

## **2016 MINERVA RESEARCH INITIATIVE TOPICS OF INTEREST**

The following Minerva program topics and corresponding subtopics indicate questions of interest to the Department of Defense. Topics are not mutually exclusive and proposers are not limited to the questions, scope, or regions listed. Researchers should aim to balance the specificity of their proposed research with the generalizability of the expected results. See **Section V** of the FY 2016 Minerva Funding Opportunity Announcement for proposal evaluation criteria.

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

Researchers are encouraged to incorporate novel research methods. Well-theorized models linking micro and macro analyses and cross-method approaches seeking to simultaneously analyze inductively, state hypotheses, and test deductively are also of interest. Consider ways to ground both qualitatively and quantitatively.

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 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.

## **FY 2016 MINERVA RESEARCH INITIATIVE TOPIC #1**

### **Identity, Influence, and Mobilization**

POC: Benjamin Knott, Air Force Office of Scientific Research, [benjamin.knott.2@us.af.mil](mailto:benjamin.knott.2@us.af.mil)

Heightened challenges related to global terrorism and the Islamic State of Iraq and Syria (ISIL) indicate the need for serious intellectual investment examining influence and mobilization (especially when leading to violence) from the ground up. Mitigating terrorism and political violence requires an understanding of the underlying social and cultural forces that shape beliefs and drive behavior. The United States and its partners must consider these cultural dynamics to effectively craft communications and operations that fulfill their intended purposes while mitigating potential unintended consequences.

The research themes below will help the Department of Defense better understand what drives individuals and groups to mobilize for change and the mechanisms of that mobilization, particularly when violent tactics are adopted. This research will inform understanding of where organized violence may erupt, what factors might explain its spread, and how one might mitigate its effects.

**Regions of interest** include South Asia, Middle East/ North Africa, West Africa, Central Eurasia

**Themes of interest** include but are not limited to the following categories:

#### Culture, identity, and security

- Trends driving change in group identities and cultural norms, and the impact of these changes, if any, on conflict and security in local, regional, or global settings.
- Factors impacting perceived credibility, trust, and internal and external security in a society.
- Social and political dimensions of beliefs.
- Group-internal narratives and their role in driving strategic priorities.
- Measures groups take to police their own ranks to minimize infiltration by third parties.

#### Influence and mobilization for change

- Mechanisms of information dissemination and influence across diverse populations.
- Mechanisms of (and factors inhibiting) mobilization at individual and group levels.
- Factors shaping the perception of risk and subsequent human behavior, including the willingness to fight.
- Factors that make specific individuals/groups influential within a particular cultural context.
- The interaction between emotion and cognition and its impact on future behavior.
- Dynamics of group decision-making, including the potential role of values, norms, political structures, and constituent interdependencies.
- Relationships between human agency and larger patterns of behavior and meaning.
- Differences in social structure and organization across different cultures of security-relevant affinity groups including, but not limited to, hacking forums.
- Analyses of the topology, power structure, productivity, merging and splitting, and overall resilience of change-driven organizations.

## **FY 2016 MINERVA RESEARCH INITIATIVE TOPIC #2**

### **Contributors to Societal Resilience and Change**

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The Department of Defense hopes to better anticipate and potentially mitigate potential areas of unrest, instability, and conflict. To this end, DoD seeks to develop new insights into the social dynamics within regions and states of strategic interest, and to examine the factors that affect societal resilience to external “shock” events and corresponding tipping points.

Insights, frameworks, and data will inform strategic thinking about resource allocation across defense missions as well as improve policy and engagement strategies before, during, and after societal shifts like those seen during the so-called Arab Spring.

**Regions of interest** include Central Eurasia, South Asia, Middle East, East Asia, cyber domain, transregional entities

**Themes of interest** include but are not limited to interdisciplinary analyses of relevant human and natural system processes and complex interactions among human, natural, and cyber systems at diverse scales, such as those listed below.

#### Governance and rule of law

- Dynamics of ungoverned, under-governed, misgoverned, contested, and exploitable regions.
- Nexus between terrorism, crime, and corruption.
- Norm-based governance factors such as reputation, trust, legitimacy, reciprocity, enforcement of compliance, and self-regulation and their role, if any, in security.
- Non-governmental alternatives to formal state institutions and their effect on state sovereignty and legitimacy.

#### Migration and urbanization

- Drivers of migration including economic, security, and environment.
- Long term security implications of refugee and migrant flows
- Mechanisms and security implications of immigrant and second-generation assimilation and segregation.
- Adaptation, support networks, and power structures within communities of internally or externally displaced persons.
- The role of remittances in local contexts of security, state accountability, and diasporic engagement with their country of identity.
- Factors determining societal resilience in megacities.
- Security implications of political, tribal, socio-cultural and linguistic boundaries.

### Populations and demographics

- The impact and strategic implications of changes in demographics (e.g., gender and age structure, wealth distribution) on internal and external stability.
- Security implications of aging populations and shrinking working age populations worldwide.
- The role of women's status in issues of global conflict.

### Environment and natural resources

- Evidence supporting or contradicting a causal relationship between the effects of environmental stress and/or climate change and stability and security.
- Definitions and models of the critical variables of state instability due to resource scarcity or imbalance, including food and water insecurity.
- Security and stability implications of changes in energy and resource supply, ownership, control, and access at subnational, national, and regional levels.
- Security implications of resource supply, ownership, control, and access, including as a tool of coercion or power.

### Economics

- Human geography factors determining how populations support themselves including economic drivers, patterns of trade, distribution of wealth, energy supply, etc.
- The impact of changing economic activity, both formal and informal, on group, societal, state, regional, and international stability and security.
- The role of economics in stability, including but not limited to the role of sanctions, boycotts, and divestment in motivating behavior.
- Economic and political science perspectives on economic reform and global market integration in terms of security, societal resilience, and instability.
- Social dimensions of economic growth driven by foreign investment.
- Drivers, mechanisms, and impact of informal economies and illicit trade in all domains.

## **FY 2016 MINERVA RESEARCH INITIATIVE TOPIC #3**

### **Power and Deterrence**

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

After decades of perceived U.S. dominance, the global diffusion of power, information, and geopolitical credibility is yielding a new multi-polarity of global leadership with its own broad implications. Phenomena such as the “flattening” of labor markets and the increasing flow of people across state borders (whether through immigration or as refugees) have created global communities that transcend traditional state boundaries. Non-state, sub-state, and supra-state actors can have unprecedented impact on international geopolitical dynamics. Targeted study of such changes may yield new models for effective state behavior in this changing global landscape.

At the same time, technology developments and shifts in the environment have challenged and stretched traditional models of conflict escalation and deterrence. Not only do space and cyberspace represent relatively new domains for international actor engagement, but information and communications technologies have empowered individuals and non-state actors to compete with states and potentially threaten state interests across geographic domains as well as cyber and space. Traditional theories of deterrence may no longer be relevant today or in the future security environment.

The overall objective of this research track is to offer new theories, models, and approaches to power projection and conflict escalation that consider strategic behavior among various transnational actors across domains in a globalized, rapidly interconnecting, and cyber-enabled world. For rising military powers in particular, this research will yield a deeper understanding of the social, cultural, and historical factors that define strategic priorities, drive approaches to international engagement, and shape state-internal balances of power between political, military, and industrial forces.

**Areas of interest** include non-state institutions, rising military powers, potential alliance partners, and globally contested domains like cyber and maritime chokepoints, especially for the topics listed below.

#### Global order

- Drivers affecting how a state or states influence, interact, cooperate, and compete with others to achieve nation-state level objectives.
- The changing balance of power between the state and other traditional and non-traditional institutions.
- The changing definitions and compositions of global alliances/coalitions.
- Indications and implications of regional fragmentation and challenges to Westphalian sovereignty.
- Social and cultural aspects of technology development, including:
  - Foreign affairs in the information age, include cybersecurity, privacy, and the internet of everything.
  - The impact, if any, of increasing technological capability (or access) among insurgents on state government and military power structures.

- The impact of autonomous system usage on attitudes, trust, and cooperation between individuals and groups.
- Novel approaches for validating proposed causal dynamics between specific *diplomacy, information, military, and economic* (DIME) actions and unfolding crises.
- The relationship if any between foreign assistance, foreign intervention, and trust and reciprocity by the recipient population.
- Role of domestic populations in shaping elite strategies for power projection and conflict escalation.

#### Power projection and diffusion

- Economic, political, military, legal, and culture-based strategies for power projection used by state and non-state actors.
- Regional implications of rising power in the global sphere.
- Technological and economic aspects of great power competition, as well as the role of transparency and corresponding governance mechanisms.
- Other examinations of modern approaches to power projection and studies of its diffusion.

#### Beyond conventional deterrence

- The development and analysis of general frameworks for escalation dynamics and deterrence theory across different domains, actor types, and issue areas.
- Asymmetry of stakes, threat calibration, and proportionality.
- Models, theories, and approaches to understanding “gray zone” conflict (competitive interactions among and within state and non-state actors falling between the traditional duality of war and peace).
- Factors making an entity more or less susceptible to gray zone targeting.
- Organization dynamics, if any, that affect its ability to send and process signals of aggression across domains.
- Domestic perspectives of escalation and the internal “breaking point” for aggression.

#### Area studies

- Social, cultural, and historical factors defining their strategic priorities, approaches to international engagement, and state-internal balances of power between political, military, and industrial forces that shape regions of strategic interest to the U.S.
- Trends and drivers for military growth and modernization, strategic interests, and technological advances in rising military powers.
- Political, military, and social environments in rising regional powers and their implications for regional stability.
- Strategic drivers of Russian engagement and intervention in former Soviet states.
- Relations between regional partners such as China and Pakistan over time.
- The “human terrain” of the East and South China Seas and other maritime domains.

## **FY 2016 MINERVA RESEARCH INITIATIVE TOPIC #4**

### **Analytic Methods and Metrics for Security Research**

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

The development of valid, reliable formal models of social structure and social processes remains an ongoing challenge within the social sciences. Measurement, data acquisition, the construction of quantitative models of social systems, and validation of the measures and models can be challenging given the complexities of social systems and their interdependencies with natural and physical systems. Yet rigorous, validated quantitative measurement and models offer advantages, including reproducible methods, ability to compare information across sets of data and across time, opportunities for visualization of trends, and the potential to forecast future events.

Advances in mathematics and statistical methods, alongside new strategies of modeling complex systems in the physical and natural sciences, may offer opportunities to advance quantitative methods in the social sciences. The Department of Defense seeks innovative, fundamental, interdisciplinary research rooted in a qualitative context to inform the development of quantitative measurement and models in the context of defense-critical problems.

**Additional themes of interest** include:

- Ethnographic methods synthesizing between qualitative and quantitative approaches.
- Analytic methods enabled by new technologies.
- Scaling spatial econometric, time series, and multi-level model analysis to encompass  $n$ -dimensional variables approximating a societal unit of analysis.
- Theoretically grounded integration of social science theory with approaches to big data analysis.
- Inferring causal connections from unstructured qualitative data (e.g., patrol reports) rich in detail for a specific context.
- New methods for sensing social phenomena.

To encourage high-risk, high-reward submissions, one- or two-year proof-of-concept projects are encouraged.

## **FY 2016 MINERVA RESEARCH INITIATIVE TOPIC #5**

### **Innovations in National Security, Conflict, and Cooperation**

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The Department of Defense Minerva program welcomes research proposals addressing areas of international affairs, international security, and national security beyond those already enumerated that are newly emerging or have not been properly understood yet may define the future security environment.