

**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](http://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/>

## Table of Contents

|                                                                |           |
|----------------------------------------------------------------|-----------|
| <b>I. GENERAL INFORMATION .....</b>                            | <b>4</b>  |
| 1. Agency Name/Address .....                                   | 4         |
| 2. Research Opportunity Title .....                            | 4         |
| 3. Program Name .....                                          | 4         |
| 4. Research Opportunity Number .....                           | 4         |
| 5. Response Date .....                                         | 4         |
| 6. Research Opportunity Description .....                      | 4         |
| 7. Point(s) of Contact (POC) .....                             | 5         |
| 8. Instrument Type(s).....                                     | 5         |
| 9. Catalog of Federal Domestic Assistance (CFDA) Numbers ..... | 5         |
| 10. Catalog of Federal Domestic Assistance (CFDA) Titles ..... | 5         |
| 11. Other Information .....                                    | 5         |
| <b>II. AWARD INFORMATION .....</b>                             | <b>6</b>  |
| A. Award Amount and Period of Performance: .....               | 6         |
| B. Funding Restrictions .....                                  | 6         |
| C. Expectations for Minerva Researchers.....                   | 7         |
| 1. Project meetings and reviews .....                          | 7         |
| 2. Research output.....                                        | 7         |
| 3. Reporting requirements .....                                | 7         |
| <b>III. ELIGIBILITY INFORMATION.....</b>                       | <b>7</b>  |
| A. Eligible Institutions .....                                 | 7         |
| B. Other Eligibility Criteria .....                            | 8         |
| <b>IV. APPLICATION AND SUBMISSION INFORMATION.....</b>         | <b>8</b>  |
| A. General requirements.....                                   | 8         |
| 1. Document format.....                                        | 8         |
| 2. Marking proprietary or confidential information.....        | 9         |
| B. White Paper Preparation and Submission.....                 | 9         |
| 1. White Paper package components .....                        | 9         |
| 2. White paper submission .....                                | 10        |
| C. Full Proposal Package Preparation and Submission.....       | 10        |
| D. Submission of Grant Proposals through Grants.gov.....       | 17        |
| 1. Preparing for submission .....                              | 17        |
| 2. Full proposal submission confirmation .....                 | 18        |
| <b>V. EVALUATION INFORMATION .....</b>                         | <b>19</b> |
| A. Evaluation Criteria .....                                   | 19        |
| B. Evaluation Process.....                                     | 19        |
| 1. White papers.....                                           | 19        |
| 2. Full proposals .....                                        | 20        |
| C. Evaluating Proposed Option Periods .....                    | 20        |
| <b>VI. SIGNIFICANT DATES AND TIMES .....</b>                   | <b>21</b> |
| <b>VII. AWARD ADMINISTRATION INFORMATION .....</b>             | <b>21</b> |

|                                                                                                                                         |           |
|-----------------------------------------------------------------------------------------------------------------------------------------|-----------|
| A. Administrative Requirements .....                                                                                                    | 21        |
| B. Access to your Grant.....                                                                                                            | 22        |
| <b>VIII. OTHER INFORMATION.....</b>                                                                                                     | <b>22</b> |
| A. Federal Funding Accountability and Transparency Act of 2006 .....                                                                    | 22        |
| B. Military Recruiting on Campus (DoDGARs §22.520) .....                                                                                | 22        |
| C. Certification regarding Restrictions on Lobbying .....                                                                               | 23        |
| D. Representation Regarding an Unpaid Delinquent Tax Liability or a Felony Conviction Under any Federal Law - DoD Appropriations: ..... | 23        |
| E. Security Classification.....                                                                                                         | 24        |
| F. Department of Defense High Performance Computing Program .....                                                                       | 24        |
| G. Organizational Conflicts of Interest (OCI) .....                                                                                     | 24        |
| H. Reporting Executive Compensation and First-Tier Subawards: .....                                                                     | 24        |
| <b>IX. SPECIFIC MINERVA RESEARCH INITIATIVE AREAS .....</b>                                                                             | <b>25</b> |
| A. Topic 1: Sociopolitical (In)stability, Resilience, and Recovery.....                                                                 | 266       |
| B. Topic 2: Economic Interdependence and Security .....                                                                                 | 277       |
| C. Topic 3: Alliances and Burden-Sharing .....                                                                                          | 27        |
| D. Topic 4: Fundamental Dynamics of Scientific Discovery.....                                                                           | 298       |
| E. Topic 5: Adversarial Information Campaigns.....                                                                                      | 29        |
| F. Topic 6: Automated Cyber Vulnerability Analysis .....                                                                                | 30        |
| G. Topic 7: Power, Deterrence, Influence, and Escalation Management for Shaping Operations.....                                         | 301       |
| H. Topic 8: Security Risks in Ungoverned and Semi-Governed Spaces .....                                                                 | 302       |

## 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-#

### 5. Response Date

White Papers: Tuesday, June 12, 2018 3:00 PM EST

Full Proposals: Tuesday, August 14, 2018 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. OSD is particularly interested in projects that align with and support the National Defense Strategy, found at:

<https://www.defense.gov/Portals/1/Documents/pubs/2018-National-Defense-Strategy-Summary.pdf>

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 eight (8) topics listed below. Innovative white papers and proposals related to these research areas are highly encouraged. Detailed descriptions<sup>1</sup> of the interest areas can be found in Section IX, "Minerva Topics."

**Topic 1: Sociopolitical (In)Stability, Resilience, and Recovery**

**Topic 2: Economic Interdependence and Security**

**Topic 3: Alliances and Burden Sharing**

**Topic 4: Fundamental Dynamics of Scientific Discovery**

**Topic 5: Adversarial Information Campaigns**

**Topic 6: Automated Cyber Vulnerability Analysis**

**Topic 7: Power, Deterrence, Influence, and Escalation Management for Shaping Operations**

**Topic 8: Security Risks in Ungoverned & Semi-Governed Spaces**

<sup>1</sup> Detailed descriptions are intended to provide 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 only 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](mailto:lisa.l.troyer.civ@mail.mil)

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

Ms. Christina Gess

Washington Headquarters Services/ Acquisition Directorate (WHS/AD)

Email Address: [christina.l.gess.civ@mail.mil](mailto:christina.l.gess.civ@mail.mil)

Note that many questions may be answered in the *Frequently Asked Questions* section of <http://minerva.defense.gov/Contact/FAQ>. **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: \$440 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: June, 12, 2018      3:00 PM EST
2. Full Proposal submission (via grants.gov)  
Deadline: August 14, 2018      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 **in a single document**:

- 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 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](mailto:osd.minerva@mail.mil) no later than **3:00 p.m. Eastern Standard Time on June 12, 2018**. 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: *FY18 Minerva WP - Area [Topic Number]*

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 August 14, 2018**. 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)<br>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.<br><br>Attach SF-LLL to box 18 if necessary. (Last_Name_SFLLL.pdf)<br><br>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.<br><br>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 requirements<sup>2</sup>. 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:** [theresa.m.straut.civ@mail.mil](mailto:theresa.m.straut.civ@mail.mil), Director, Human Research Protection Program
- **Air Force:** [stephanie.a.bruce4.civ@mail.mil](mailto:stephanie.a.bruce4.civ@mail.mil), DoD Human RDT&E Protection Programs
- **Navy:** [sevgi.bullock@navy.mil](mailto:sevgi.bullock@navy.mil), Human Research Protection Official

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<sup>2</sup> 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.

**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 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.

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 only 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 2019.

*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-. 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 August 14, 2018**. 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](http://www.grants.gov), specifically [www.grants.gov/GetStarted](http://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](mailto: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. ***The Minerva Research Initiative is particularly interested in proposals that align with and support the National Defense Strategy, which is available at:***

<https://www.defense.gov/Portals/1/Documents/pubs/2018-National-Defense-Strategy-Summary.pdf>

#### 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 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 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

| <i>Event</i>                                               | <i>Date</i>            | <i>Time</i>        |
|------------------------------------------------------------|------------------------|--------------------|
| Pre-Proposal Conference/Industry Day                       | N/A                    |                    |
| Last day for White Papers questions to Interest Area POCs  | May 29, 2018           |                    |
| <b>White Papers Due</b>                                    | <b>June 12, 2018</b>   | <b>3:00 PM EST</b> |
| Notification of Initial Evaluations of White Papers*       | July 3, 2018           |                    |
| Last day for Full Proposal questions to Interest Area POCs | July 31, 2018          |                    |
| <b>Full Proposals Due</b>                                  | <b>August 14, 2018</b> | <b>3:00 PM EST</b> |
| Notification of Selection for Award *                      | September 25, 2018     |                    |
| Contract Awards*                                           | January 2, 2019        |                    |
| Kickoff Meeting*                                           | April 4, 2019          |                    |

\* 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](mailto: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 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 proposals that align with and support the National Defense Strategy, which is available at:***

<https://www.defense.gov/Portals/1/Documents/pubs/2018-National-Defense-Strategy-Summary.pdf>

Proposals that reflect basic research that engages the strategic priorities in this document may be reviewed more favorably. (See Section V of the FY 2018 Minerva Funding Opportunity Announcement for proposal evaluation criteria).

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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 2018 Topics 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.

**Topic 1: Sociopolitical (In)Stability, Resilience, and Recovery**

**Topic 2: Economic Interdependence and Security**

**Topic 3: Alliances and Burden Sharing**

**Topic 4: Fundamental Dynamics of Scientific Discovery**

**Topic 5: Adversarial Information Campaigns**

**Topic 6: Automated Cyber Vulnerability Analysis**

**Topic 7: Power, Deterrence, Influence, and Escalation Management for Shaping Operations**

**Topic 8: Security Risks in Ungoverned & Semi-Governed Spaces**

**A. Topic 1: Sociopolitical (In)Stability, Resilience, and Recovery**

POC: Harold Hawkins, Office of Naval Research, [harold.hawkins@navy.mil](mailto:harold.hawkins@navy.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. Of additional interest is the impact of extreme environmental events on sociopolitical (in)stability. 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:

- 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? To what extent do culture and society determine how do the identities of great powers evolve and how those identities shape their perceptions of security and interactions with other states? 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?
- 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.
- Extreme environmental stressors such as droughts, earthquakes, hurricanes, tornados, tsunamis and flooding have, and always will, impose profound impacts on society. These impacts can manifest as a broad range of interlocking effects, including human death and injury, agricultural degradation, destruction of physical and socio-political infrastructure, potentially violent competition for limited resources, and human displacement/mass migration. According to a number of environmental models, extreme events will increase in frequency and severity over the years ahead. Regardless of the accuracy of these predictions, extreme environmental stressors and their socio-political-economic impacts will continue indefinitely. This Minerva interest area aims to foster multidisciplinary approaches, entailing the contributions of social, environmental, political, psychological, and computer sciences as well as economics and military subject matter expertise, to develop and validate a formal computational framework for assessing the socio-economic-political impacts of environmental stressors on cultures ranging from primitive to moderately well-developed.
- 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. Topic 2: Economic Interdependence and Security**

POC: Lisa Troyer, Army Research Office, [lisa.l.troyer.civ@mail.mil](mailto:lisa.l.troyer.civ@mail.mil)

Great power competition is taking place in an international system characterized by high levels of economic interdependencies. These interdependencies may have implications for how states pursue their national security and defense objectives. Yet there is little basic scientific understanding of how these economic relationships arise and evolve. Moreover, the short- and long-term implications of these relationships have not been accurately modeled to provide insight on how economic interdependencies impact a state's national security and defense objectives. The interdependencies are often multi-faceted (e.g., involving a complex network of trade partners that changes over time and involves different goods/services exchanges). Depending on the market, balances of power in the economic sphere may change suddenly and rapidly, or may be relatively stable over time. The factors that impact such balances may include governance shifts, cultural change, technological innovations, entry/exit of trading partners from a market, and other factors that have consequences for the network of states engaged in economic relationships.

This Minerva topic seeks to develop data and models to capture complex economic interdependencies and assess the implications of those interdependencies for national security among the nation states in the networks. Ideally, data and models will capture longitudinal relationships and identify how those relationships change over time, are linked to policy, relationships, and operational outcomes relevant to the states in the networks. Questions of interest for this topic could include:

- What are the implications of economic interdependence for states in diplomatic and military competition with each other?
- How do states use their economic power to achieve national interests in competition short of armed conflict?
- To what extent have economic instruments been used as effective means of coercion in international politics?

## **C. Topic 3: Alliances and Burden-Sharing**

POC: Lisa Troyer, Army Research Office, [lisa.l.troyer.civ@mail.mil](mailto:lisa.l.troyer.civ@mail.mil)

Global security in the contemporary world is characterized by inter-state alliances. The dynamics of these alliances may vary substantially, depending on the partners to alliances, the resources they bring to the alliance, and the objectives of the different allies. One challenge is ensuring that the different partners contribute to common objectives. Allies, however, may have different resources to bring to the table,

different objectives with respect to maintaining an alliance, and different perspectives on what constitutes a fair distribution of the burden for maintaining an alliance. That is, burden-sharing is a complex issue that depends on the interests of different partners, their resources, their goals, and the extent to which their goals are being met. An every-present risk in forming an alliance is that one's partner(s) will free-ride. That is, one or more agents may take advantage of the resources others bring and access those resources for their own interests without providing comparable contributions to the alliance.

Scientific research in this problem domain of burden-sharing in alliances is scant, although social science has a long history of research on social exchange, distributive justice, social network analytics, and economics, all of which may be relevant to addressing this issue. These and other scientific approaches require scaling to more macro scales to address the issue of global alliances and burden sharing. Additionally, cultural variation, international agreements, national policies/laws, and governance structures may all play a role in shaping the form of burden-sharing and capacity to limit free-riding. This Minerva topic seeks to support research that will generate and validate new models to better capture the dynamics of burden-sharing in alliances with attention to factors that limit or eliminate free-riding. Empirical questions that the research should address may include:

- What are the incentives for burden-sharing within alliances?
- What constraints limit burden-sharing in alliances?,
- How does burden-sharing differ within the context of bilateral and multilateral alliances?
- How do changes in the alliance partners impact burden-sharing?
- How can states more effectively manage alliances in order to achieve a greater degree of burden-sharing?

#### **D. Topic 4: Fundamental Dynamics of Scientific Discovery**

POC: Enrique Parra, Air Force Office of Scientific Research, [enrique.parra@us.af.mil](mailto:enrique.parra@us.af.mil)

Scientific discovery is a highly unpredictable endeavor, in which research sponsors and indeed scientists themselves rarely foresee the nature and source of major advances. One source of uncertainty is that scientific discovery is the result of complex social processes that are poorly understood, including communication within and between groups, team processes, social networks, group identification, and formation of social norms. Moreover, although the scientific enterprise is a global endeavor, it is managed and operates differently across nation states. A greater understanding of the relationship of social processes and scientific discovery, particularly from a comparative perspective, would allow organizations to adopt policies and procedures that more reliably lead to transformative research, and guide the DoD in making informed, cost-effective, investments in the sciences. Moreover, there is a need for valid and reliable measures of the impact of scientific discovery on technology, policy, national security, and society. An understanding of the fundamental principles of scientific discovery could lead to metrics that are more meaningful than current impact factors or citation rates.

The scientific and technology (S&T) literature is growing exponentially, with the number of peer-reviewed publications doubling every 15 years and now reaching over 2 million annually. Despite this data deluge, the way we announce and exchange scientific advances remains largely unchanged since the invention of the research paper in 1665. Moreover, the digitization of the scientific literature and the advent of search engines have increased our speed of access without altering the way we process scientific information. The worldwide creation of knowledge and innovation is of high interest to the DoD. Given the US' remarkable research portfolio of \$140 billion, very little is spent to understand what is created, how the scientific enterprise works, how knowledge spreads, and what fuels discoveries. There is a growing need for new ways to process scholarly output and identify promising research. DoD requires a richer understanding of the fundamental drivers of science; i.e. how research communities

conduct themselves and interact with others and how insights are generated, shared, and grow to become useful innovations. A deeper awareness of the precursors of successful science will enhance the way DoD drives innovation and creates societal value.

The objective of this Minerva interest area is to explore the fundamental social dynamics underpinning scientific discovery in the S&T research enterprise in order to develop validated techniques to identify promising research, recognize potential scientific breakthroughs and measure their significance. This topic seeks innovative, multidisciplinary research embracing quantitative, predictive big data approaches and involving collaborations among natural, computational and social scientists to explore the patterns of scientific production with rich mathematical and computational models.

Sample topics include:

- The social conditions that promote scientific discovery
- Development of frameworks to understand the process of scientific research and discovery
- Comparative cross-national frameworks that identify similarities and dissimilarities in the scientific enterprise
- Validated, quantitative models describing the temporal dynamics of scientific communities and disciplines
- Evolution of scientific careers and collaboration networks and their influence on the S&T enterprise from a global and cross-cultural perspective
- Quantifying critical features and fitness of scientific ideas beyond citations.
- Characterization and prediction of the dynamics of scholarly impact
- Identification of emerging research trends and research gaps

DoD policy makers will benefit from a better science of **Scientific Discovery** by increased understanding of the challenges, opportunities, and limitations of social science research processes. The result of such investment will engender more actionable social science research. This would improve the value of Minerva Research to DoD.

#### **E. Topic 5: Adversarial Information Campaigns**

POC: Rebecca Goolsby, Office of Naval Research, [Rebecca.goolsby@navy.mil](mailto:Rebecca.goolsby@navy.mil)

The use of bots as a system of message amplification to influence crowds requires a research focus on multiple issues in social cognition and computer science (and to some degree artificial intelligence) but also rhetoric and narrative. The four key techniques of disinformation: distort, dismiss, dismay, and distract (Nimmo, 2015) are reckoned to be the master set of categories in which to sort these messages. In various combinations, these tactics generate “information maneuvers” (such as group polarization, character assassination, social hysteria propagation, and manipulation of beliefs and value) that an adversary can use to move a target audience toward strategic goals. Disinformation, the deliberate creation and propagation of lies, relies on the manipulation of the social and the psychological worlds of the target audience. Disinformation campaigns are not just instances of “fake” news, but are part of larger attempts to manipulate discourse and narrative. These campaigns are most effective when they are attached to master narratives – collections of stories that are deeply embedded into the worldview, folk beliefs and values of a society. This is why campaigns that do well in one country may fail in another; effective disinformation and influence campaigns rely on attaching to master narratives which vary by culture. European scholars such as the NATO Strategic Communication Center of Excellence, refer to campaigns of disinformation and influence designed to persuade audiences by befuddling, confusing and moving them away from critical thinking as “adversarial information campaigns.” The creation of “echo chambers” in online communities has also been shown to be critical to understanding why and how these campaigns are effective.

This topic would examine master narratives and their association with adversarial information campaigns in Europe. It would examine adversarial information campaigns in Europe and explore the master narratives, information maneuvers and themes to help explore what makes these campaigns compelling to their target audiences. It would examine the role of amplification, through bots, sharing activities, and other computer/online tactics in the creation of the echo chambers. It will examine why these techniques and tactics are effective, identify key features in the development of echo chambers and the creation of adversarial campaigns, and explore the current tactics in “jumping on the bandwagon” of available, potentially divisive topics to meet strategic objectives. This topic should also consider the role of cross-platform communications (such as from blogs to Twitter, Reddit and Twitter, blogs to Facebook, etc.) to consider the role of the online community in developing, validating and spreading memes and messages in an adversarial campaign and sustaining the adversarial narrative over the long term.

#### **F. Topic 6: Automated Cyber Vulnerability Analysis**

POC: Harold Hawkins, Office of Naval Research, [harold.hawkins@navy.mil](mailto:harold.hawkins@navy.mil)

Over the past decade, cyber assault on military, governmental and industrial networks has grown dramatically in frequency, sophistication and effectiveness. These attacks range from data theft to system denial or degradation, and their impact, whether directly on military systems, or indirectly, on the networks used by organizations contracted or sub-contracted to support the military, has the potential to compromise the effectiveness of military operations. The vulnerability of our cyber systems constitutes a critical threat to national security.

Current approaches to vulnerability assessments of information technology (IT) or operational technology (OT) infrastructure suffer from two primary limitations. First, while static and dynamic code analysis tools are critical for secure development of specific components, they cannot account for complexities arising from all possible data-input/run-time execution paths. Vulnerability scanning tools such as Nessus are useful but they only provide a snapshot in time of known vulnerabilities on a small subset of nodes where scale is limited by the number of well-trained individuals and their availability to perform the scans. Second, state-of-the-art vulnerability scanning tools focus on assessing the logical software infrastructure while largely ignoring the human element that interacts with that infrastructure. This is the case, despite of the fact that most vulnerabilities are introduced through human error as exemplified by acts of omission (e.g. forgetting to close a port), commission (clicking on a phishing link), misplacement (e.g. connecting a classified machine into an unclassified network), or malicious intrusion (e.g. insider threat). The state-of-the-art vulnerability scanners are not designed to detect vulnerabilities introduced by humans interacting with the system because they contain no formal characterization of the cognitive and social behavior of the attackers. While social engineering assessments can be effective, they also require expensive involvement of experienced security professionals.

Needed are autonomous vulnerability assessment tools that can work in conjunction with human analysts to provide greater coverage of a network over more sustained periods of time. The tools should be given a logical network coverage area and then work independently to discover vulnerabilities within that area while alerting the analyst only when they find significant vulnerabilities that require immediate attention. Autonomy is necessary to reduce cognitive workload of the cybersecurity analyst so that they can focus on more operational-level tasks such as determining the most critical parts of the network to scan based on mission criticality and current threat intelligence.

This Minerva topic seeks innovative multidisciplinary research, entailing the contributions of artificial intelligence (AI) as well as behavioral, social and statistical sciences, aimed to develop automated techniques for the assessment of network vulnerability to cyber assault along lines described above. We seek solutions with four primary features. First, they should be designed to apply to a broad range of

network types, extending across scales, structural implementations, and applications. Second, because the techniques and targets of cyberattack are rapidly evolving, the solutions must be developed to be modular and capable of extensive scale-up. Third, they should be developed with the capability to uncover an extensive range of possible sources of vulnerability. Lastly, they must be informed by socio-psychological theory and analyses addressing the sources of errors in judgment that raise the vulnerability of cyber systems to attack and provide the bases for techniques to mitigate/remediate these errors.

We envision a research effort that includes an analysis of existing cyberattack databases, augmented with insights from social psychologists and both civilian and military cyber subject matter experts, to identify potential vulnerabilities and their sources. It should include development and demonstration of an executable system for automated vulnerability analysis. In addition, it should include a creditable demonstration of the validity of the system.

## **G. Topic 7: Power, Deterrence, Influence, and Escalation Management for Shaping Operations**

POC: Martin Kruger, Office of Naval Research, [martin.kruger1@navy.mil](mailto:martin.kruger1@navy.mil)

There has been an increase in basic research on power, influence, and escalation management methodologies but a lack of empirically tested or theoretically founded decision support tools for selecting the best strategies. Multidisciplinary approaches to generate new theories and methodologies that incorporate strategy and strategic thought, psychology and decision-making, area studies, and culture, sociology and economics are needed to understand the potential and limitations of power, influence, and escalation management options and to understand how to develop predictive capabilities. Compared with the relative certainty and stability of the Cold War, introduction of new global threats has increased in recent years. These threats come from resurgent peers, rogue states, and international terrorist organizations. As the numbers of hot-spots increases, so do power projection, influence, and escalation management options particularly cyber risks. Examples of power projection include information warfare and cyber-attacks, action affecting economic conditions, diplomacy, and kinetic attacks. Influence and escalation management strategies include those options as threats as well as carrot and stick approaches (e.g. aid funding, Foreign Military Sales (FMS), stability force training). This topic seeks predictive models of power, influence, and/or escalation management strategies in shaping the future of a specific hot-spot and whether generalized theories allow lessons learned in one region to be applied to another region. Theories that establish causality between action and outcome and action and prediction are desired on power projection, influence, and escalation management strategies to predict and measure their ability to shape an area of interest. The aim is to make it easier for US and allies to identify the best strategy for a situation and to recognize strategies that are most dangerous options for the US and allies. Specific areas of interest include the use of power projection/influence/escalation management 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
- For those drivers, what observables (direct and/or proxy) can 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.
- The balance of power between the state and other traditional and non-traditional institutions

### Deterrence Theory

- Drivers affecting how states decide how to deter decisions made by others
- For deterrence drivers, what observables can be used to determine if actions taking are effective?
- Measuring the balance of power between the state and traditional and non-traditional institutions
- Approaches for validating causal dynamics between specific deterrence strategies and outcomes.

- Advancing theory that allows a prediction of outcomes resulting from a deterrence

#### Beyond conventional deterrence and power projection

- Approaches for validating the relative importance of power/deterrence actions on outcomes
- Advancing theory that predicts outcomes resulting from multiple power and deterrence actions
- Theory governing the use of power and deterrence concurrently
- Frameworks for escalation dynamics in reciprocal power and deterrence actions

#### Influence theory

- Processes and factors that affect state decisions on how to influence decisions of other states
- Approaches for validating causal dynamics between specific influence strategies and outcomes.
- Advancing theory that allows a prediction of outcomes resulting from influence

#### Escalation management

- Approaches for validating the relative importance of power/influence actions on outcomes
- Advancing theory that predicts outcomes resulting from multiple power and influence actions
- Theory governing the use of power and influence concurrently
- Frameworks for escalation dynamics in reciprocal power and influence actions

#### Area studies

- Social, cultural, and historical factors affecting success/failure of power projection or influence actions applied to an area to shape decision spaces, and application to the realities of today
- Social, cultural, and historical factors affecting the choice of power projection or influence actions to shape the decision space of others, and application to the realities of today.

#### Operational effectiveness

- What combination of power/influence/escalation management techniques, under what conditions are successful in creating decision outcomes that favor US and Allied interests. Given successful decision outcomes, can those techniques be generalized and applied to similar or varied conditions?

## **H. Topic 8: Security Risks in Ungoverned and Semi-Governed Spaces**

POC: Lisa Troyer, Army Research Office, [lisa.l.troyer.civ@mail.mil](mailto:lisa.l.troyer.civ@mail.mil)

This topic aims to support research to understand areas vulnerable to sociopolitical instabilities in physically and virtually contested spaces that lack strong governance infrastructures and to understand the dynamics of great power competition in these spaces. The emphasis is on building scientific understanding about how these ungoverned and semi-governed spaces evolve, and the consequences for the nation and world from a cross-national perspective. How do contests over these spaces affect the global balance of power? There are three domain spaces of particular interest: (1) Regions undergoing transitions in governance (e.g., areas of the Middle East, Africa, Eurasia); (2) Spaces subject to rapidly evolving and varying degrees of international conflict and governance (e.g., cyberspace); (3) Areas in which international laws are undergoing shifts (e.g., outer-space, polar regions, deep sea and international waters). These diverse types of domains represent contested or potentially contested regions in which social structures, particularly governance and political structures, are increasingly unpredictable and which pose security risks. Many of these contested regions are repositories for high-demand, valuable resources, and social control implies resource control. Additionally, technology has opened human access to these semi-governed domains. For example, outer-space, cyber-space, polar regions, and deep sea areas are all characterized by a lack of comprehensive formal law and universally agreed-upon governance structures. As well, states undergoing formation or transition (esp. after crises) lack stable governance. This topic also seeks insight on how different nation states are formulating policy and governance structures related to these semi-governed and ungoverned spaces.

Little scientific attention has been paid to these spaces, despite the fact that they pose substantial risks of illicit activity, international conflict, violence, and threats to national security and global social order.

This Minerva interest area seeks better understanding of these dynamics and their implications in a wide range of types of spaces (i.e., geographical, technical, environmental). How do state and non-state actors organize to control regions of limited formal governance? What determines resource control? What are the implications for surrounding domains? Can related national security risks be identified? Addressing these and similar questions will benefit from rigorous, interdisciplinary study by researchers with experience in a variety of geographic regions. Mixed-method approaches that integrate qualitative and quantitative analytic strategies are encouraged, as are multi-disciplinary theoretical approaches that facilitate the development of causal models and robust validation methods.

Specific foci may include, but are not limited to:

- Evolving sociopolitical and economic structures in currently contested geographic regions (including for example regions of the Middle East, Africa, Eurasia), with a comparative lens;
- Effects on control of these spaces on the global balance of power;
- Balance between state and non-state actors;
- Resource control (e.g., mineral, natural, technological) in contested regions on earth or in outer-space;
- Emerging governance structures and markets in ungoverned and semi-governed spaces