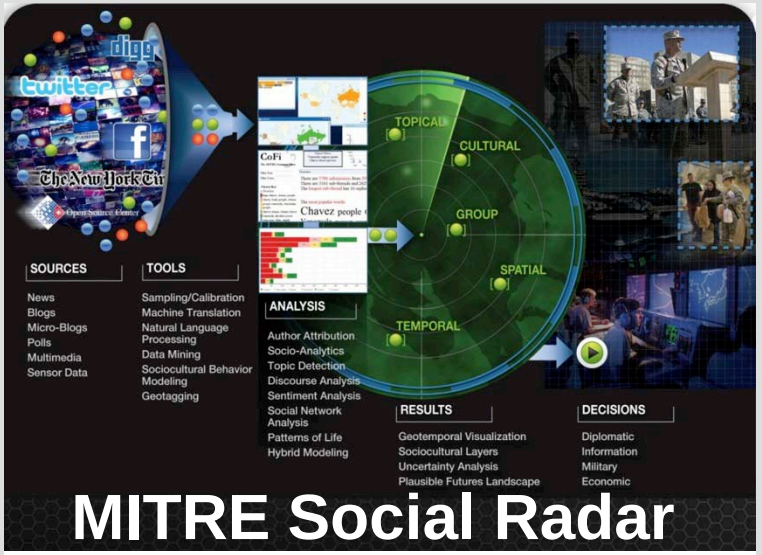
Realizing the Vision of Social Radar:
Trends, Opportunities, and Analysis of Sociocultural Behavior S&T for the DoD

4 February 2014

Dylan Schmorrow, Jack Zaientz
schmorrow@yahoo.com
jzaientz@soartech.com

Social Behavior: Indicators & Warnings for Command Decision-making

- Enable socio-cultural awareness of battlespace
- Exploit growing availability of open social data streams
- Improve event forecasting & response
- Improve operations planning & execution



21st Century battlespace is social and cyber, as well as kinetic and geographic

- **Warfighters act as diplomatic ambassadors**
- **COCOMs create Lines of Operations to develop local popular support for forward basing and over flight**
- **Intel teams monitor for indications of near term cyber or terrorist attack**
- **Disaster relief teams collaborate with the distressed population to deliver assistance the stabilizes, rather than destabilizes, the region**

Need to develop tools and training to factor social systems into strategic, operational, and tactical decisionmaking

Social dynamics increasingly influences command decision making

As *adversarial forces* counter traditional warfare plans, local populations counter *irregular warfare* plans

"Irregular Warfare… is characterized as a violent struggle among state and non-state actors for ***legitimacy and influence over the relevant population(s)"***

- Joint Pub 1 "Doctrine for the Armed Forces of the United States

Need to develop tools and training to factor social dynamics into Course of Action planning and execution

Objective: Enabling Socio-Technical Competence*

Socio-technical competence is the capability to

- construct a real-time understanding of a situation
- construct and carry out a plan of action,
- while leveraging real-time, dynamic information about the possible and likely behavior of others, the likely counter-action and the challenges one faces

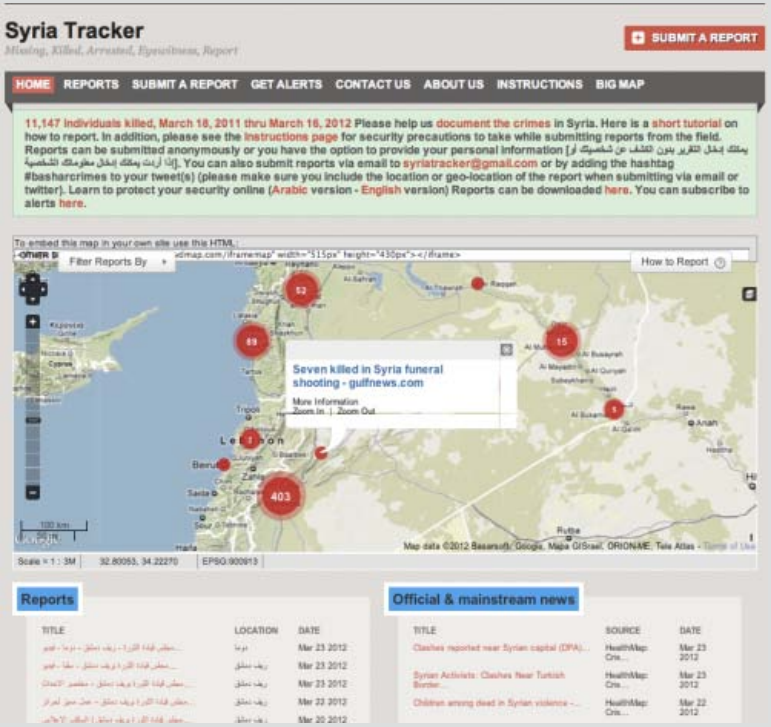
Sept 2010 - PACOM Public Affairs Officers participating in Pacific Endeavor humanitarian communication workshop with Pacific Rim nations

The term and definition of Socio-Technical Competence is borrowed from Dr. Rebecca Goolsby, ONR "On Socio-Technical Competence: What Combatant Commands Need to Manage and Adapt to the New Information Ecology" (Draft)

Hard Technical Challenges

Visualize real-time and baseline social data accurately and reliably within an operational context that enables rapid assessment and effective planning

- ***Develop decision and training aids*** that provide a technical and intellectual framework for integrating social data within command decision making
- ***Develop software architectures and analysis workflows that enable a Social Common Operational Picture*** for synchronization and collaboration cross Joint, Coalition, US Gov, NGO, & civilian lines
- ***Detect, forecast, and monitor operationally relevant social behavior and behavior drivers*** *through non-traditional INTs and collaborations*

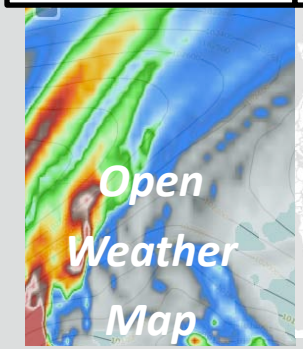


SyriaTracker.Crowdmap.Com

Meeting operational demands for a capability that integrates social factors into command planning, synchronization, and assessment: "Social COP"

Access to global social data streams is growing quickly

Geographic	Event Data	Crowd & Traditional Reporting
Roads & Buildings	Natural Disasters	Text "micro-posts"
Weather / Health	Social, Political, Military, Economic	Imagery & Video



Twitter, YouTube, Pheed, CNN, Al Jazeera..

Human Security - Data Sourcing Organizations

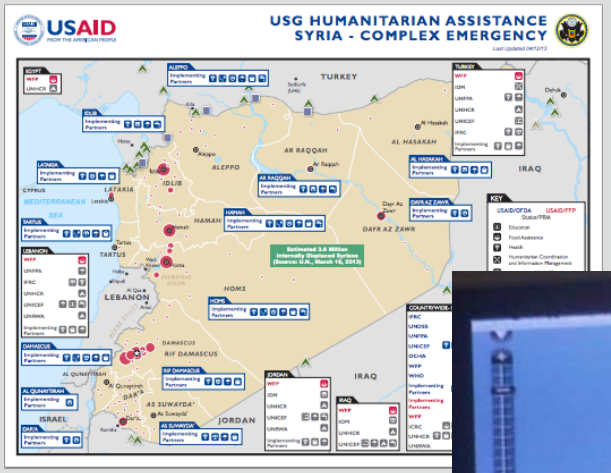
apan

WWHGD

Humanitarian Information Unit

DH Network
Digital Humanitarian Network

Decision display case studies accumulating



Syrian Civil War

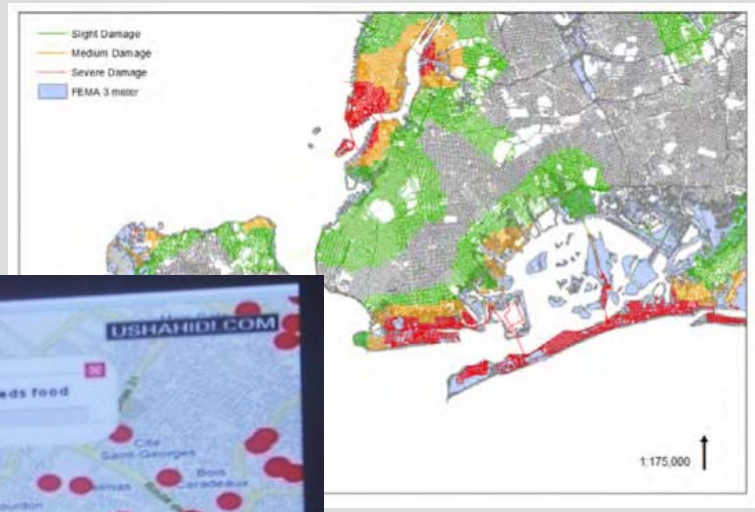
Crowd-reporting & HealthMap integration & datamining

USAID, SyriaTracker

Haitian Earthquake

Crowd reporting & crowd-sourced map production

OpenStreetMap, Ushahidi, & Mission 4636



Hurricane Sandy

Crowd-reporting & remote sensing data

Penn State & National Center for Atmospheric Research

Development of Social COP displays depend on

data integration, data mining, visualization & human-in-the-loop workflows to deal with velocity, volume and veracity….but also viewpoint

Can Open Data Be Trusted?

- **Can the DoD use open data streams for command decision-making?**
  - Sources are can be biased or deliberately deceptive
  - Language translation and internet penetration issues
  - Cultural interpretation errors
  - Dependence on non-US government controlled assets

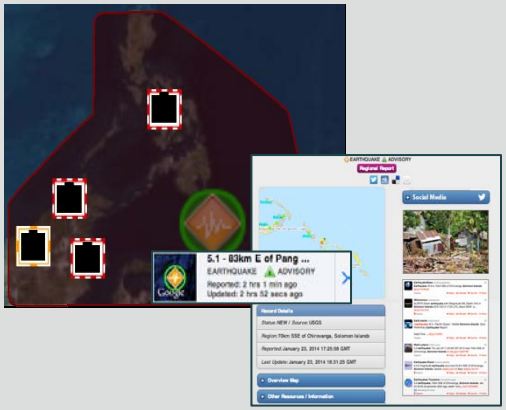
We can use these sources as means of identifying and collaborating with individuals, communities, and organizations that share overlapping goals.

This entails a shift to a ***globalized production of social-sensor data***

while ***we maintain control of the analysis workflow***

and information fusion process

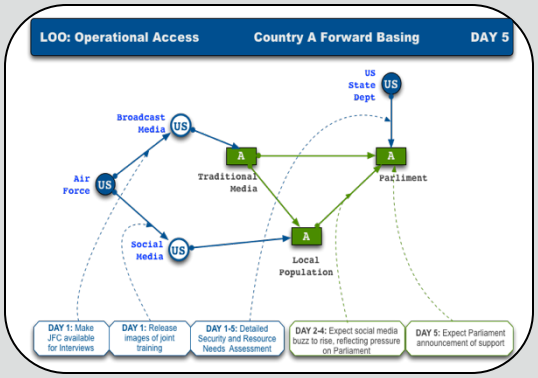
Examples of DoD R&D in this space



HADR & Critical Infrastructure Disaster Vulnerability Estimation

User-controlled fusion workflows that integrate DisasterAWARE reports, crowd-reporting, & OpenStreetMap

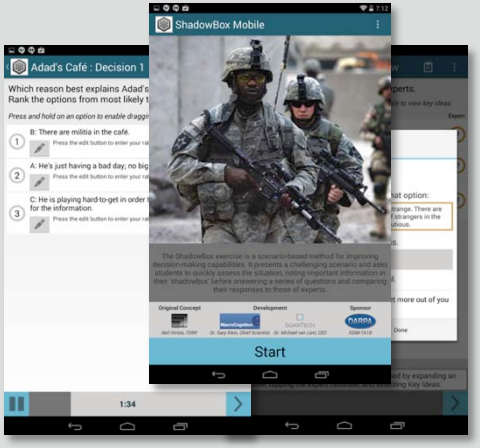
SoarTech, NCSU, PDC
OSD/ARL Funding



DIME Line of Operation Planning, Monitoring and Assessment

SocialCOP based on power/influence relationships and integrating GDELT social events

SoarTech
AFRL (In Review)



Cultural Engagement Decisionmaking Trainer

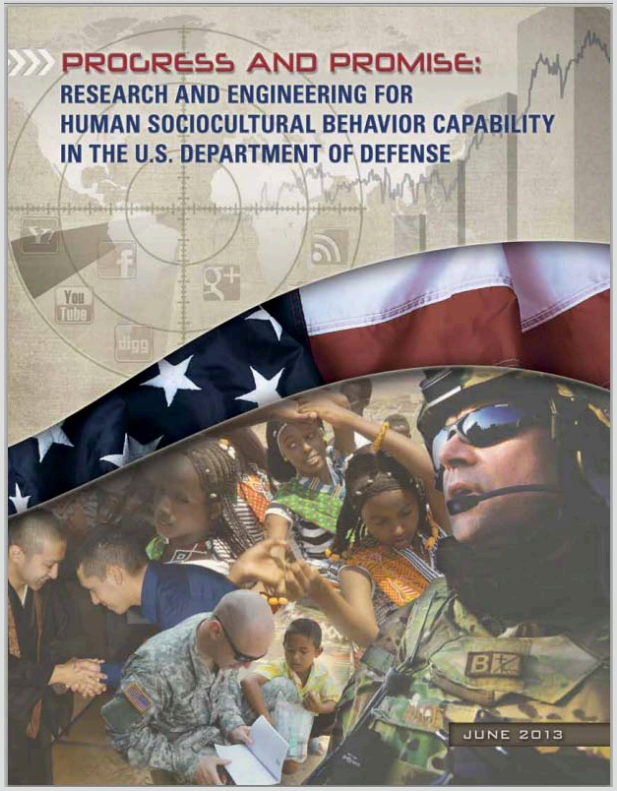
Mobile and desktop trainers for cross-cultural engagement and decision-making

SoarTech, MacroCognition
DARPA

Progress and Promise: Research and Engineering for Human Sociocultural Behavior Capability in the U.S. Department of Defense

http://www.mitre.org/publications/technical-papers/

- Progress and Promise is an update on defense-sponsored sociocultural behavior modeling research and engineering from 2008 through 2013.
- Prepared by The MITRE Corporation in its role as systems engineer for the Office of the Secretary of Defense (OSD) Human Social Culture Behavior (HSCB) Modeling Program.
- Summarizes major initiatives across DoD and highlights accomplishments and impacts of relevant programs and projects.
- Discusses current and expected future national security challenges.
- Outlines a longterm vision for sociocultural behavior capabilities, identifies research thrusts to enable those capabilities, and offers programmatic recommendations to move forward.



Recent Release

Conclusion

1. Commanders are developing LOOs that require understanding of social environments within their AORs

2. Open social data is growing rapidly & progress is being made in the behavior modeling and data mining, retrieval and fusion

3. Demonstrator case studies are pointing toward command decision-making applications of this data

4. Need to develop command decision and training aids, information management architectures, analysis workflows, and communication methods

5. Need enable *socio-technical competence* at the command level

SOARTECH

Modeling human reasoning.
Enhancing human performance.