Strategic Multi-layer Assessment (SMA)

Report Card Brief

17 August 2016

This briefing is
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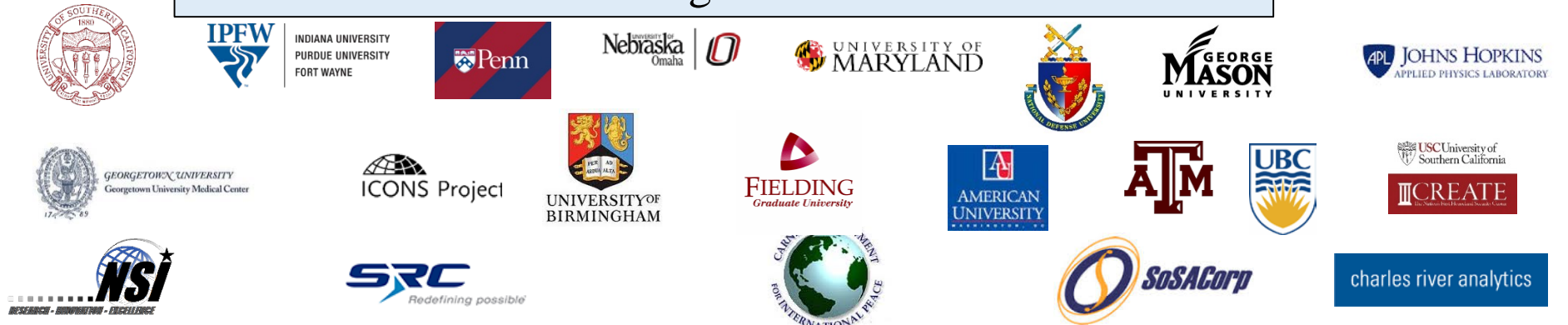
Mission

- Strategic Multi-Layer Assessment (SMA) provides planning support to Commands
  - Complex operational imperatives requiring multi-agency, multi-disciplinary solutions that are NOT within core Service/Agency competency
  - Solutions and participants are sought across USG and beyond
- SMA is accepted and synchronized by Joint Staff (JS/J-39) and executed by ASD(R&E)/EC&P/RRTO
- SMA efforts are Coalition based

- Mission areas
  - Counter-Terrorism
  - Counter-Insurgency
  - Countering Proliferation of WMD (State and non-State)
  - Individual, State, and National-level Deterrence Assessment
  - Strategic Global & Regional Assessments

- Intro and Purpose of the Session
- Assessment Results by Geographical Region
    - Middle East
    - Eurasia
    - Central and South Asia
    - Pacific
    - Africa
- Assessment Results by Global Issue
    - Cyber
    - Deterrence
    - Counter-Terrorism
    - Counter-WMD

Significant Projects (FY 00-04)

- FY 00-02: Counter-Terrorism Effort (USG) (ADM Fry)

- FY 00-01: C-WMD Demo (CENTCOM) (Gen Franks)

- FY 00, 04, 07, & 08: C-WMD Assessments (USFK & PACOM) (Gens Blair and Sharp)

- FY 01-02: OEF Support

- Jan-May 03: SMA Cell at CENTCOM

- FY 03-06: Support OIF (MNF-I) (Gen Schwartz), Teamed with then COL Votel

- FY 04: Developed Concept and Established SKOPE Cell (Gen McChrystal)

- Not Assessed in Report Card (Classified)

Physical Widgets

Social Science Widgets

4

Significant Projects (FY 07-13)

- FY 07: Sudan Strategic Assessment (CENTCOM)
- FY 07: DAPSE (STRATCOM)
- FY 08: WMD-T (SOCOM), Global Assessment of WMD-T (SOCOM/DTRA Cell established)
- FY 08: P4 (USFK)
- FY 09: Interagency LOE (STRATCOM)
- FY 09: Deterrence (STRATCOM)
- FY 09-10: Support to ISAF (Gens McChrystal/Flynn)
- FY 10: Vulnerability (CENTCOM)
- FY 11: IVEO (CENTCOM/SOCOM)
- FY 11: Concepts and Analysis of Nuclear Stability – CANS (STRATCOM)
- FY 12: Insights from Neurobiology on Influence and Extremism (Joint Staff J39)
- FY 12-13: Strategic Short- and Long-term Stability in South Asia (CENTCOM/PACOM/STRATCOM)

Social Science Widgets

Bio-Psycho-Social Widgets

- Assessed in Report Card
- Not Assessed in Report Card (Classified)

5

Significant Projects (FY 14-16)

- FY 14: A Multi-disciplinary, Multi-method Approach to Leader Assessment at a Distance: The Case of Bashar al-Assad (JS)
- FY 14: Megacities RSI (PACOM)
- FY 14: Drivers of Conflict and Convergence in the Asia-Pacific Region in the Next 5-25 Years (PACOM)
- FY 14: US Engagement Options in Sub-Saharan Africa (AFRICOM)
- FY 14: The Dynamics of ISIL Success in Multi-method Assessment of ISIL
- FY 15: Coordinator's Mission Review (USSC)
- FY 15: Looking Beyond ISIL: What Would the Region Look Like Beyond the Current Phase? (SOCCENT)
- FY 15: Russia and NATO Post Putin: The Space Between Peace and War (EUCOM)
- FY 16: Gray Zone Conflicts - Challenges and Opportunities (SOCOM)
- FY 16: Counter Da'esh Messaging (USASOC)

- Assessed in Report Card

- Physical Domains: Physical "widget" is king!

- In Human/Cognitive Domains: We have concept and cognitive "widgets"

- In current geopolitical environment, maneuver occurs in multiple domains (USASOC J-9 brief)

  - Physical

  - Virtual

  - Cognitive

- How do you judge value when there is no physical gadget?

  - Human domain products are critical to the planning process

  - Best judge are Command planners

- Human affairs dynamically changing and evolving

    – Predictions are a "Fool's Errand"!

- At best, focus is on broad trends and forecasts

    – SMA uses multiple approaches to avoid cognitive failure (qualitative, quantitative, simulations, and gaming, etc…)

    – Plus a GLOBAL SME elicitation network

- SMA project results **integrate** multi-method, multi-source analyses without forcing reconciliation of differences among analyses and SMEs

- Need to assess overall corpus across all efforts

    – One effort by itself not sufficient: Broken clock correct twice a day!

HOWEVER …

As valuable as they are, products (**analyses and widgets**) are **only part** of SMA's value: SMA is a **transparent process** that exposes Commands and planners to voices, analyses, and ideas from outside the Beltway

"The SMA process is as valuable to the COCOMs as SMA products"
Maj Gen Tim Fay, Deputy A8

THOUGHT LEADERS
PROCESS MASTERS
FUTURE THREATS
PERSISTENT CHALLENGES
EMERGING CHALLENGES
UNCONVENTIONAL CHALLENGES

Cognitive Maneuver Campaigns

U.S. ARMY SPECIAL OPERATIONS COMMAND

Physical Campaigning	Cognitive Campaigning
• **Purpose - effect**	• **Purpose - advantage**
• **Objective - specific**	• **Objective - adaptive**
• **Time - bounded**	• **Time - unbounded**
• **Environment – select geographic AOs**	• **Environment – global human AO**
• **Shape to dominate**	• **Shape to position**
• **Arrange operations**	• **Arrange narratives**

Redefining the Win : (1) Decision space has been preserved for our National leaders. Of note, decision space is characterized as providing decision makers with scalable, cost imposing options to hold, either unilaterally or with our partners, potential adversary interests at risk. (2) Conditions are set for an acceptable political outcome in the areas that matter to the United States. (3) Positional advantage is retained in terms of time, forces, and relationships to advance U.S. interests.

The human domain necessitates a cognitive campaign approach characterized by: understanding, engagement, shaping conditions, influencing decision behaviors, action, and reframing perceived baselines.
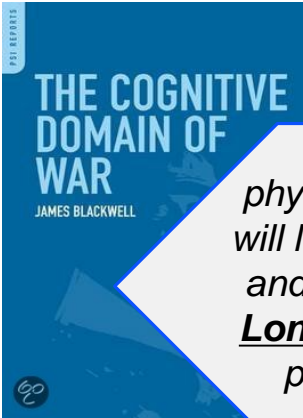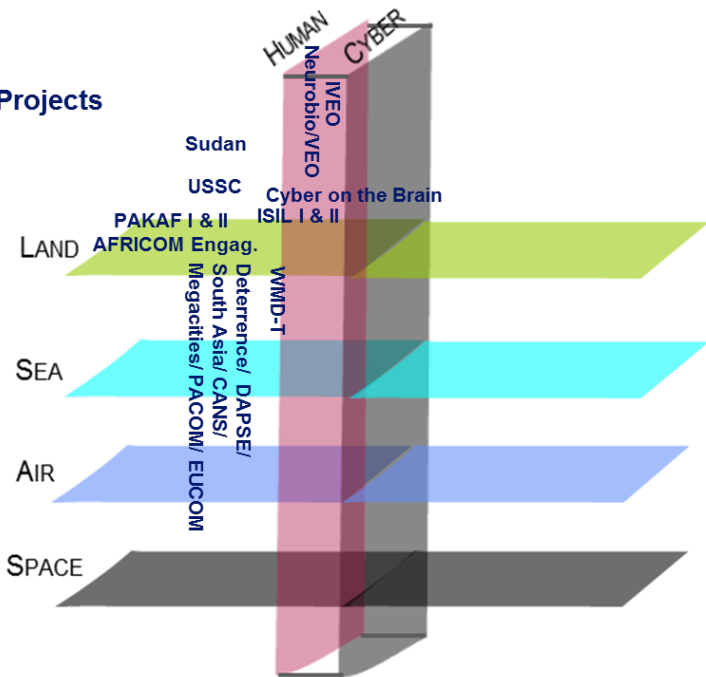
Common belief: the battlefield of the **future** will be a **network of humans and machines** that flows seamlessly across security domains rapidly and seamlessly

*"The U.S. **has been more successful** when its policies and actions stemmed from a focus on **achieving an understanding of the human and societal dynamics** of the nations or regions where we have deployed military forces …"* **R. Odierno and W. McCraven (2013)**

STRATEGIC LANDPOWER

WINNING THE CLASH OF WILLS

Select SMA Projects

HUMAN

CYBER

IVEO Neurobio/VEO

Sudan

USSC

Cyber on the Brain

PAKAF I & II ISIL I & II

AFRICOM Engag.

LAND

Deterrence/ DAPSE/ South Asia/ CANS/ Megacities/ PACOM/ EUCOM

WMD-T

SEA

AIR

SPACE

THE COGNITIVE DOMAIN OF WAR

JAMES BLACKWELL

*"This **new war** … will not be won in the physical or information domains. In fact, we will lose if we fight primarily by killing people and breaking things. **We can only win this Long War in the Cognitive Domain** — the place where we perceive, feel, think, and decide.* **J. Blackwell, (2007)**

Graphic adapted from Robert Warburg, USSOCOM brief *Cognitive Maneuver for the Contemporary and Future Strategic Operating Environment, 6/21/2016*

Four Modes of Evaluation

2) RATINGS… *How did we do?*

Forecasts were pulled from project deliverables and then compared to current status/outcomes * **

🟩 = occurred as projected

🟧 = event occurred somewhat

⬜ = conditional event that has not taken place

🟨 = no data/no evidence of event occurring or not

🟥 = definitely did not occur/got it wrong

*Only a sample of forecasts for each project are shown on the project slides

** See Report Card spreadsheet for complete list plus grading justifications

1) IMPACT and USAGE …

Who uses SMA products and how?

3) SMA WIDGETS
… *What tools were produced that can be used by others?*

4) SRG/COMMAND FEEDBACK …

What did the customer think?

Assessment Results

SMA 2007-2015

Quick Overview of Impact & Usage of SMA Products

40%
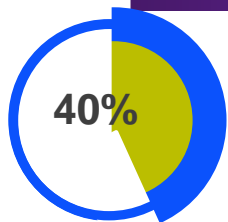
Citations. Of 54 SMA reports sampled, the percentage cited in a reviewed academic journal, published as a book, and/or cited in a book available on Amazon.com

67%
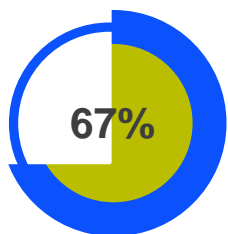
Usage. Of 54 SMA reports sampled, the percentage that were reposted on websites not related to SMA Team

SMA reports have shown up
- on Twitter
- in Congressional testimony
- for sale on Italian Amazon
- in National Academy of Science reports
- on the desk of President Ashraf Ghani of Afghanistan

Global Reach. Foreign locations of addressees receiving SMA products

SMA

3177 individuals on SMA products distribution list

95 US universities

20 foreign universities

17 US states in which a university does **not** receive SMA products

14 major Think Tanks

8 foreign military organizations

7/8 Ivy League schools (Cornell is missing)

13 42 Topical White Papers .... **200+** Since May 2015, SMA int' l and US Speakers Event telecons (avg. 35 participants)

All Project Ratings Summary

36% Green of 160+ forecasts
18% Orange
25% White
15% Yellow
 6% Red

Widgets Produced

20+ Widgets

8 Qualitative analytic tools for planners and analysts

4 Quantitative analytic tools for planners and analysts

4 Software concepts/alphas

3 Developing Counter VEO Messaging content

2 Tools/processes for collaboration

1 Command steady-state engagement prioritization
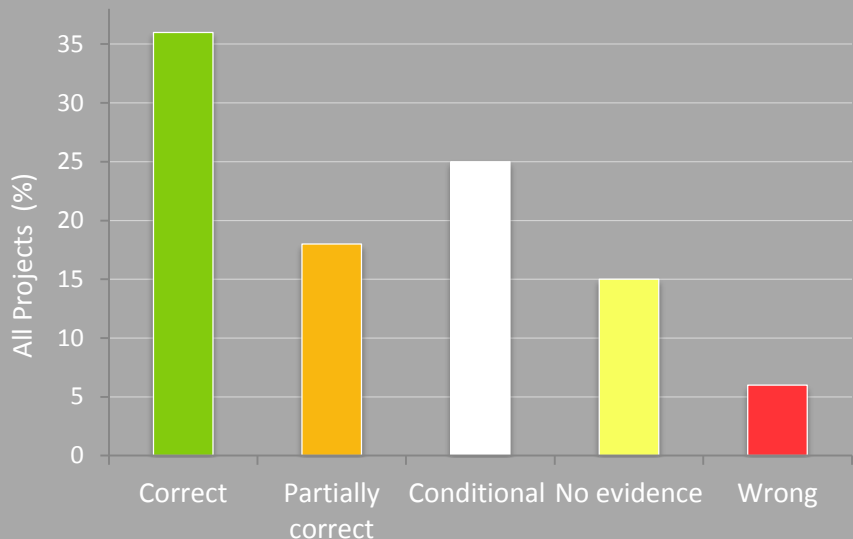
Results by Project
SMA 2007-2015

By Region

- Middle East
- Eurasia
- Central and South Asia
- Pacific
- Africa

USSC, SOCCENT I, SOCCENT II,
Counter ISIL Messaging, Al Assad Leader Assessment

By Global Issue

- Cyber
- Deterrence
- Counter-Terrorism
- Counter-WMD

Project Overview

Request: Conduct Coordinator's Mission Review to provide increased understanding of potential future security environments and their implications for Palestinian security sector reform

Simulation Finding: The Palestinian team faced immediate internal legitimacy issues and moved to project solidarity with Palestinian sentiment, while privately negotiating with the Israelis to minimize actions that could further inflame tensions.

Select Expectations

Israeli security activities in the West Bank have reinforced adverse effects on PA legitimacy and development of security sector institutions: the more stringent IDF ROEs are, the more difficult it will be to build Palestinian security institutions and to quell Palestinian social tension.

Team NSI, ICONS Project at University of MD, Texas A&M, TRADOC, Carnegie Endowment, CTTSO
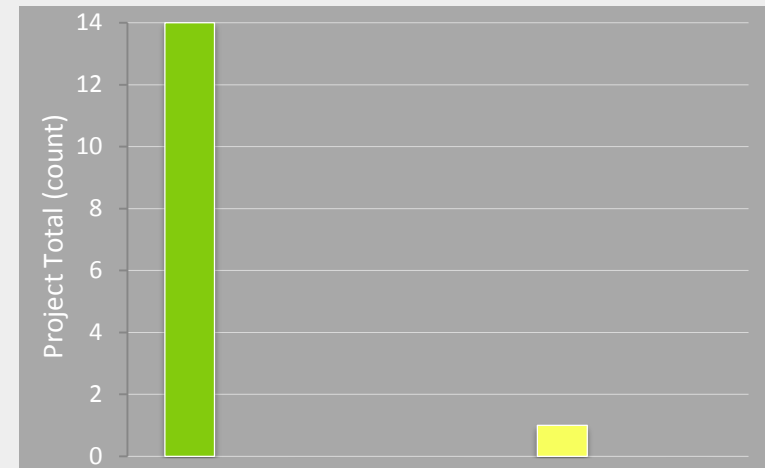
#1 ICONSnet DISTRIBUTED SIMULATION
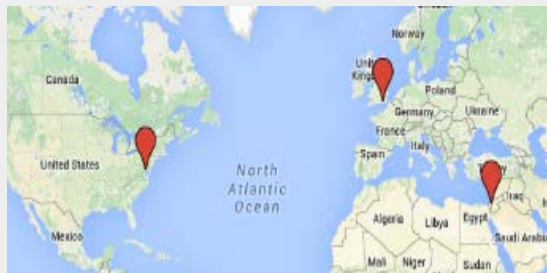
Geographically **distributed** participation by SMEs in an anonymous environment allows **inclusion of non-typical perspectives** and voices as well as exploration of creative policies

ICONSnet – a distributed, Internet-based simulation platform allows participants to send messages, participate in conferences, take actions, and engage with social media. Injects by a Control Team can drive the simulation's plot forward, and can be used to represent intelligence communities, traditional and social media, states, spoilers, and civil society…

#2 PERSPECTIVE TAKING

Perspective Taking techniques in communications helps **mitigate conflict** among disputing actors.

Perspective-taking techniques used by International Team during ICONS sim "repaired" prior negative effects of confrontational "black-white" thinking by other teams, i.e., it increased the use of complex logic (high Integrative Complexity IC) by all other teams. Higher IC is associated with more empathetic and cooperative behaviors. The pattern of ***stress-repair-gain*** *is an achievement, and by no means automatic (IC drops without mediating third party or IC training).*

Project Overview

Request: Short-term effort for SOCCENT Commander to understand the psychological, ideological, narrative, emotional, cultural, and inspirational ("intangible") nature of ISIL

Even if ISIL is weakened militarily, there is a psychological element tied to Sunni grievance that could actually enhance ISIL legitimacy as it suffers certain types of military losses.

Civilian acquiescence to ISIL rule may be achieved over time without ISIL having to change its tactics: even when civilian acquiescence is based in fear and violence, Daesh's demonstration of control reinforces popular belief in its ultimate success.

Select Expectations

Direct threats to the Syrian Ba'athist regime's hold on power; demands for Assad's resignation are non-starters for him and will lead to failed negotiations.

As ISIL leaders are pressured militarily, we will see: ISIL leaders moderate antagonism in rhetoric aimed at Sunni Arab states; ISIL military activities avoid attacks on Sunni states; ISIL leadership easing ferocity with which it institutes Islamic law, especially where local power elites; relative shift in emphasis on recruiting "fighters in place" or alliance with local groups

Team ICONS Project at University of MD, NSI, NDU, TRADOC, CTTSO/SOSA, NPS
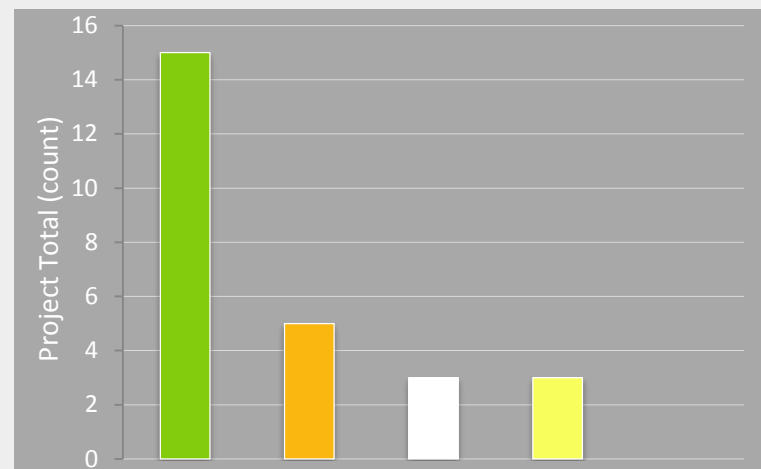
#1 VEO EVOLUTION & LONGEVITY ASSESSMENT MODEL
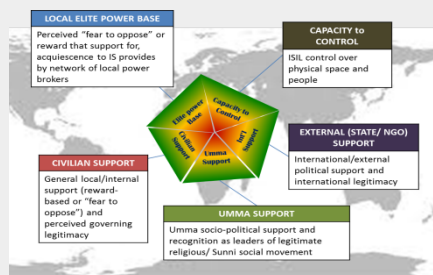
An analysis framework for evaluating the **sources of an organization's support, influence** and the means of reducing these and thus its longevity

The Evolution & Longevity model helps analysts characterize the power base and threat posed by a VEO, TCO, or non-state actor. It facilitates quick assessment of change/the success of counter efforts over time and can serve as an organizing frame for fusing multi-approach, multi-method analyses. The model is based on continua representing different aspects of an organizations power the patterns of which suggest different types of adversaries (e.g., one with grassroots support but very little external support requires a different approach than one with little local support and ability to maintain control only through violence and external support).

Project Overview

Request: The ICONS Project was asked, as part of a Strategic Multilayer Assessment carried out for the U.S. Special Operations Command Central, to design a simulation exploring potential pathways of regional fragmentation in the Middle East over the next two to three years.

Communications patterns in the ICONS simulation highlighted two "communications" factions. The first faction centered around Saudi Arabia, and included the Free Syrian Army, Sunni Tribes, Iraq, Turkey, Nusrah Front, and ISIL. The second faction was centered around Iran and included Iran, Lebanon, Shi'a Militias, Hezbollah, and the Assad Government.

Team ICONS Project at University of MD, NSI, NDU, TRADOC, CTTSO/SOSA, NPS

Select Expectations

Fragmentation usually refers to the dissolution of power centers with multiple state and non-state actors vying for power and territory. In the ME, the pattern is actually much more complex and is best characterized as a fragmentation of the nation-state itself, which in turn contributes to fragmentation on a regional basis.

Nusrah Front likely to call for the establishment of a Caliphate.
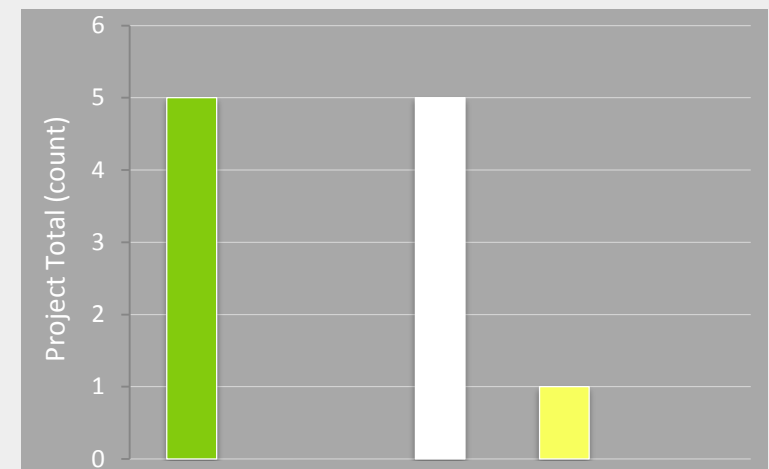
#1 ACROSS TEAM NETWORK ANALYSIS
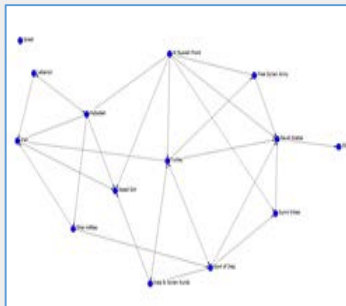
Network graph displays the communications patterns of key participants in ICONS fragmentation simulation

The vast majority of all members of the network are directly connected through a small number of intermediaries. The high degree of connectedness reduces the probability that any one member will be isolated from the network. Two main factions emerge: a Saudi faction and an Iranian faction. Turkey and Hezbollah are key bridges between factions.

Project Overview

Request: Two Counter-Da'esh Messaging Simulations were conducted bringing together nearly 100 Psychological Operation (PSYOP) operators, USG and international observers, interagency representatives, population experts from Iraq and North Africa, Da'esh experts, universities, and think tanks. These ICONS simulations served as both a test bed for messaging techniques and a training opportunity for PSYOP operators.

The transition from Maliki to al Abadi will induce an erosion of al Abadi's Shia political base, potentially limiting the level of GoI/Sunni reconciliation.

Select Expectations

A positive affinity for ISIL by the populations of Turkey, Saudi Arabia, Libya, Egypt, Yemen and Algeria has resulted in an environment that is conducive to unsanctioned recruitment and support. This positive population affinity will require intervention by these governments to disrupt ISIL recruitment and support.
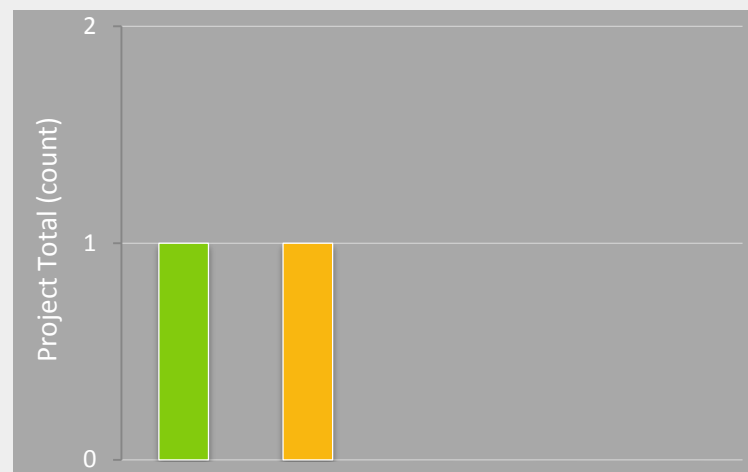
Team Charles River Analytics, ICONS Project at University of Maryland, University of Nebraska Omaha, Fielding Graduate University, Iowa State, University of Pennsylvania, NSI, SRC, TRADOC G27

#1 WITHIN TEAM NETWORK ANALYSIS
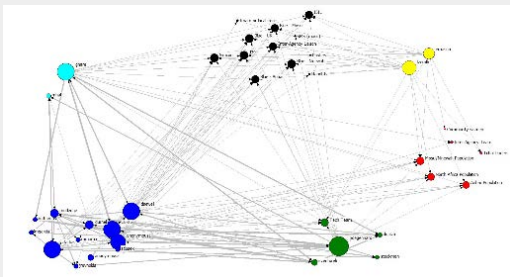
Social network analysis to help diagram the level of play and **operational efficiency** of messaging efforts during a simulation

Network diagrams show that as PSYOPS operations progress, more Blue team actors play active roles in crafting and shaping messages to counter-Daʾesh efforts. Although Blue slowed down in its efforts by the sheer number of team members. Smaller, more focused expertise on PSYOPS teams may be more operationally effective.

#2 ON-THE-FLY NETWORK ANALYSIS
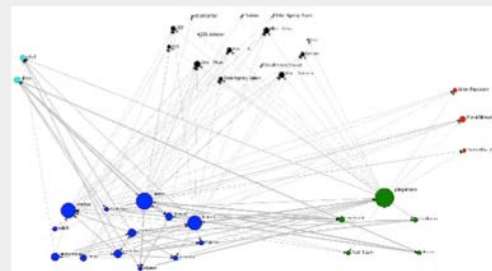
Affords an opportunity to **assess current communications** networks and recommend needed **adjustments**

Real time communication analytics: development of a real time network analytic tool that displays the communication between actors as they occur. Identify the actors that are involved at each step of planning, who is leading each effort, and who is being left out. Allow for more rapid redeployment of human resources.

#3 PROCESS FOR EMBEDDING TECHNICAL INFORMATION IN COUNTER-VEO MESSAGING

Embedding one or two trusted "technical" experts into PSYOP teams is a **force multiplier**

Embedding Technical Team liaisons into Blue both saved needed time and proved to be a significant enhancement to message development tasks. Embedding a Tech Team representative directly into Blue allowed for frequent and highly valued technical input during message development and expert review when new messages had to be developed rapidly. Technical Team embeds were able to bridge the gap between Blue team operational needs and theoretical or other academic work that is relevant but not necessarily tailored to the operational environment.
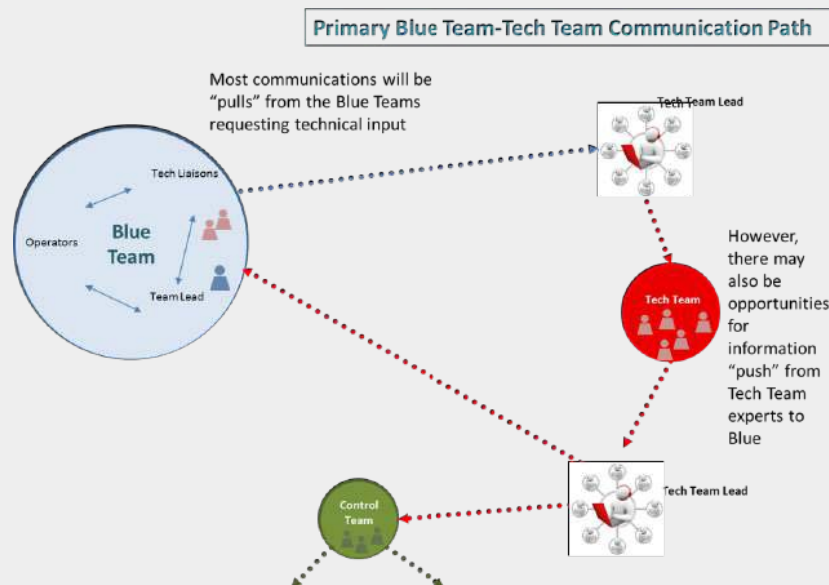
Primary Blue Team-Tech Team Communication Path

Most communications will be "pulls" from the Blue Teams requesting technical input

However, there may also be opportunities for information "push" from Tech Team experts to Blue

Project Overview

Request: This study explored the potential types of actions and messages most likely to influence and deter Bashar al-Assad from using force in the ongoing Syrian civil war in advance of the Geneva II Talks.

Assad's reasoning is consistent with his Arab nationalist Ba'athist political ideology.

Assad exhibits high IC; Although his IC decreased in association with certain events, he has not exhibited a trend of decreasing IC throughout the conflict, suggesting that his level of stress has not, in the long run, impeded his ability to process and respond to information.

Team NSI, University of British Columbia, Johns Hopkins APL, TAMU
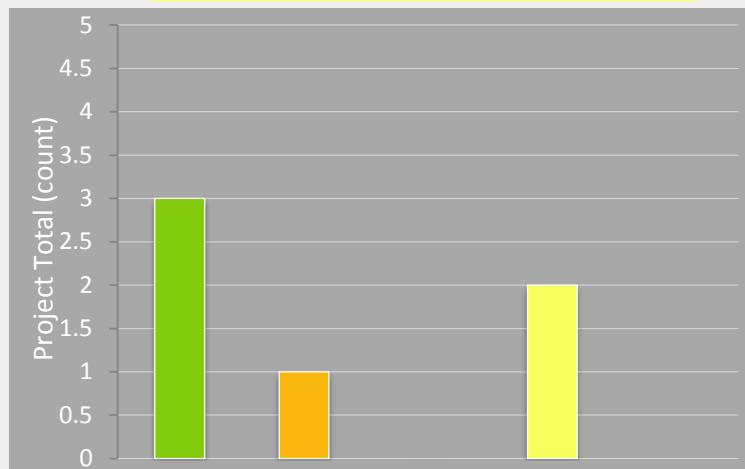
Select Expectations

Direct threats to the Syrian Ba'athist regime's hold on power and demands for Assad's resignation are non-starters for him and will lead to failed negotiations.

al-Assad exhibits dynamic levels of Integrative Complexity that can be used to assess his relative susceptibility, develop arguments, and recommend psychological actions and/or refine assessment criteria at a specific point in time

Results by Project
SMA 2007-2015

By Region

- Middle East
- Eurasia   EUCOM
- Central and South Asia
- Pacific
- Africa

By Global Issue

- Cyber
- Deterrence
- Counter-Terrorism
- Counter-WMD

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Project Overview

Request: Identify emerging Russian threats and opportunities in Eurasia; examine future political, security, societal, and economic trends to identify where US interests are in cooperation or conflict with Russian interests; and, in particular, identify leverage points when dealing with Russia in a "global context"

In an attempt to undermine NATO credibility and erode confidence in Article V, Russia will pursue a strategy of low-level violations of sovereignty and influence operations in its periphery.

Unless Russia is able to overcome its economic crisis and maintain stability, regional stability and prosperity will be difficult, if not impossible, to achieve.

NATO expansion may decrease its ability to quickly respond to Russian actions, undermining its deterrent credibility.

Team AOWG, CEIP, GMU, NGA, NPS, NSI, TAMU, UBC, ICONS, START

Select Expectations

Nationalist framing of Russia's foreign policy goals and the belief that Russia is faced by enemies, increases the likelihood of risky behavior and unintended escalation.

Even if relations between Russia and the West improve, Russia will strive to build alternative international economic and political institutions.

#1 Virtual Think Tank (ViTTa)
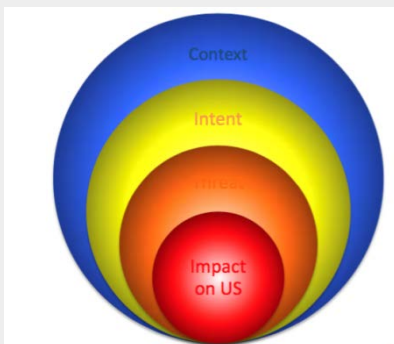
ViTTa provides rapid, customizable analyses of current situations and emergent crises by tapping into an extensive global network of subject matter experts (SMEs) drawn from academia, think tanks, government, and industry to provide a broad and varied perspective.

The ViTTa process involves establishing core questions and developing a survey and questionnaire to relay to the relevant SME network. Initial findings are then categorized to identify areas of convergence and divergence and to develop hypotheses for further exploration. ViTTa analysis highlights and assesses key findings, schools of thought, areas of agreement and disagreement among SMEs, critical insights, and knowledge gaps.

Results by Project
SMA 2007-2015

By Region
- Middle East
- Eurasia
- Central and South Asia   South Asia, PAKAF
- Pacific
- Africa

By Global Issue
- Cyber
- Deterrence
- Counter-Terrorism
- Counter-WMD

Project Overview

Request: Explore issues pertaining to long-term and short-term regional and sub-regional stability and escalation dynamics in South Asia.

South Asia will continue to muddle along.

The overall flat trajectory (muddling) is the result of political and social stability on slight downward trajectories (muddling down) together with a slightly more robust economic outlook (muddling up).

Extremist Islamist political parties in South Asia are unlikely to achieve success.

Select Expectations

South Asia's economy will not collapse and is unlikely to experience social collapse.

Political development in South Asia is on a downward path as nearly all of the key muddling down path markers are both present and substantial.

Team DNI NIC, CSIS, LLNL, NSI, SOSA, START, GMU, TRADOC
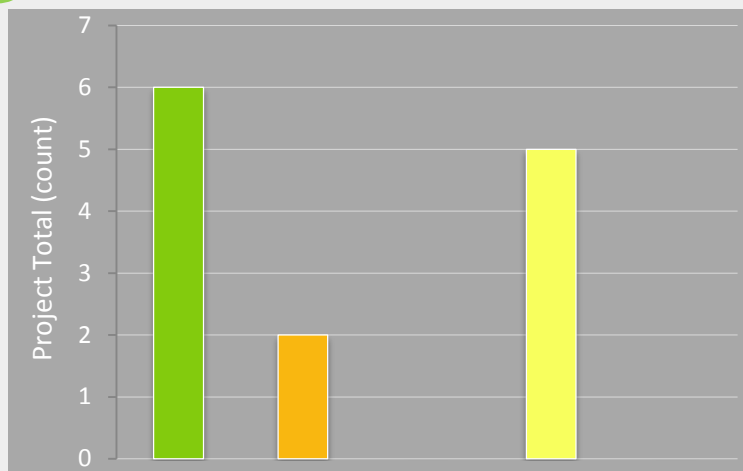
#1 STATE FRAGMENTATION PATHWAY ASSESSMENT FRAMEWORK
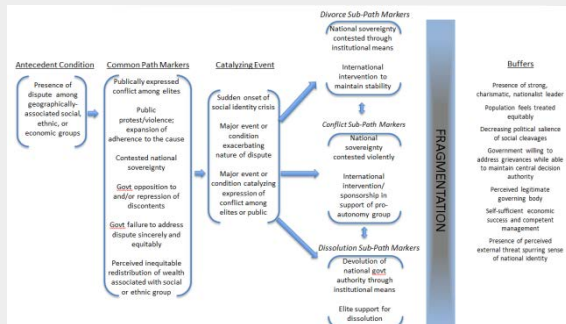
The Fragmentation Pathway Assessment Framework guides users in identifying **I&W** as well as the barriers to **political**, **economic,** and **social** instability and **fragmentation**

The Fragmentation Pathway Assessment tool is based on global case analyses of complete, semi, and reversed state fragmentation. It helps users quickly identify the political, social, and economic markers of fragmentation in each domain, and estimate the likelihood and degree of state fragmentation

#2 USE OF TIMED INFLUENCE NET MODELS TO DEVELOP AND ASSESS RISK MINIMIZATION COURSES OF ACTION
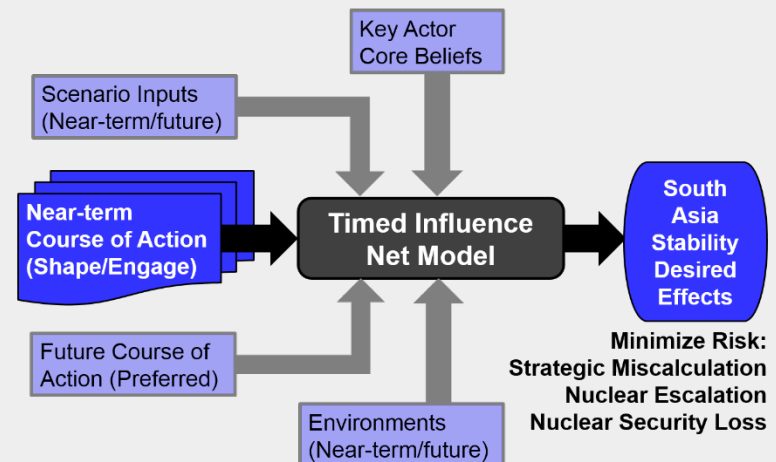
Timed Influence Net (TIN) models were used to document diverse inputs from subject matter expert (SME) groups for use in engagement strategy development and operational planning.

The models identified knowledge gaps as well as opportunities: for example, third-party capabilities to influence behaviors in ways favorable to the US and its allies.

#3 REGIONAL NUCLEAR ACTOR ESCALATION CONTROL
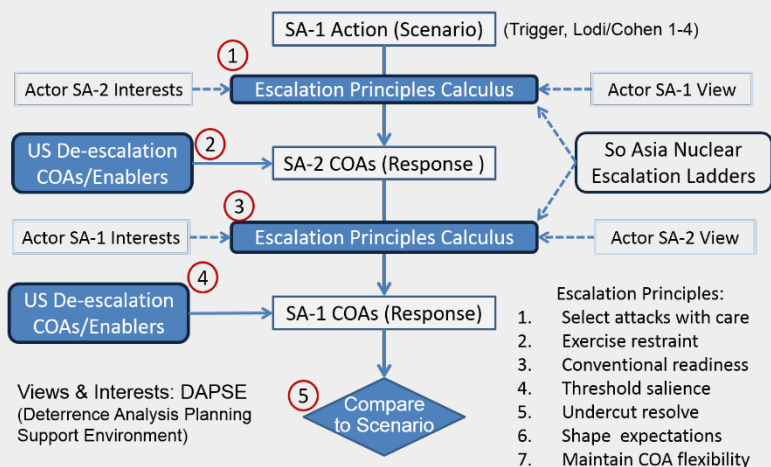
Escalation framework effective as a means to **anticipate the actions of non-US actors** in a crisis, as well as to assess the potential for USG activities to influence the decision calculus of the non-US actors

US actions to de-escalate crises involving nuclear actors pose a potential risk to counter-proliferation objectives—if other actors perceive nuclear weapons as a way to influence US behavior

Project Overview

Request: "I need a 'rich contextual understanding' of the Afghan political and social environments …" *Gen S. McChrystal, COMISAF*

The effort prototyped rapid development of an RCU down to the district level in AFG intended to facilitate ISAF's COIN mission. Focus was on 16 districts in Afghanistan and 10 in Pakistan

Neither a solely national nor a solely local police force is likely to be sufficient for Afghanistan's current needs for basic social order and anti-insurgent security needs. A multi-tier, multi-ethnic, hybrid national-local structure is more likely to succeed.

Team NSI, Harvard University, Gallup, Monitor 360, Strategic Communications Lab, USACE, IDA, U. of Nebraska-Omaha, Sentia, Aptima, ODNI, TRAC-MTRY, NPS, PA Consulting, Australia MOD, JIEDDO, Mitre

Select Expectations

Afghan cooperation with the Taliban is more likely when GIRoA is expected to be weak in the future, suggesting a decision calculus based on loss minimization, rather than utility maximization.
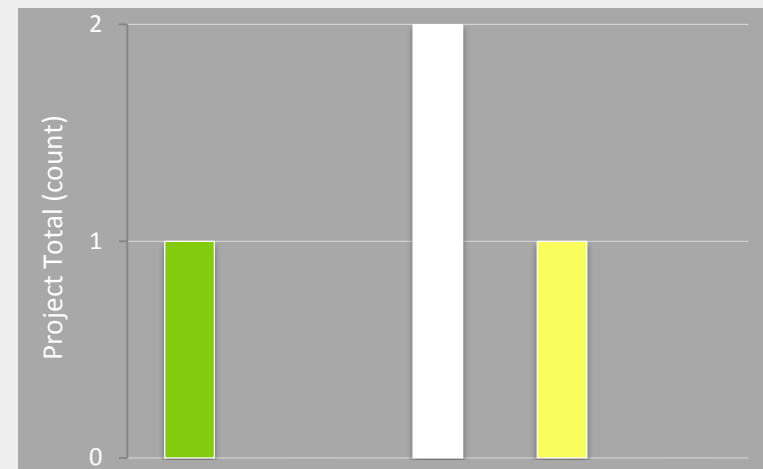
#1 TOOL FOR IDENTIFYING AND TRACKING MULTI-DOMAIN STATE AND SUB-STATE MULTI-DOMAIN STABILITY INDICATORS (StaM)
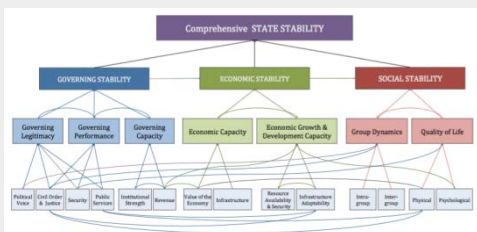
StaM is an **analytic methodology** that guides researchers to identify and track economic, political/security and social factors that **drive** the **stability-instability** of a state, region, or city.

StaM output includes immediate and longer-term buffers to political, economic, and social instability and sources of population resilience, as well as immediate and longer-term drivers of destabilization, instability, and collapse. A completed StaM can be used by analysts s to: assess 2nd and 3rd order effects of engagement activities; provide a common operating picture to improve interagency coordination; assess the implications of external actor actions; and for monitoring and early warning.

#2 ONE STOP SHOP FOR PAKAF INFO: RCU DATA LIBRARY
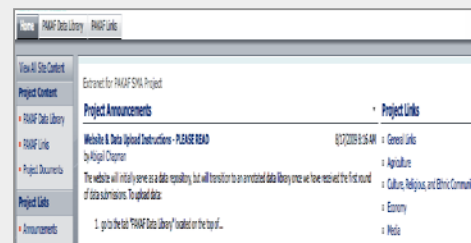
A repository of over **124 SMA documents** on Afghanistan and Pakistan produced for the RCU effort plus **100s more** on background research.

The RCU documents are stored in a searchable SharePoint RCU Data Library. These include responses to 40+ questions from the ISAF J2, 19 Afghanistan District "Baseball Cards" of background information, 17 "Info Bin" documents , 22 additional studies and "Quick Looks," 14 individual team analyses and 100s of searchable academic sources, data sets, official documents, etc.

Results by Project

SMA 2007-2015

By Region

- Middle East
- Eurasia
- Central and South Asia
- Pacific   PACOM
- Africa

By Global Issue

- Cyber
- Deterrence
- Counter-Terrorism
- Counter-WMD

Project Overview

Request: Identify areas of strategic risk in the Asia-Pacific region over the next two decades. Examine future political, security, societal, and economic trends to identify where US interests are in cooperation or conflict with Chinese and other interests, particularly in the East China Sea.

Weak China vs. Strong China

China will be more aggressive, increasing risk of escalation

China will be more aggressive, increasing risk of escalation and challenges to US alliance structure

Over the next 25 years China will become the region's major military power

Team CEIP, CSIS, CTTSO, GMU, Monitor 360, NPS, NSI, OSD, STRATCOM, Texas A&M, UBC, UMD/ICONS, UMD/START, USN, USAF, USMC

Select Expectations

As China becomes more dependent on imported energy, and global concerns over energy security grow, the salience of disputed maritime territories in the South and East China Seas that possibly contain significant energy resources will increase.

Economic issues, in particular resource security, will continue to shape relations between regional states.
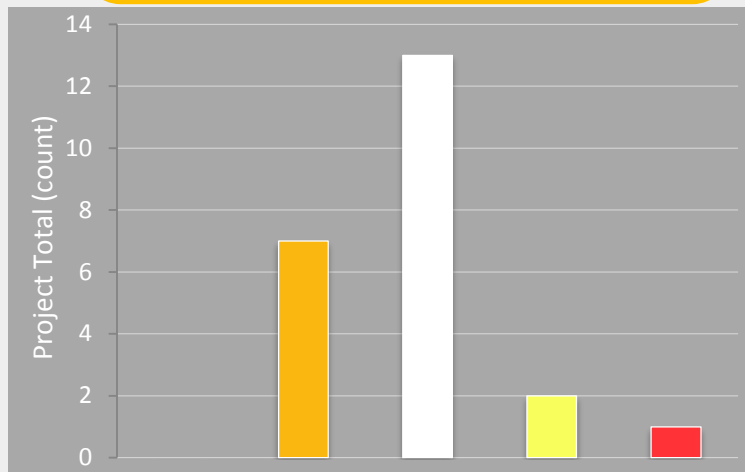
#1 REGIONAL STABILITY MODEL, DECISION CALCULUS MODEL
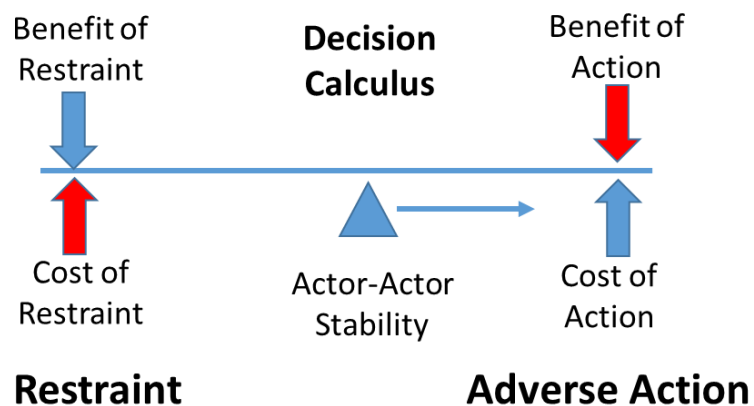
Regional stability model used to address CDR PACOM's challenge to **employ forces in the region** in a way that reduces risk to US strategic objectives (peace and economic stability)

Development of strategic messaging capability would serve as a force multiplier to mitigate disturbances, restore stability following a disturbance, and potentially offset the impacts of disruptive technologies.

Results by Project
SMA 2007-2015

By Region
- Middle East
- Eurasia
- Central and South Asia
- Pacific
- Africa   Sudan, Nigeria

By Global Issue
- Cyber
- Deterrence
- Counter-Terrorism
- Counter-WMD

Project Overview

Request: Conduct a proof-of-concept effort on how to assess a complex state like Sudan with contested borders, many competing interests, and a lack of "analytical" products and vetted data.

Sudan is on path towards escalating instability. Existing low levels of regime capacity and high level of dissidence in Sudan makes it difficult to achieve successful outcomes from current mitigation options.

Likelihood of conflict increases if resources are more evenly distributed.

Select Expectations

A North-South partition of Sudan has mixed outcomes: it simultaneously reduces the likelihood of conflict within the new "partitioned" states, but increases the possibility of conflict between these states.

Team ONR, IDA, LLNL, University of Indiana Purdue, U. Penn, UC Berkeley, University of Nebraska-Omaha, Kettering U. Rhode Island College, NSA, NSI, Inc., NGA, CIA. DIA, OSC, MIT, Sentia, Active Computing, Evolving Logic, Aptima, MITRE, NPS, STRACOM
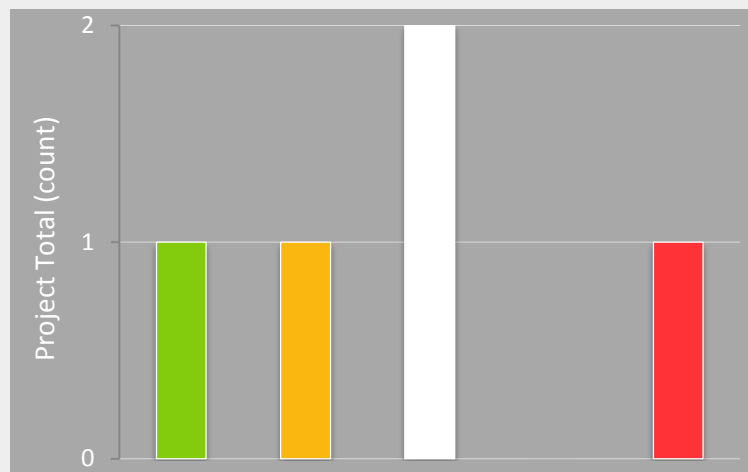
Project Overview

Request: To provide the AFRICOM analytical capability to assess stability and Instability dynamics in core area of interest to aid in prioritization and metric development for command engagement activities.

Boko Haram may destabilize northeast Nigeria but it will not gain control of northeast Nigeria.

Boko Haram has the ability to become an AQIM-like multi-state disrupter

Decreased oil bunkering will be positively related to social stability in Nigeria.

Team TRADOC, NGA/AGC, START/UMD, NSI, **WikiStrat**

Select Expectations

The Nigerian Federal Government can establish a secure environment in northeast Nigeria by developing additional local security forces.

Boko Haram has the following vulnerabilities:
- Growing reliance on conscription;
- Dependence on local resources, which may be increasingly depleted; and
- Need to maintain control of territory, as well as expand.
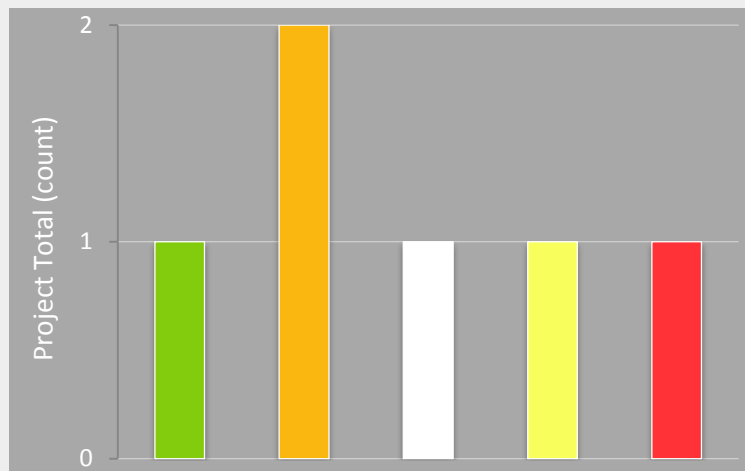
#1 NIGER RIVER WATERSHED GEO NARRATIVE
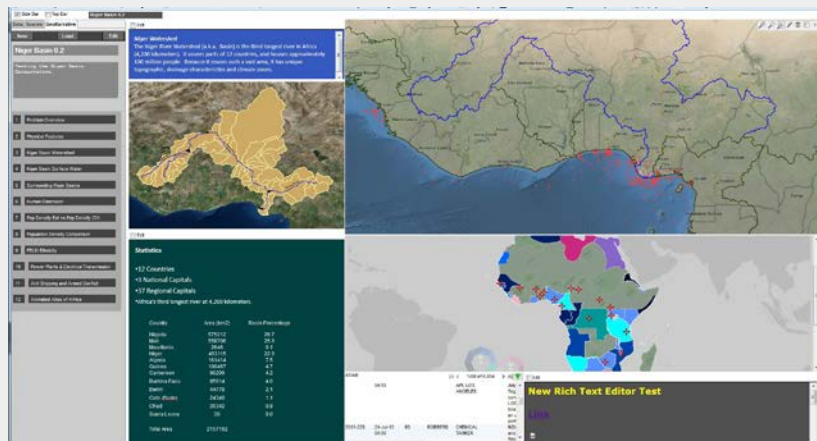
Provides **visualized data** to answer question of how water relates to security and stability in Nigeria.

The Niger River Basin GEOnarrative provides geospatial and historic data, as well as images and videos. Information is divided into chapters that relate to the SMA AFRICOM exercise on Nigeria. Also included is a chapter on "Lessons Learned" that can be used to guide an investigation of the data provided.

#2 HEART (HOLISTIC ENGAGEMENT ACTIVITIES RANKING TOOL)

Activity	Combined Contribution to AFRICOM Missions 36 ⟶ 1	Cost $	Feasibility Risk 4 ⟶ 1	Risk to US Personnel	Program Alignment (possible coop)
Training at NA Amphib Training Center	3 Expected +1-9% toward: building partner defense; improving crisis response; TCO/ CT	$150K/year $600K total over 4 years Loss vulnerability = $6750 at marginal probability	2* *US or host country legal authorities unknown	Marginal insurgent violence disease prevalence	USG 1 (consistent with) Host Nation 2 (adds value) Friendly Nation 3 (moderately reinforces; unclear) NGO/IGO 4 (unclear)
Activity x	14	$550/year	1	High disease prevalence	USG 1 (redundant with)

HEART is a multi-criteria framework and decision aid for **identifying and prioritizing Command Engagement** activities.

HEART allows planners to compare engagement activities over varied time spans, countries, mission priorities, and funding. It includes prompts for users to collaborate on planning and evaluating engagement programs .

Results by Project
SMA 2007-2015

By Region

- Middle East
- Eurasia
- Central and South Asia
- Pacific
- Africa

By Global Issue

- Cyber
- Deterrence
- Counter-Terrorism
- Counter-WMD

Project Overview

Request: 1) aid the operational and policy communities in understanding the unique behavioral and neurobiological factors that underlie political extremism in the cyber realm; and 2) assess the implications of new research in cyber-neurobiology and cyber-psychology for countering extremist messaging

Select Expectations

False consensus in online groups has been linked to an increase in members' offline political participation.

An emotionally encoded message is more likely to be persuasive than a non-emotionally charged message.

The Internet and other forms of cyber-based communication technology do not likely contribute to radicalization and mobilization to political extremism in a linear fashion.

Team NSI, White House OSTP, Georgetown University Medical Center

Project Total (count)

4

3

2

1

0

#1 RADICALIZATION TRANSITION TABLES

Identifying **levers of influence** through careful examination of unique shaping and transition factors.

Key to note that a potential lever of influence may be built off of an existing inhibitor rather than injecting an external intervention.

Results by Project
SMA 2007-2015

By Region

- Middle East
- Eurasia
- Central and South Asia
- Pacific
- Africa

By Global Issue

- Cyber
- Deterrence   DAPSE, STRATCOM Deterrence, CANS
- Counter-Terrorism
- Counter-WMD
- Collaboration
- Gray Zone

#1 SMA SOCIO-CULTURAL TYPOLOGY
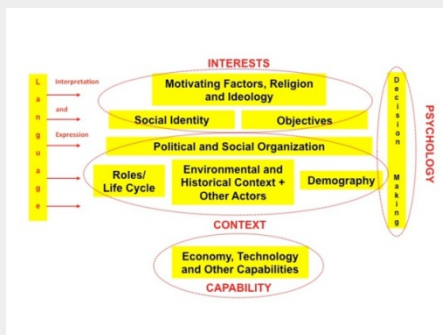
An **ontology** that represents the breadth of socio-cultural variables that influence an **adversary's decision calculus**

Based on previous typologies and an SMA-organized series of workshops that involved 120 leading social scientists from academia and government specialists

Typology captures the full range of economic, military, political, and cultural factors that can influence an adversary's decision calculus

SMA employed it in DAPSE, JIPOE and NK projects

#2 DECISION ANALYSIS PLANNING & SUPPORT ENVIRONMENT (DAPSE)

DAPSE is an end-to-end **decision analysis tool** that allows planners to explore different modes of **deterrence.**
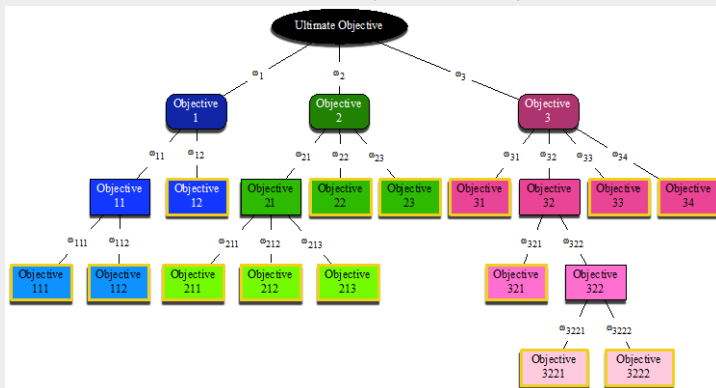
DAPSE guides planners through the steps of gathering the necessary data, conducting a robust decision analysis and using the completed decision matrix to gauge likely adversary behaviors and modes of deterring them

#1 ATTRIBUTE TRADE-OFF MODEL (ATOM)

ATOM assists analysts to evaluate and compare force postures across a range of policy objectives, risk and cost.

ATOM assists analysts in decomposing the problem space from higher-order concepts to basic elements and then evaluating the value of individual elements (weapons) to each of those higher order concepts (policy objective, cost, risk) via two aggregation algorithms: Simple Additive Weighting (SAW) and Evidential Reasoning (ER).

#2 DECISION ANALYSIS TOOL (DAT)

DPRK-US Alternative		Decision Dimension (Higher is better)					
DPRK	US	Relations w/ PRC	Relations w/ ROK	Economic	Regime Survival	National Security	Intl Prestige
Test	Diplomatic	4	4	7.5	7	7.5	6.5
Test	Sanction	2	2.5	2.5	3.5	7.5	6.5
Test	Strike	3	2.5	5.5	5.5	4	6.5
Test	Invade	1	1	2.5	1.5	2	6.5
No Test	Diplomatic	5	5	7.5	8	6	2.5
No Test	Sanction	6	6	2.5	3.5	5	2.5
No Test	Strike	7	7	5.5	5.5	3	2.5
No Test	Invade	8	8	2.5	1.5	1	2.5

DAT is a decision analysis tool that represents the decision space from the perspective of a specified decision maker.

The DAT enables analyst to assess the robustness of possible outcomes and assumptions about an actor's choice processes by providing outcomes calculated according to a variety of choice rules. It guides the analyst to construct a decision analysis and assess robustness of possible outcomes and assumptions about an adversary's choice processes

#3 USE OF MULTI-MODELING TO SUPPORT NUCLEAR POLICY AND STRATEGY ANALYSES
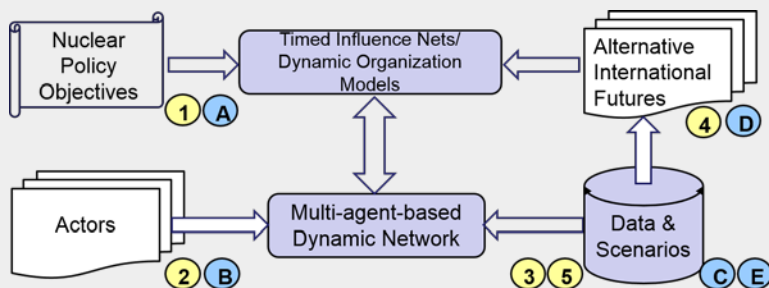
Timed Influence Network (TIN), Multi-agent Dynamic Network Analysis, and Dynamic Organization Analysis "multi-models" were used to **inform nuclear policy analyses** addressing nuclear policy and strategy questions

The generic TIN model developed for the CANS wargames was used to assess the effects of different Courses of Action on key CANS objectives (nuclear weapon use, regional stability, strategic stability) in two different regional settings and a range of operational phases.

Results by Project

SMA 2007-2015

By Region

- Middle East
- Eurasia
- Central and South Asia
- Pacific
- Africa

By Global Issue

- Cyber
- Deterrence
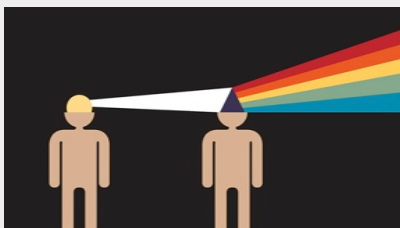- Counter-Terrorism   I-VEO
- Counter-WMD

#1 INFLUENCE ACTION FRAMEWORK

Diagnostic tables to structure VEO's objectives, strategy, and enablers across key time frames and **compare against actions taken by the US** and two sample VEOs.

Develops an approach to evaluate influence actions the U.S. pursued against Violent Extremist Organizations (VEOs) to inform future influence efforts. This framework is needed because VEOs typically operate in environments that limit traditional US military options and have complex socio-cultural and political dynamics.

#2 I-VEO KNOWLEDGE MATRIX

An expansive analysis of the academic literature on VEOs encapsulated in a Knowledge Matrix. The Matrix is organized so that users can sort various types of influence operations according to five conceptual schemas. In addition, the matrix includes expert commentary to contextualize the research findings. This provides users with ready access to a broad base of theoretical alternatives and existing empirical evidence upon which to build concepts, theory, policy, and doctrine in government, academia, and military realms.

Results by Project

SMA 2007-2015

By Region

- Middle East
- Eurasia
- Central and South Asia
- Pacific
- Africa

By Global Issue

- Cyber
- Deterrence
- Counter-Terrorism
- Counter-WMD   JIPOE

Project Overview

Request: Develop a concept for a sustainable, federated IA-Wide WMD-T intelligence and operations analysis enterprise to support JIPOE including a predictive analysis capability to anticipate how terrorists are likely to acquire and use WMD over the next ten years

Prototyping efforts: Nuclear Smuggling, WMD-T

Integrated empirical bioterrorism assessment indicates high likelihood of AQ bioterror attack in NWFP of Pakistan.
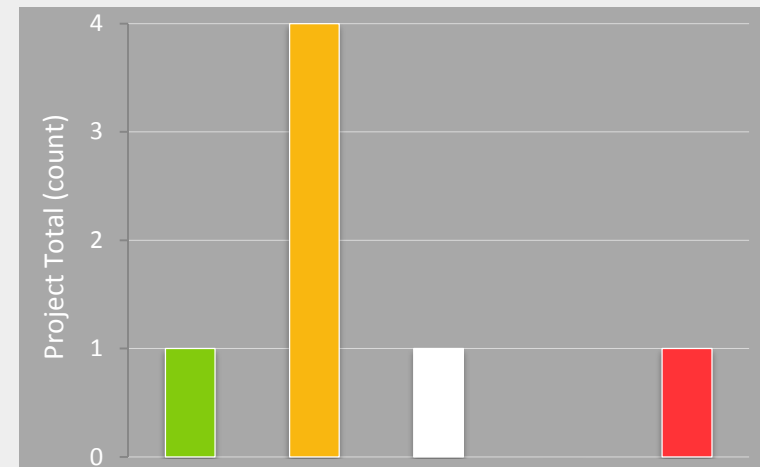
A religiously motivated group, personal revenge motivated individual, or small group will conduct a bio attack with anthrax or typhus on a transportation system or government facility using either aerosol or food contamination by 2015.

Team approximately 200 people from over 50 organizations actively involved including DNI, NCTC, DHS, DOE, ARGUS, NCPC, NGIC, DOS, Commerce, FBI, CIA, DIA, IDA, GMU, SUNY Albany

Select Expectations

Fingerprinting Model predicted Russia, Caucasus, India, and Turkey as main interdiction sites for nuclear smuggling activity between 2008-2011.

X has greatest incentive to pursue nuclear material for profit rather than use, and will increase these activities when under financial pressure.

QUESTIONS - COMMENTS