Preparing for the future….
Never forgetting the past!

**Office of Naval Research Code 30**
Thrust Area Willful Intents
FY12 - FY13
## Current Capability:
- CVE: Disparate definition set across science disciplines on factors of VE; no definitive “factors” of violent extremist(s) formation, organization, and behaviors; no definitive or set of theories/factors on radicalization process
- IRS: Only State level indicators suggesting instability
- IRS: Social science domains have developed independent (single discipline) theories with different assumptions and at different levels of analysis (state, region)
- IRS: Descriptive subject matter expertise driven qualitative work; Historical case studies and/or near real time lessons learned

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| **Near Term** FY12-FY14 | - CVE: Characterize factors (multidiscipline parameters, behavior patterns) that will define an individual or group as extreme and violently extreme.  
- CVE: Develop the ability to understand (or probabilistically predict) differences and tipping characteristics from extremist groups to violent extremist groups.  
- CVE: Determine profile of individual/group susceptibility to influence, including risk factors for radicalization.  
- IRS: Defined fundamental multi-disciplinary characteristics that describe stability and instability and at different levels (region, state, province) | - CVE: The availability of data and data granularity (to get from state, to province, to group, to individual), find common definitions.  
- CVE: To define multi-disciplinary techniques to observe/study real world VE groups  
- IRS: Availability of appropriate data, standardized definitions | - CVE: Case studies to determine first cut at characteristics definition of VE (individual and group).  
- CVE: Multi-disciplinary literature work and field work to determine techniques that work, are reproducible, and scalable to collect/define factors of extremist and violent extremist individuals/groups  
- IRS: Research existing/emerging Stability Risk Assessment methods to characterize stability, instability and risk indicators to move from stability to instability  
- IRS: Empirical evidence (or anecdotal) supporting methodologies.  
- IRS: Study historical case studies to develop regional/provincial variables and data sets that can address instability |
| **Mid Term** FY14-FY17 | - CVE: Definition of the factors (including goals / objectives / behaviors) that distinguish VEOs from other organizations; Definition of which factors can/should be used to measure VEOs  
- CVE: Empirically proven process(es) by which an individual becomes extremist, and capable of violence.  
- CVE: Collection processes for VE factors (literature, field, emerging technologies) applicable to varying operational scenarios (full access, denied/limited access, conflict)  
- IRS: Defined factors that show how one nation’s instability effects stability in a region or neighboring states  
- IRS: Rapid collection and analysis of relevant social media supporting defined instability factors/characteristics. Including the use of mobile devices and crowd sourcing as input mechanisms and data sources | - CVE: Collection/development of data and experiments on VEO networks and organizations that are largely covert; Identify appropriate control groups matched on key factors  
- CVE: Data availability – granularity and longitudinal  
- CVE: Applicability of social media data in defining factors, proving recruiting processes.  
- IRS: Data – granularity and longitudinally  
- IRS: Complexity of actors, environment, and events within and between neighboring states  
- IRS: Complexity/Size of collection, storage, and analysis of social media | - CVE: Build on near term findings to better define the key factors that need to be studied to understand violent individuals and organizations.  
- CVE: Apply developing models and theories in network analysis techniques to understand formation of networks of violent organizations  
- CVE: Develop empirically proven methods/models for using social media data  
- IRS: Apply multidisciplinary modeling approaches (e.g., sociology, economics, political science, mathematics, anthropology, etc.) to study complexity of area (province, state, region) movement between stability and instability  
- IRS: Develop and validate new means to collect and analyze social media data |
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| Far Term FY17-FY21 | • CVE: Model how VEOs form (identify conditions for formation), maintain themselves, expand/contract, and dissolve  
• CVE: Characterize the strategies and tactics of VEOs, including media used for communication, recruitment, and tactical actions  
• CVE: Rapidly identify key VEO individuals and groups and the effects of their influence  
• IRS: Understand factors leading to stability state change, identify tipping points  
• IRS: Rapidly determine opinion and sentiment (to include social media) | • CVE: Data gathering and observational capabilities  
• CVE: Theory (ies) models to explain VEO lifecycle  
• CVE: Generalizability of theory/models for understanding VEO lifecycle  
• CVE: Strategy/tactics/influence of VEOs  
• IRS: Which theories, models, methods to apply to which conditions  
• IRS: Data collecting and observational capabilities  
• IRS: Rapid collection and analysis to determine sentiment | • CVE: Build on mid-term modeling effort to expand models to full lifecycle of VEOs.  
• CVE: Empirically test generalizability of models/theories for understanding strategy/tactics/influence of VEOs  
• CVE: Novel methods for observing data necessary for modeling and empirical tests.  
• IRS: Empirically tested models, methods in context  
• IRS: Observational and data collection research for near real time analysis  
• IRS: Novel methods/models for understanding tipping points |

**Endstate:**
- CVE: Have knowledge and methods to identify individuals and organizations categorized as “violent extremists”, characterize the threats and risks associated with these groups and organizations, understand the influence of these groups.
- IRS: Identify the key characteristics, indicators that define stability, instability, and indicators that point to change between stability and instability at the region, state, and province levels
# Current Capability:
- **CVE:** SME driven analysis of data to discover sociocultural signatures; Data collection inconsistent and generally SME driven (which data to collect to drive analysis); Stovepipe theoretical models used in analysis
- **IRS:** Reactive vice proactive – discovery often only after public announcement. Distinguish and location through best SME effort.

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| **Near Term**<br>FY12-FY14 | • CVE: Capability to discover, distinguish, locate VEOs footprint using empirically proven electronic, rhetorical, social and traditional media, financial, etc.  
• CVE: Identify “best” sources of information for detecting VEO’s: traditional media, social media, sensor data, intel sources, open source  
• IRS: Indicators and warnings indicative of instability at the regional, state and provincial levels | • CVE: Study VEOs given they are covert. Identification of control groups  
• CVE: Applicable multi-discipline theories necessary to discover, distinguish, locate VEOs  
• IRS: Examining indicators of instability as an integrated approach vice as independent indicators (social unrest, economic change).  
• IRS: Developing large multidiscipline case studies  
• IRS: Use of newer technologies (social media) as indicators of stability/stability change | • CVE: Develop and test observational and interview methods to characterize the footprint of groups  
• CVE: Conduct controlled studies that compare VEO’s and non-Violent EO’s  
• CVE: Build on “Understand” models to add sociocultural factors and multi-disciplinary theories to be able to discover, distinguish, and locate VEOs  
• IRS: Research multi-methodological and multi-discipline approaches to identify indicators and warnings.  
• IRS: Study new data sources that allow indicator and warnings at a more local/provincial level |
| **Mid Term**<br>FY14-FY17 | • CVE: Capability to identify behavior factors that are conducive to the emergence of VEOs  
• IRS: Capability to identify 3 months to 1 year in advance indicators and warnings of changing stability  
• IRS: Identify which indicators under which sociocultural conditions and at what level (region, state, province) promote a likely change in stability. | • CVE: Theories and models of VEO sociocultural behaviors and factors are limited and not (generally) empirically tested  
• IRS: Full understanding of indicators and warnings geographical level relationships | • CVE: Build on near-term models and use case studies to models and study VEO sociocultural behaviors  
• IRS: Temporal models empirically (historical cases) tested that can detect change  
• IRS: Models that can identify at different levels the conditions of a possible change in stability |
| **Far Term**<br>FY17-FY21 | • CVE: Distinguish and geo-locate VEOs and associated networks  
• IRS: Identify tipping points of instability | • CVE: Methods and models of sufficient breadth of theory and depth of data to distinguish and locate VEOs  
• IRS: Full understanding of which indicators/warnings and under what conditions do they form tipping points | • CVE: Use network science approaches to find sociocultural signatures to distinguish VEOs  
• CVE: Build on near-term/mid-term models to add to discovery with distinguish and locate methods/theories/factors  
• IRS: Apply complexity theory to investigate the existence of tipping points from historical case studies. |

**Endstate:**
- **CVE:** Capability to discover, distinguish, and locate VEOs in an automated fashion using a range of data sources
- **IRS:** Capability to detect indicators and warnings of instability in an automated fashion using a range of data sources.
### Current Capability:
- CVE: SME's opinion on the analysis of patterns of behavior of VEOs and their future actions
- IRS: ICEWS system for PACOM uses "relatively structured" news media to forecast instability by country in PACOM AOR – system being transition to STRATCOM for strategic level analysis.

### Desired Capability

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| **Near Term FY12-FY14** | • CVE: Determine factors and social science disciplines necessary to forecast behaviors of individual and organization violent extremists  
• IRS: Precise models of instability and indicators  
• IRS: Information sources (beyond formal media) that can provide leading indicators of stability change | • CVE: VEO Theories/models applicable to non-western cultures  
• CVE: Empirically test decision frameworks in appropriate cultures  
• CVE: Few studies on the impact and veracity of different data sources (social media, survey, literature, etc.)  
• IRS: Temporal relationship between sociocultural indicators of stability and change in stability  
• IRS: Lack of research on the impact of social media and other emerging data sources and their veracity | • CVE: Case studies/experiments on applying existing VEO theories to non-western cultures  
• CVE: Build on “understand” factor development to develop those factors and disciplines (theories) needed to forecast plausible futures of VEOs  
• IRS: Integrate non-formal media sources of data into ICEWS |
| **Mid Term FY14-FY17** | • CVE: Track expansion/contraction of VEO along various dimensions (time, space, violence, violent rhetoric, network size, etc.)  
• CVE: Utilize social media content (twitter, blogs, etc) and determine which dimensions it can be used as a non-invasive means of data collection for tracking VEO changes  
• IRS: Temporal correlation of social media content to future events | • CVE: Uncertain and missing data impairs ability to examine networks, understand intent  
• CVE: Data availability on covert VEOs  
• CVE: Methods for ingest and analysis of large data sets (social media, blogs, unstructured text/video)  
• IRS: Veracity of social media data to ground truth beliefs and behaviors | • CVE: Use multi-method approaches to understand the data patterns of social engagement in VEOs  
• CVE: Develop models that utilize observable data to build sociocultural networks  
• CVE: Leverage DARPA research and mathematical techniques to handle large data sets  
• IRS: Conduct comparative studies of social media and traditional media and information sources to determine veracity of social media data  
• IRS: Model and validate forecast capability of social media data in historical cases |
| **Far Term FY17-FY21** | • CVE: Track and forecast the sociocultural behavior of VEO in near, mid, and long-term  
• IRS: Social media predictive models added to ICEWS capability showing improvement in forecast capability and predictions at finer level of detail (province level) | • CVE: Data necessary to produce sufficient patterns of VEOs; not enough data to identify generalizable long term trends  
• CVE: Validation methods to produce confidence in forecasting models  
• IRS: Data availability, capability to process large amounts of social media data. | • CVE: Use historical cases to analyze and develop forecasting models of VEO lifecycle and behaviors  
• CVE: Use historical cases and emerging validation methodologies to validate VEO forecasting models  
• IRS: Research and validate social media forecast models capable of looking at stability at region, state, province levels  
• IRS: Integrated forecast social media models into ICEWS |

### Endstate:
- CVE: Capability to forecast behavior of VEOs geospatially and temporally  
- IRS: Improved ICEWS (or ICEWS like) forecast capability with finer grain detail in both temporal and geographic trajectories
Mitigate TIA – Willful Intent

**Current Capability:**
- CVE: Development and measurement of CVE executed using MISO capabilities (largely SME driven, disparate databases) and increasingly with Strategic Communications.
- IRS: Mitigation of regional stability COAs dictated by SME experience – generally not interagency
- IRS: Measurement of effects of stability actions limited including MISO/Strategic communications

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| FY12-14  | • CVE: Measure the incidence and spread of VEO along various dimensions, and relate in time/space to US strategic, operational, and tactical actions.  
• IRS: Course of action options across the DIME spectrum; forecast and measurement of impact of each option | • CVE: Identifying the appropriate dimensions and time courses  
• IRS: Identifying the appropriate dimensions and time courses  
• IRS: Complexity of regional, state and sub-state stability and forecast and importance of 2nd and 3rd order effects | • CVE: Create theory driven, empirically tested methods for measuring the spread of organizations through their rhetoric and electronic footprint  
• IRS: Develop mitigation COA models that capture complexity of stability environments. |
| Mid Term |                                                                                    |                                                                                                   |                                                                                                         |
| FY14-17  | • CVE: Capability to develop and measure COAs of US and other partners (including strategic communications) to mitigate a VEO messages and influence  
• CVE: Non-kinetic mitigation methodologies that deter VEOs and measure effectiveness  
• IRS: Capability to assess COA’s that impact stability and security at the region and state level  
• IRS: Effective (measurable) Information Operations COAs | • CVE: Applying COAs to be effective requires means of measurement  
• CVE: Characterizing the impact of a mitigation methodology in a complex environment  
• IRS: Data requirements to isolating the impact of multiple COA’s and influence factors at the region or state level  
• IRS: “Measuring” the impact a message has in a complex environment is not clean. | • CVE: Theory based, empirically tested models that can “what if” mitigation strategies and show means (that can be observed in real world) to measure effectiveness  
• IRS: Use historical data to test COA models and their effectiveness that deconstruct environmental complexities.  
• IRS: Identify proxy indicators, counter message trends, etc. that indicate a change in behavior due to shaping messages. |
| Far Term |                                                                                    |                                                                                                   |                                                                                                         |
| FY17-21  | • CVE: Ability to “what if” mitigation strategies and distinguish effects on micro and macro target audiences (general population, local population, VEO)  
• IRS: Capability to assess COA’s that impact stability and security at the province level | • CVE: Availability of data and empirically tested theories at this level of granularity  
• IRS: Modeling the complexity of understanding the impact of COA’s across DIME spectrum | • CVE: Theory based, empirically tested capability to assess multiple methodologies for separating population and adversarial groups in message space.  
• IRS: Research measuring the impact of specific courses of action and integrate them into multidimensional (DIME) COAs |

**Endstate:**
- CVE: Capability for structuring a MISO/Strategic Communications plan and measure its effectiveness.
- IRS: Capability to provide course of action options for influencing regional stability and security through all levels of national and international power.