operations

- What combination of projection and deterrence techniques and under what conditions have been shown to be more successful in creating decision outcomes that are more favorable to US and Allied interests.

E. Special Interest Area 4: Military Cyber Defense

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The potential for disruptive cyberattacks by malicious state and non-state actors on the military capabilities of the U.S. and its allies is a major and growing concern of the Department of Defense. The significance of these attacks relates to their capacity to compromise the effectiveness of military operations under hostile conditions where timely and accurate cyber performance is essential to mission success. This Minerva interest area seeks innovative multidisciplinary research, entailing contributions from Social, Behavioral, Statistical and Computer sciences, to develop empirically validated conceptual frameworks, formal models and computational tools to address two major issues of concern. The first is the ability of military personnel to quickly detect that their assets are the targets of cyberattack rather than due to degradations caused by system (hardware or software) malfunction or, for example, atmospheric interference or own force sources. Under many conditions, the latter causes of cyber disruption are more common than is cyberattack. As a consequence, troubleshooting activities, some highly time-consuming, could initially be focused on these more likely causes. An additional challenge in detecting malicious attack is that such attacks could produce consequences that are not immediately noticeable. The resulting delays in appropriately responding to cyberattack have the potential to compromise mission effectiveness in high tempo operations. Consequently, validated approaches are needed to quickly and effectively determine that military units are under cyberattack.

A second cyberattack issue of military concern is determining the state or non-state source of the attack. A number of factors could be considered when determining source attribution, including the target, the target systems disrupted, attack timing, hostility context, and signature characteristics of the attack. An overarching conceptual framework and specific computational toolsets are needed to integrate these and other sources of information to determine likely attack sources and the uncertainty associated with this determination. Desirable features of proposed solutions include: (1) the design of user interfaces that enable easy use in confusing high tempo operations environments and support rapid decision-making, and (2) modeling that is robust enough to support analysis without reach back or updates from higher command levels because of the possible compromise of cross-echelon communications in a cyberattack environment.

Because the techniques and sources of cyberattack will evolve over time, becoming more diverse and challenging, the conceptual frameworks and analytic tools sought in this Minerva Interest Area must be developed to be modular and capable of extensive scale-up. Finally, the frameworks and tool sets should be empirically validated. A possible validation strategy would be to develop, tune, and then evaluate the efficacy of frameworks and tools using an existing cyber incident dataset that contains ground truth. At least one such dataset exists in the public domain (Dyadic Cyber Incident and Dispute dataset). In this suggested strategy, part of the dataset would be used to develop approaches and the remainder would be exploited to test the validity of these approaches.