HSCB

HUMAN SOCIAL CULTURE BEHAVIOR MODELING PROGRAM

FEATURE — FOCUS 2011

Please plan to attend the Human Social Culture Behavior (HSCB) Modeling Program Focus 2011 Conference: Integrating Social Science Theory & Analytic Methods for Operational Use. This is the third in a series of technical exchange meetings hosted by the Office of the Secretary of Defense (OSD) HSCB Modeling Program. The meeting will be held from 8-10 February 2011 at the Westfields Marriott Hotel, near Dulles Airport, in Virginia. Attendance is open to the public and will include a conference fee. We encourage members of the research and development communities, transition organizations, and end-users to participate and submit presentation proposals.

The goal of this meeting is to showcase research and applications in the general HSCB modeling area and to engage OSD HSCB Modeling Program personnel as well as leading scientific and technical experts working in HSCB related fields in a technical exchange. A specific focus of this conference will be to promote communication between the development and user communities and to facilitate the transition of HSCB capabilities into operational use. In addition to personnel from the OSD HSCB Modeling Program, representatives from both DoD and other Government agencies are expected to attend and showcase their programs in this area. This includes representatives from the Office of Naval Research (ONR), Combating Terrorism Technical Support Office (CTTSO), Defense Advanced Research Projects Agency (DARPA), Defense Threat Reduction Agency (DTRA), Joint Improvised Explosive Device Defeat Organization (JIEDDO), Defense Intelligence Agency (DIA), Intelligence Advanced Research Projects Agency (IARPA), Department of State (DOS), Department of Homeland Security (DHS), the Office of the Director of National Intelligence (ODNI), the Federal Bureau of Investigation (FBI), and the National Science Foundation (NSF). Researchers and developers from industry, academia, and government labs, including current HSCB program awardees, are invited to present their work and ideas related to HSCB technologies. Additionally, representatives from end-user communities within DoD and elsewhere in the U.S. Government are strongly encouraged to present requirements, use cases, and challenge problems to the community. ◆

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Welcome

Welcome to the Fall 2010 issue of the HSCB newsletter. As of July, the BioSystems Directorate, in the OSD Defense Research and Engineering (DDR&E) Research Directorate, has been renamed the Human Performance, Training, and BioSystems (HPT&B) Directorate. The HPT&B Directorate has purview over the defense technology areas of human performance, medical, human-machine systems, training, civil engineering, environmental quality, and chemical and biological defense. An update in organizational structure accompanied the renaming of the Directorate, such that Dr. Ivy Estabrooke now holds the title of Assistant Director for Human Social, Culture, and Behavior Technologies as the OSD HSCB Modeling Program's Deputy Program Manager.

The summer issue of this newsletter presented a series of feature articles on the importance of data in this field. In this edition, we continue the discussion of HSCB modeling methodology and applications with feature articles on how mission planning might be accomplished using HSCB Modeling Program sponsored technologies. Dr. Michael Gabbay (University of Washington) describes potential operational uses of rhetoric-based modeling of insurgent networks, while Mr. Ed Waltz (BAE Systems) discusses the influence of HSCB analytic support on planning. This edition also highlights the new DDR&E Systems Engineering capstone initiative and contains a feature article discussing the Comprehensive Approach to operations and HSCB methods, models, and tools for solutions. We also continue to spotlight a DoD-sister program, with this edition's focus on the Minerva Initiative.

As the HSCB Modeling Program continues to grow, so does our ability to showcase our work and provide opportunities to interact with colleagues in the field. This edition describes such events and provides information on upcoming meetings in 2011. In July, we had an excellent turn-out at the First International Conference on Cross-Cultural Decision Making in Miami, Florida, which ran jointly with the Third International Conference on Applied Human Factors and Ergonomics. In September, the HSCB Modeling Program held its first annual Capabilities Open House in Arlington, Virginia, which showcased some of its accomplishments to stakeholder invitees from the US military and government. In February 2011, we will hold the HSCB Focus 2011 conference in Chantilly, Virginia. On pages 14 and 15 of this newsletter you will find detailed information on this technical conference, including the registration website and guidelines for abstract submission.

I look forward to seeing you at FOCUS 2011.

www.sa-meetings.com/hscbfocus2011

CAPT Dylan Schmorrow, MSC, USN, PhD
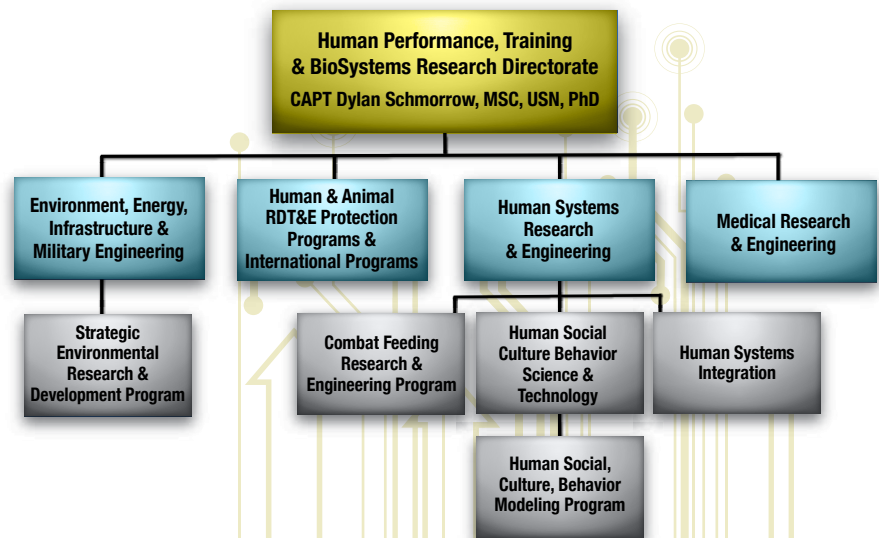*Acting Director, Human Performance, Training, and BioSystems Research Directorate*
Office of the Director, Defense Research & Engineering
Office of the Secretary of Defense

ORGANIZATIONAL CHART — HUMAN PERFORMANCE, TRAINING, AND BIOSYSTEMS (HPT&B)

As of July 2010, the Human Performance, Training, and BioSystems (HPT&B) Directorate, formerly the BioSystems Directorate, has a new organizational structure. Dr. Ivy Estabrooke has been named the HPT&B Assistant Director for Human Social, Culture, and Behavior Technologies. Dr. Estabrooke now also holds the title of Deputy Program Manager for the OSD HSCB Modeling Program. As such, she is now able to represent OSD and is responsible for supporting broader coordination of the HSCB Modeling Program portfolio on behalf of CAPT Schmorrow, Program Manager of the OSD HSCB Modeling Program.

Human Performance, Training & BioSystems Research Directorate
CAPT Dylan Schmorrow, MSC, USN, PhD

- Environment, Energy, Infrastructure & Military Engineering
  - Strategic Environmental Research & Development Program
- Human & Animal RDT&E Protection Programs & International Programs
- Human Systems Research & Engineering
  - Combat Feeding Research & Engineering Program
  - Human Social Culture Behavior Science & Technology
    - Human Social, Culture, Behavior Modeling Program
  - Human Systems Integration
- Medical Research & Engineering

FEATURE / DDR&E'S SYSTEMS ENGINEERING CAPSTONE INITIATIVE

The Office of the Director, Defense Research and Engineering's (DDR&E) Science, Technology, Engineering, and Mathematics (STEM) Development Office (SDO) focuses on education and outreach to inspire, develop, attract, and retain highly-qualified and diverse STEM talent to meet the Department of Defense (DoD) and the nation's current and future scientific and technological challenges. The SDO provides leadership for STEM education and outreach at the Department, and aligns its efforts with the DDR&E imperatives (see sidebar). The 2010 STEM Education and Outreach Strategic Plan is championed by the Honorable Zachary Lemnios (Director, DDR&E) and describes a DoD-wide roadmap with four goals: *Inspire, Develop, Attract*, and *Deliver*. To contribute to the *Develop* goal, DDR&E called for the SDO to create the Systems Engineering (SE) Capstone Pilot Initiative, in partnership with the Systems Engineering (SE) Directorate's DoD-funded Systems Engineering Research Center (SERC).

The SERC is the first DoD University Affiliated Research Center focused on systems engineering; its mission is to enhance DoD's systems engineering capabilities to develop, integrate, test and sustain complex defense systems, services and enterprises.

In May 2010, the SERC issued a call for proposals from its collaborators to infuse DoD content in SE undergraduate curricula, particularly in the senior-level SE Capstone Project course required for graduation. This effort, the SE Capstone Initiative, awarded funding to eight civilian and six military educational institutions. These institutions will build DoD focus and topics into SE undergraduate and graduate curricula. This enables students to address real-world DoD problems. SE Capstone projects engage students in one of four DoD focus areas (see sidebar.)

Funded institutions met in August for a kick-off meeting during which the Honorable Zachary Lemnios, Dr. Laura Adolfie (Director, STEM Development Office), and Dr. Don Gelosh (Deputy Director, Workforce Development) shared their vision for systems engineering and workforce development. Each of the focus area leads presented overviews and ways in which they envision the SE Capstone Initiative solving DoD problems. The institutions met with focus area leads and the DoD subject matter experts who will serve as mentors to the students. Students will also receive mentoring from the Department's civilian and military systems engineers as well as industry representatives.

The SE Capstone students will spend one or two semesters addressing their DoD-defined SE focus area, applying SE competencies, developing work plans, solving engineering problems, and working with their DoD mentors. At a planned workshop in July 2011, participants will share outcomes, lessons learned, and best practices that will inform the SDO and the SE Directorate of the strengths and weaknesses of the piloted model.

To learn more about the STEM Development Office and its programs, visit http://www.acq.osd.mil/rd/organization/stem.html ♦

DDR&E Imperatives

- Accelerate delivery of technical capabilities to win the current fight
- Invest in people and ideas to prepare for an uncertain future
- Reduce the cost, acquisition time and risk of our major defense acquisition program
- Develop world class science, technology, engineering, and mathematics capabilities for the DoD and the nation

DDR&E SE Capstone Participants

Stevens Institute of Technology

Auburn University

Missouri S&T University

Pennsylvania State University

Southern Methodist University

University of Maryland

University of Virginia

Wayne State University

Naval Postgraduate School

Air Force Institute of Technology

United States Air Force Academy

United States Coast Guard

United States Military Academy

United States Naval Academy

Selected Defense Focus Areas

Computer Science Capabilities DDR&E Lead
Dr. Michael May

Expeditionary Operations Capabilities DDR&E Lead
Mr. Michael Knollman

Green Expeditionary Housing Capabilities DDR&E Lead
Dr. Jack Price

Immersive Training Capabilities DDR&E Lead
CAPT Dylan Schmorrow

By Ed Waltz

[The views expressed in this publication are my own and do not imply endorsement by the Office of the Director of National Intelligence or any other U.S. Government agency.]

The United States conducts strategic shaping activities with the intent to promote peace, stability and partnership with other nations. The AFRICOM Posture statement, for example, emphasizes the US shaping role on the African continent by helping African militaries promote security and stability, while confronting transnational threats. An important element of Department of Defense (DoD) planning in this region includes understanding the many influences (internal and external) on a country and the effects of words and actions through the Department of State, USAID, AFRICOM, and African and other international partners.

Planning Support in Complex Environments

Planning actions that support sustainable democracies, enhance economic growth, increase access to education and prevent armed conflict inherently require deep understanding of the human social and cultural behavior in foreign societies. The HSCB Planning, Research and Intelligence Scalable Modeling System (PRISM) project is developing end-to-end tools to support a range of DoD planners to understand the complex human situations in these countries, and to understand the influence of words and deeds and how they will be perceived by foreign audiences. The contribution of PRISM is twofold:

- Support situation analysis in the Joint Intelligence Preparation of the Operational Environment (JIPOE) analytical process used by joint intelligence organizations to produce intelligence assessments, estimates, and other intelligence products. JIPOE is a continuous process that includes defining the operational environment, describing the effects of the operational environment, evaluating adversaries, and determining and describing potential adversary courses of action (COAs).

- Support the Joint Operations Planning Process (JOPP) that *plans* joint operations to include, for example, USAID economic aid, Department of State public diplomacy, and military training activities to counter adversary COA's.

The development of HSCB models in the JIPOE process provides a simulation that may then be used by planners in the JOPP process to evaluate candidate plans.

PRISM Hybrid Model Development and Support to Planning

At the core of PRISM is a hybrid model engine that integrates data and models that represent the structure and dynamics of a foreign social cultural Area of Responsibility (AOR). A hybrid model may consist of empirical and theoretical models of economic, social, political and violent behaviors. These models can operate in concert, or in parallel to provide alternative perspectives of a given situation. There are many existing models and The Office of the Secretary of Defense is developing a range of such models that can be integrated in the PRISM architecture. The models can be continually updated by recent data in the AOR, allowing users to track trends in data and compare results from empirical and theoretical-based model predictions of potential outcomes of planned US (and potential adversary) COAs.

The PRISM Concept of Operations is Illustrated in Five Steps (See Figure 1 on page 5):

1. PRISM monitors and collects HSCB-relevant data sources for the AOR, translating and extracting foreign video, unstructured web text and structured data sources to build a knowledge base for the AOR. The knowledge base is indexed and accessible by reach-back social scientists and in-theater J2 and J5 users; a set of tools allow off-line data analysis.

2. Selected data are processed by PRISM services to track key actors and trends (e.g. economic, political rhetoric and competition, security indicators and violent events, social attitudes and sentiment toward major actors, etc.) on a daily basis. To support validation, these data provide a rolling update for the hybrid models and enable model projections to be continually compared to actual trends.

3. Current empirical data define the conditions for the hybrid model to represent the structure of the current situation (e.g. the structure of political power in descriptive models) and simulate the important HSCB dynamics of the AOR.

4. Based on the assessment of the situation, planners represent a whole-of-government COA in the PRISM planning interface; the COA includes the time scheduled actions across Lines of Effort of the United States, United Nations and other allies (e.g. economic actions by USAID; public diplomacy actions by the Department of State; security training by DoD, etc.). The planners can also explore the effects of conceptual adversary actions to destabilize governance and reduce economic strength.

5. Planners apply these COAs to the hybrid simulation models to forecast the range of effects that may result from the planned actions. These simulation forecasts of outcomes are exploratory in nature (war gaming of non-kinetic activities) and allow the analysts to understand the complex environment, develop indicators of effects, and refine plans based on quantitative analysis.

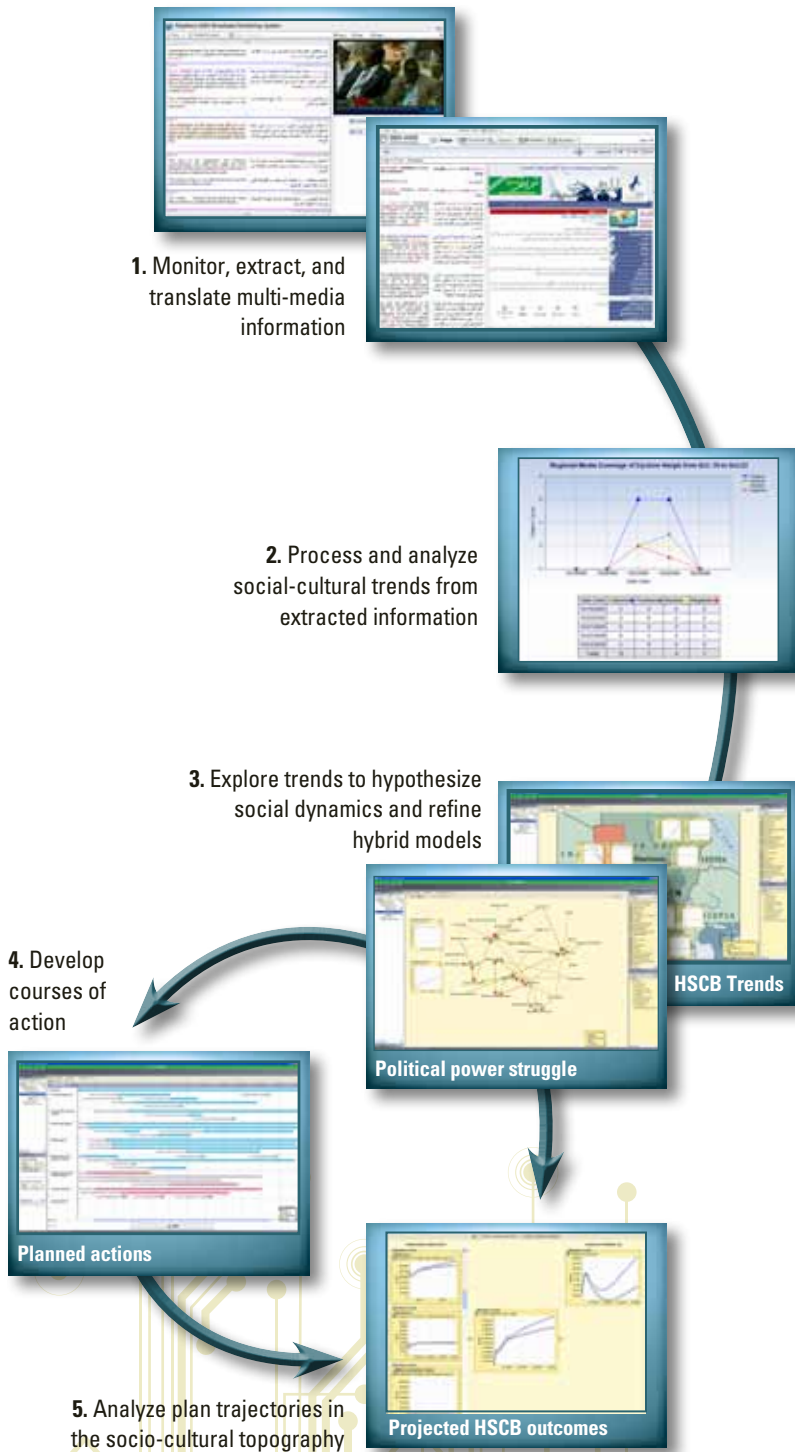## PRISM Support to Intelligence and Planning

PRISM provides a common dynamic representation of complex environments by integrating explicit models of foreign social structures, political structures and their cultural settings. Having such a common representation provides a mechanism for intelligence and planning activities to collaborate:

- PRISM supports the J2 as it monitors the dynamics of internal conflict and political power struggles, as well as the influence of outside actors on an AOR; it provides a means to explicitly represent the AOR and conduct JIPOE dynamic analyses.

- PRISM supports the J3 to develop and assess strategic plans that integrate the activities of various interagency activities appropriate for shaping operations in complex environments. ♦

Reference

USAFRICOM, 2010 Posture Statement, March 2010.

The White House, *Comprehensive Interagency Strategy for Public Diplomacy and Strategic Communication of the Federal Government*, 16 Mar 2010.

Department of Defense, *Report on Strategic Communication*, December 2009.

Department of State, *Quadrennial Diplomacy and Development Review*, Sept 2010.

Dept. of State, *Public Diplomacy: Strengthening U.S. Engagement with the World, A strategic approach for the 21st century*, Office of the Under Secretary of State for Public Diplomacy and Public Affairs, 2010.

Joint Chiefs of Staff (2009) Joint Publications (JP) 2-01.3, *Joint Intelligence Preparation of the Operational Environment*, 16 June 2009.

Waltz, Ed, "Anticipatory Intelligence Analysis: Integrating Multiple Models for Joint Intelligence Preparation", *Proc. of IEEE conference on Intelligence Security and Informatics; Workshop on Predictive Analytics for Intelligence Security Applications*, May 2010.

1. Monitor, extract, and translate multi-media information

2. Process and analyze social-cultural trends from extracted information

3. Explore trends to hypothesize social dynamics and refine hybrid models

HSCB Trends

4. Develop courses of action

Political power struggle

Planned actions

5. Analyze plan trajectories in the socio-cultural topography

Projected HSCB outcomes

Figure 1. The PRISM Concept of Operations is Illustrated in Five Steps

POTENTIAL OPERATIONAL USES OF RHETORIC-BASED MODELING OF INSURGENT NETWORKS

By Dr. Michael Gabbay

The primary goal of this project is to utilize insurgent rhetoric as a data source for the development of computational models of insurgent decision making and behavior. Although it is now recognized as a matter of doctrine that insurgencies are fundamentally *political* struggles, there has not been a commensurate effort to systematically understand, model, and exploit what is the central political observable of the adversary – its rhetoric. This project seeks to redress this imbalance by developing a theory, mathematical formulation, and computational simulation of three components of rhetoric that are key components of insurgent strategic decision making: (1) how they frame the conflict - how they represent "sides" in a conflict; (2) their targeting claims – who claims responsibility for which events; and (3) their declared relationships – who they publicly cooperate with.

Intelligence analysis and operations analysis/planning will be the broad application areas of the methods and models developed in this project. Improved awareness of, and the ability to forecast these rhetoric components will enable better anticipation of dynamics such as the interplay between insurgent strategic use of violence and rhetoric, cooperation and alliance formation among insurgent groups, and inter-insurgent rivalries and rifts. As an example of the importance of such phenomena, Sunni Nationalist insurgent groups in Iraq were faced with a difficult decision in late 2006 – whether or not to ally with Al Qaeda in Iraq (AQI) – after AQI declared the Islamic State of Iraq in a bid for dominance of the Sunni insurgency. Of pivotal concern was the Islamic Army in Iraq (IAI), the largest Nationalist group which shared a common Salafist religious orientation with AQI and cooperated closely with them early in the insurgency. The IAI's decision to lead the Nationalists in opposition to AQI facilitated the rapid expansion of the Sunni Awakening movement that seriously degraded AQI and ultimately led to the dramatic drop in the level of violence in Iraq.

There are two distinct but related outputs of this research which could be used to aid situation awareness with respect to insurgent behavior: (1) data representation and visualization methods for insurgency factional structure as gleaned from their rhetoric; (2) models of the evolution of that structure as a function of inter-insurgent dynamics and changes in the strategic environment. Using Sunni insurgent rhetoric from Iraq during the period from August 2005 to April 2007, Figure 1 shows a "factional map" representation of insurgent structure which integrates measures of policy or ideology, cooperative relationships, and overall influence. The green nodes are Jihadist Salafist groups like AQI and the red nodes are Nationalists. Along the horizontal axis is targeting policy which essentially measures how legitimate a given group's targeting practices are with reference to the whole ensemble of insurgent groups. A lower score means less legitimacy and AQI, having the most controversial targeting claims, appears at the low end of the spectrum. The vertical axis shows the prominence of insurgent groups as measured by the frequency with which a given group is referred to
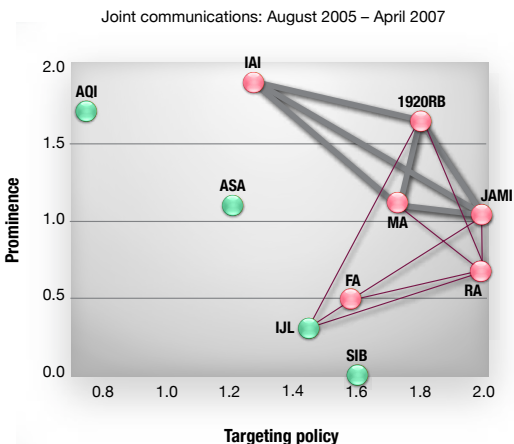

Joint communications: August 2005 – April 2007

**Figure 1. Factional map of Iraqi Sunni insurgent groups**

by the other groups. The thickness of the lines between a pair of groups is proportional to the number of joint communiqués they sign together and hence is an indicator of relationships at the leadership level. The figure shows the IAI as the most prominent group. Consideration of IAI's position in the middle of the targeting policy space might have led to the conclusion that it was equally likely to have allied with either AQI or the other Nationalists. However, observing that its leadership links are all with Nationalists, and furthermore that the major Nationalist groups were all linked with each other, signifies that the balance was probably tipped in favor of the IAI's cooperating with the other Nationalists rather than allying with AQI.

Models of the evolution of insurgent network structure could alert analysts to impending shifts in insurgent dynamics. One component – a model of (claimed) joint operations between insurgent groups – has been developed. Simulation results show reasonable agreement between the observed and simulated networks[1]. With respect to operations planning, an ability to forecast the evolution of the joint operations network will allow for an assessment of how, for instance, efforts to sow discord among insurgent groups may affect tactical cooperation across the insurgency as a whole, which in turn impacts technology transfer, allegiance shifts, and ultimately the efficacy of insurgent operations. The data-centric modeling approach being pursued in this project makes possible the quantitative assessment of model accuracy, which is necessary for the development of a true forecasting capability. Furthermore, in addition to improving analysis and anticipation of insurgent behavior, model results could be fed into decision support software designed to evaluate the desirability of various courses of action. ♦

Reference

1. M. Gabbay and Thirkill-Mackelprang, A., "Insurgent Operational Claims and Networks," paper presented at the annual meeting of the American Political Science Association, Washington, DC, Sept. 2010.

FIRST INTERNATIONAL CONFERENCE ON CROSS-CULTURAL DECISION MAKING

The first International Conference on Cross-Cultural Decision Making (CCDM), took place in Miami, Florida on 17-20 July 2010, in conjunction with the third annual Conference on Applied Human Factors and Ergonomics, at the InterContinental hotel. The conference was co-chaired by CAPT Dylan Schmorrow and Dr. Denise Nicholson (DSCI, Inc.), and served to introduce academic researchers to the modeling and research opportunities funded by the Department of Defense, and specifically those within the Human Social Culture Behavior (HSCB) Modeling Program. Over the course of the four-day event, representatives from academia, government, and industry delivered over fifty presentations on topics ranging from training and modeling decision making, to applications and multi-model computational techniques.
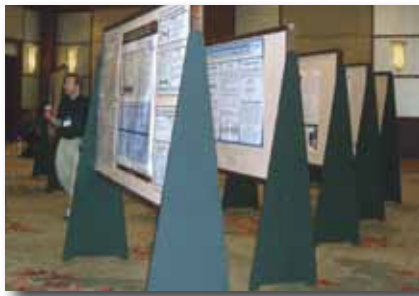
In addition to the presentations, the conference gave attendees the opportunity to interact with one another, view research posters, and engage with HSCB Modeling Program performers at their respective exhibits. At the HSCB Modeling Program's booth, visitors were able to view a short video highlighting some of the HSCB projects: Carnegie Mellon University's computational architecture for HSCB models, Los Alamos National Laboratory's agent-based model on the opium supply chain, Arizona State University's research on terrorist narratives and counter-narratives, the University of Chicago's modeling of strategic contexts project, and VCOM3D's plug and play cultural avatars work. Visitors to the HSCB exhibit were also able to learn about the benefits and opportunities involved with working with the Department of Defense. For example, interested visitors (researchers and modelers) were educated on how to apply for Department of Defense funding through response to a Broad Agency Announcement (BAA). The exhibit attracted broad interest from conference attendees.

Another exhibit related to the HSCB Modeling Program was the University of Central Florida's AVATAR program, funded by the Office of Naval Research (ONR). AVATAR is an interactive role-playing tool that uses the digital puppeteering of characters to acquaint the user with a foreign culture. Through simulation, the user is able to interact with Afghan locals, which helps to create a better rapport for military and diplomatic purposes. The particular simulation shown at the exhibit uses three local Afghans as characters, who are brought to virtual life by a subject matter expert (SME) who is out of sight of the user. The user is tasked to gain specific information from the characters and AVATAR aids the user in how to interact in the cultural scenario. Currently, AVATAR has the ability to focus on two cultures – Afghanistan and urban New York City. The military can use this one-on-one system to train for specific situations as well as to train both language and negotiation skills. The tool uses infrared cameras as well as sensors and markers on the SME's hands and head to create the character motion. More specifically, facial emotions are created using a Wii remote and by nunchuck motions while sensors on the SME's glove open the character's mouth. The SME at this demonstration, Jeff Wirth (Institute for Simulation and Training at the Applied Cognition & Training in Immersive Virtual Environments (ACTIVE) Lab at the University of Central Florida), created a background story for each of the Afghan characters before the technology was created.

Session Highlights

This section highlights many of the CCDM sessions, summarizing briefings that were delivered on studies, tools, and/or models.

Use Cases of Cross-Cultural Decision Making

This session focused on surveying cultures to learn what shapes specific behaviors. The first presentation discussed developing a multidisciplinary ontology, noting ethnographic field research will require a need for common terms and semantics. Another briefing focused on analyzing disaster experience using text mining. One central question being addressed by this project is whether it is possible to change a group attitude during a disaster. Dr. Ed MacKerrow of Los Alamos National Laboratory presented his program on simulating the Afghanistan-Pakistan opium supply chain, which looks at what drives locals to grow opium instead of wheat and other crops in Afghanistan. The challenge in this program is to use survey data and narratives, with a desired outcome of creating an economic simulation.

Socio-Cultural Models and Decision Making

Dr. David Sallach of the University of Chicago described culture as being constructed from intertwined rules and resources,

FEATURE / FIRST INTERNATIONAL CONFERENCE ON CROSS-CULTURAL DECISION MAKING

HUMAN SOCIAL CULTURE BEHAVIOR MODELING PROGRAM

which creates boundaries, and forms a coherent network. Dr. Sallach's team is looking at how these networks are used. Dr. Ed MacKerrow discussed cultural intelligence support for military operations. He is focused on understanding tribal cultures to reduce armed conflict between tribes. Another presentation focused on geospatial campaign management for complex operations. A team at Milcord is building both decision support tools and a decision hierarchy for this program. They are focused on overlaying sources of instability with intelligence analysis on a map. Charles River Associates is focusing on operator trust in HSCB models and is using techniques from cognitive systems engineering. They begin with experienced operators (users) and use the information gained to learn operational work-flow and then re-create it for regular users.

Cultural Models for Decision Making

Dr. Lisa Costa presented an evidence-based framework for decision making in culturally complex environments, describing a previous strategic assessment on Sudan which looked at diplomacy, intelligence, military, and economic (DIME) influence, while minimizing the military aspect. The main objective was to create a series of tactics, techniques, and procedures that both CENTCOM and AFRICOM could repeat in future scenarios, to assess how to use different data sources, model information, and sensitivity analysis. The team made six recommendations and identified the types of quantitative and qualitative models needed, developed and analyzed hypotheses to create a set of DIME actions, and then returned to the field. Glenn Taylor of SoarTech discussed modeling culture and persuasion by creating messages relevant to specific populations using computational models. SoarTech created a cultural cognitive architecture (CCA), which assesses situations by displaying a hierarchical value map to show what works within a given population. Following this was a presentation by Dr. Winston Sieck of Applied Research Associates, on the method and application of cultural network analysis, centered on decision making. He has created a mental-model survey to look at expectations in a given population, which he then analyzes to find cultural groups, which he then maps against demographics to find a way to facilitate multicultural collaboration.

Cross-Cultural Competence

Many of these presentations discussed general cultural competence and the importance of cultural adaptation for warfighters. Mr. Mike McCloskey, of 361 Interactive, discussed modeling and assessing cross-cultural competence in operational environments, with his objective being to predict a soldier's likelihood for success, regardless of where he is deployed, using a computer based assessment tool. Next, Dr. Allison Abbe described how to identify and assess a schema for general cultural understanding. She is using a concept mapping technique with a focus on identifying a soldier's knowledge structure. The end result can help determine who will be more adaptive

in foreign cultures. Next, the group heard a presentation about using cultural models of decision making to develop and assess cultural sense making competence, which looks at how models based on specific cultures can be used to make cultural-general models. The group is researching what cognitive and meta-cognitive skills are needed. Using interviews and surveys, the team was able to develop cultural models, which can now be used to target knowledge training. Elaine Raybourn of Sandia National Laboratories gave a presentation on designing games to assist in developing and assessing intercultural adaptability.

Applications of Human, Social, Culture Behavioral Modeling Technology

Dr. John Boiney opened this session with a presentation on the challenges that characterize the Comprehensive Approach to operations (CA), and the potential value of human social culture behavior modeling to ameliorate those challenges. The presentation included an overview of some of the major US-developed tools that could be brought to bear on CA problems. Dr. Boiney concluded with a discussion of the most persistent computational modeling challenges, including: the need for a strong basic research foundation; effective, valid hybrid modeling; having transparency into models; and the validation of socio-cultural behavior models. Next was a presentation by NSI on theory, data and integration across multiple levels. NSI has developed a hybrid model of ethnic conflict, instantiated for several states in India. The presenter also described political incentive theory, which takes organized actors to tip violence into action. Next, Julie Rosen from SAIC discussed cultural decision making through aggregate models of human behavior. She focused on the need to address four core areas: dynamic data acquisition, extensible real-world HSCB models, reasoning methods that account for precision and ambiguity, and visualization methods that emphasize the decision maker's environment. Her team recently did a case study on post-earthquake Haiti, in which they looked at different methods of granularity to learn about resource planning. Following this

presentation, Dr. Mark Maybury from MITRE discussed the concept of "social radar," an analogue to conventional radar that would support the ability to scan an environment, detect signatures of interest in terms of socio-cultural behavior, and track their dynamics. Dr. Maybury noted that there is a good deal of available technology and data to operationalize the social radar concept, but much work remaining to define indicators, conduct basic and applied research, and integrate those technologies that are available. Fully realized, a social radar capability would inform computational modeling of sociocultural behavior and lead to a better understanding of actions and reactions that would guide diplomats and other decision makers. Concluding this session, Mr. Mark Sparagan from the University of Southern California discussed informational channels in Massive Multiplayer Online Game (MMOG). The framework uses an empirical game science that goes beyond game theory and in so doing allows players to adopt culturally sensitive strategies to achieve a goal. In the game, a human player has limited knowledge, and each decision the player makes leads to a different outcome. Self-interested agents can alter their strategies, develop and adapt, and punish and reward based on social norms. The MMOG has character and scene authoring tools and is also customizable for non-kinetic operations such as nation-building and humanitarian assistance.

Cross-Cultural Decision Making: Training

In addition to presentations on training tactical decision making under stress in cross-cultural environments and developing a decision making training tool, Alan Spiker from Anacapa Sciences, and Joan Johnston of the Naval Air Warfare Center Training Systems Division, gave a talk about using behavioral science principles to train small unit decision making. Another briefing looked at mixed reality training for small units. The team is seeking training solutions that will teach adaptability to chaos. Adaptive small units must visualize the future, recognize patterns, and shape operations. Webb Stacey, from Aptima, spoke about authoring by cultural demonstration and the importance of keeping cultural information current in a game-based environment. His game-based approach to authoring instructional, interactive, cultural scenario is based on warfighter experience. In it, warfighters record a story from being on patrol and then record actual events to create a 3D representation. They then generalize the interactions to build a virtual village. The game is intended for warfighters to use without special knowledge and it can work with, but does not require, serious game enhancements. Ending the session, Erica Palmer of Pacific Sciences & Engineering presented on the implications of physiological measures of stress for training cross-cultural decision making skills. Their objective is to find quantifiable measures of stress. They are now moving from the lab to a training environment. She concluded by emphasizing that there is a need to think about a training environment and design aspects in it.

Hybrid and Multi-Model Computational Techniques

Keith Gremban presented on a tool from Set Corporation that supports capturing culture and effects variables using structured argumentation. He used a region of Sierra Leone as an example to show how the Socio-Cultural Analysis Tool (S-CAT) uses action-effects models to forecast plausible effects of candidate actions. He also described how to capture knowledge in S-CAT, by first capturing a site model and then identifying groups and locations to see how they relate. It also follows a template which creates a structured argument and can captures culture on the template to then create a cultural profile, where cultural SMEs can then provide reason for conclusion. S-CAT is agnostic to cultural theory, and supports analysis in terms of the DIME and PMESII frameworks. ♦

Over 70 representatives of the Department of Defense, Combatant Commands, US Congress, interagency partners, industry, research laboratories, and academia attended the first annual Capabilities Open House hosted by the Office of the Secretary of Defense and Director, Defense Research and Engineering (OSD/DDR&E) in support of the HSCB Modeling Program. The Open House was held in Arlington, Virginia from 20-21 September 2010.

The Capabilities Open House highlighted the HSCB Program's investment in human, social, culture, and behavior modeling to key DoD and US Government stakeholders in the strategic and operational communities, training institutions, and leadership development programs. The Capabilities Open House showcased the HSCB Program's accomplishments over the past two years and demonstrated emerging socio-cultural technologies.

The Open House was designed to illustrate the diversity and utility of research, computational social science modeling efforts, and advanced software applications developed under the auspices of the OSD HSCB Modeling Program, with a focus on promoting communication between the development and user communities and on facilitating the transition of HSCB capabilities into operational use. Individual performers demonstrated their scientific progress, new technologies, and tools while using the event to obtain additional feedback on operational requirements. The performers briefed stakeholders on the following tools:

- **Automated Discovery of Insurgent Behavior** (University of California-Davis)
- **CANVAS/TYTON** (SPADAC)
- **Competitive Adaptation in Terror Networks** (Penn State University)
- **CultureCom** (Alelo)
- **Enhancing Warfighter Cross-Cultural Awareness** (361 Interactive LLC)
- **Ethnic Conflict, Repression, Insurgency and Social Strife Model-ERIS** (NSI)
- **Extremist Ideological Influences** (University of Washington Applied Physics Laboratory)
- **Identifying and Countering Terrorist Narratives** (Arizona State University)
- **Mining Lessons Learned from the Soviet Experiences in Afghanistan** (Naval Post Graduate School, Stanford University)

- **Modeling Strategic Contexts** (University of Chicago)
- **Pathways – NEXUS, PRISM** (Lockheed Martin, ATL, BAE, BBN, Oculus)
- **Plug & Play Cultural Avatars for Training & Mission Rehearsal** (VCOM3D, SOAR Technology)
- **SAVANT/PowerTool Suite, MIMEO, BBN** (Charles River Analytics)
- **Socio-Cultural Analysis Tool** (SET Corporation, SRI, SAIC)
- **Understanding Relief Social Media** (Lockheed Martin)

The Capabilities Open House demonstrated the significant progress the HSCB Program has made in meeting its mandated objectives:

- Advance understanding of the influence of socio-cultural factors on behavior as it applies to military-relevant contexts and environments, and provide empirically validated theories that can be instantiated in computational models.

- Provide analysis methods, validated computational models, and software to assist warfighters and others in considering socio-cultural behavior factors for analysis, planning, and operations.

- Develop methods and tools for flexible delivery of training of socio-cultural knowledge, skills, and abilities at tactical and operational levels.

- Develop methods and tools for the collection, generation, standardization, integration, and transfer of socio-cultural data for use in computational models and decision support systems.

The progress in achieving these objectives supports the integration of HSCB methods and tools into existing systems to provide the warfighter with improved capabilities to operate in the socio-cultural behavior landscape.

To obtain further information about the Capabilities Open House or any of the HSCB technology efforts, please contact CAPT Dylan Schmorrow (Dylan.Schmorrow@osd.mil) or Dr. Ivy Estabrooke (Ivy.Estabrooke@navy.mil). ♦

Twenty-first century national security challenges reflect the complexity of globalization, including rapidly shifting geopolitical dynamics, increased pace of communication, and unprecedented social change. From climate change to failed and failing states and the rise of violent extremism, from the rise of new powers to ethnic strife, disease, and poverty, the United States will be forced to grapple with a range of new and daunting challenges.

The 2010 Quadrennial Defense Review notes that "today's operating environment demands . . . a greater understanding of the factors that drive social change," and that, therefore, the Department of Defense (DoD) must make investments to "develop the intellectual capital necessary to meet the challenges of operating in a changing and complex environment."

DoD's Minerva Initiative is one of those key investments. The Minerva Initiative is a DoD-sponsored, university-based social science research initiative launched by the Secretary of Defense in 2008, which focuses on areas of strategic importance to U.S. national security policy.

In his April 14, 2008 speech to the American Association of Universities announcing the launch of the Minerva Initiative, Defense Secretary Robert Gates described the need for greater policy-makers' attention to basic research in the social sciences, observing that "too many mistakes have been made over the years because our government and military did not understand – or even seek to understand – the countries or cultures we were dealing with." And, while acknowledging DoD's strong relationship with universities in areas related to national security, he argued that "the government and the Department of Defense need to engage additional intellectual disciplines – such as history, anthropology, sociology…"

Accordingly, the goal of the Minerva Initiative is to improve DoD's basic understanding of the social, cultural, behavioral, and political forces that shape regions of the world that are of strategic importance to the United States. In pursuing this goal, the research program aims to:

- Leverage and focus the resources of the nation's top universities, analogous to the Cold War development of Kremlinology and game theory

- Define and develop foundational knowledge about sources of present and future conflict with an eye toward better understanding of the political trajectories of key regions of the world

- Improve the ability of DoD to develop cutting-edge social science research, foreign area and interdisciplinary studies, that is developed and vetted by the best scholars in these fields

The Minerva Initiative brings together universities, research institutions, and individual scholars, and supports interdisciplinary and cross-institutional projects addressing specific topic areas determined by the Secretary of Defense. Current Minerva research topic areas are:

- Chinese Military and Technology Studies
- Studies of Iraqi Perspectives
- Studies of Terrorist Organizations and Ideologies
- Studies of Religious and Cultural Change in the Muslim World
- National Security Implications of Energy and Climate Change
- New Theories of Deterrence

Projects are currently underway in all of these areas at universities across the country, both in the form of large, multi-university consortia (such as "Mapping the Diffusion and Influence of Counter-Radical Muslim Discourse," led by Arizona State University) and in smaller, more narrowly focused studies (such as "How Politics Inside Dictatorships Affects Regime Stability and International Conflict," led by UCLA and Penn State).

Beyond Minerva's research grants, the Office of the Secretary of Defense partnered with a range of DoD educational institutions in 2010 to launch Minerva Chairs programs at select Joint Professional Military Education schools. Scholars who work on Minerva research topics in fields such as sociology, political science, anthropology, and area studies will be hosted by the schools, and in the process, incorporate social science expertise into strategic levels of study and engagement across the Services and within the Department. Minerva Chairs have already been established at the Army and Navy War Colleges, Marine Corps University, Air University, and National Defense University, and chairs at other military educational institutions are planned in the near future.

In September 2010, National Defense University (NDU) hosted a day-long conference for Minerva grant recipients and the wider community of interest in their research throughout the national security policy community. The event was attended by over 200 people and featured an exciting range of multidisciplinary presentations and discussions. Details on the event, including briefing slides from some of the presentations, are available online at NDU's Center for Technology and National Security Policy (http://www.ndu.edu/CTNSP/index.cfm?secID=21&pageID=2&type=section).

For more information on the Minerva Initiative, you can visit its website at http://minerva.dtic.mil/ or for DoD employees with Common Access Card-enabled systems, you can visit Minerva's site on the Defense Analysis Community Wiki, at https://defensemetawiki.cape.osd.mil/DAC/index.php?title=The_Minerva_Initiative.

By drawing upon the knowledge, ideas, and creativity of the nation's universities, the Minerva Initiative is fostering a new generation of engaged scholarship in the social sciences that seeks to meet the challenges of the 21st century. ♦

FEATURE / THE COMPREHENSIVE APPROACH AND HSCB METHODS, MODELS AND TOOLS FOR SOLUTIONS

By Elizabeth A. Lyon and John Boiney

In the current global security environment, success in complex operations increasingly requires coherent and coordinated engagement across a wide range of national and international stakeholders, what is increasingly known as the Comprehensive Approach to Operations (CA). The CA entails leveraging all instruments of national and international power to achieve unity of effect in contexts such as irregular warfare, counterinsurgency, and stability, transition and recovery efforts. Closely related to frameworks like "whole of government" and "Joint Interagency Multinational and Public (JIMP)", the CA is a concept being adopted by our international partners in NATO, the United Nations, and European Union to focus policy, doctrine, best practices, training, research, and development. As it evolves, there are a number of implementation challenges of the CA that could be addressed in part through applied computational social science research, including development of capabilities grounded in human social, culture, behavior modeling.

Defining the Challenge

While there are some working definitions for CA, there has yet to be an internationally agreed-upon definition (Indeed, some may say a comprehensive approach is necessary for defining the CA). In US Army doctrine FM 3-07, the CA is defined as "an approach that integrates the tools of statecraft with our military forces, international partners, humanitarian organizations, and the private sector to achieve unity of effort towards a shared goal."[1] In 2009, The Technical Cooperation Program convened an ad hoc group to study whether and how the CA is being used by its member nations. In 2010, NATO moved to establish policy and recommend practices for implementation. Additionally, there have been a series of workshops organized by key participants as this framework becomes defined, developed, and institutionalized.

The defining challenge of the CA extends beyond collaboration and increasing available civilian resources. What lacks is an adequate understanding of how to organize and orchestrate the full range of assets that all actors present into some sort of mutually reinforcing, if not synergistic, effort. The CA is seen as a solution to addressing the complexity of operations that require many different actors who may well have competing agendas. Almost simultaneously, the framework has to incorporate vertical and horizontal integration, formal and informal organizations, competing agendas, differing agendas, allegiances, loyalties, interdependencies, social/physical/virtual environments, temporal dynamics, cultural differentiation and multiple dimensions. The task at hand is certainly daunting and complex. The CA by its nature will change over time, but methods, models, and tools can provide continuity in development and implementation in the operational environment.

Methods, Models, and Tools for the Comprehensive Approach

The social, behavioral, and computational sciences offer numerous theories, methods and models that can be utilized and extended to improve understanding of CA implementation challenges and support effective responses to those challenges. Among the areas of research that could offer insights are: game theory, network theory, multi-team systems, collective affect, team effectiveness, social cognition, and organizational design. In many of these areas, theory and research tend to focus at either of two levels: micro (dealing with individuals and group dynamics) or macro (dealing with organizations and strategic management). However, between those two levels is the meso space, which is less well understood but offers considerable potential for integrating the micro and macro levels of analysis. This meso space is most applicable to the CA, because it is in that space where challenges that characterize the CA are most likely to reside, e.g. the intersection of NGO activities (micro) and U.S./allied operations (macro). Solutions are needed that look at innovative approaches and structures—such as networks, multi-team systems (MTS), and coupled systems—for bridging the micro/macro gap. The figure below, which was developed as part of a recent NATO workshop on the CA attended by the authors, illustrates some of these concepts. As given in the figure, two critical dynamics are at work—often times in conflicting ways. From the macro level to micro, there is top-down influence in the form of orders, authority, rules, etc. From the micro level up, there is increasingly emergent behavior that is by definition very difficult to anticipate or manage. The meso level is an important space in which transition along both of those dimensions will occur, and where it is possible to identify meaningful units that see, capture, and create change, while simultaneously preserving the adaptation and flexibility that are necessary for operational success.
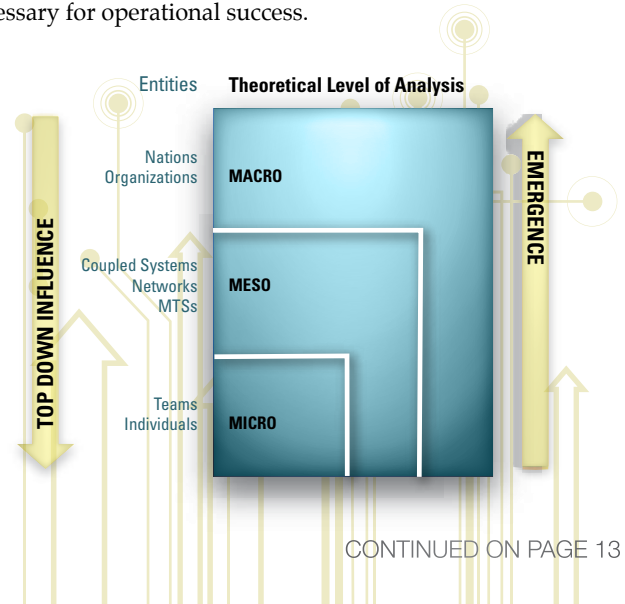
Current Activities

Two recent activities highlighted research and development challenges and opportunities that scientific and technologic communities can help address. In 2009, The Technical Cooperation Program convened a group to produce a baseline study of the CA in its five member nations. The study identified relevant doctrine and policy, culled lessons learned, and discussed the role of science and technology in supporting effective implementation of the CA. Areas of opportunity included:

- Multi-agency modeling, simulation, and experimentation to develop a CA operational concept (e.g. MNE 4, 5, 6)

- Tools, methods and techniques to support force synchronization

- Models and other tools for determining optimal multi-agency capabilities (e.g. PSOM)

- Development of organizational cultures and individual knowledge, skills and abilities (KSA) that support a CA to operations

- Analytical methods, models, and simulations that support analysis of emergent and directed behavior in CA networks

- Development of measures of effectiveness (MOE), and tools for assessing outcomes

- Methods to collect, integrate and visualize the non-traditional, socio-cultural information necessary for supporting a CA

- Decision support/COA analysis tools that leverage validated, social science-based models of socio-cultural behavior in regions of interest

Most recently, NATO organized a workshop to discuss Collaboration in a Comprehensive Approach to Operations (4-6 October 2010). The goals of this workshop were to:

- Identify current realities and challenges for CA

- Identify critical research issues for CA

- Identify relevant measures for CA, especially in the field

- Identify opportunities for further collaboration and development of the CA, concluding with a research agenda to suggest to the international community. Participants presented current practice, research, and examples with a substantial working discussion following to meet workshop goals. Workshop proceedings will be published in 2011.

Continued Challenges

While the ability to build rigorous computational methods, models and tools that can enable aspects of the CA continues to expand, a number of challenges persist. For example:

- Requirement for a more complete basic research foundation grounded in inter-disciplinary social science

- Development of multi-scale and hybrid models

- Increased transparency in models and tools

- Interfaces enabling use of models across military domains, environments, and echelons

- Policies, procedures, information systems, and requisite training to sustain HSCB modeling usage

- Validation and verification of socio-cultural behavior models

- Processes, procedures and training to ensure appropriate use of models in support of robust decision making

- Methods for valid collection of quality socio-cultural data and systems in which that data can be readily accessed for use in modeling

Adopting the CA makes logical sense for any form of crisis management, but it is arguably even more important when handling insurgencies. There are currently a cadre of methods, models, and tools that have the potential to successfully address micro and macro levels of analysis for crisis management, less so an inventory of models applicable at the meso level. Research continues to be necessary to provide methods, models and tools that can be useful for the operational space. Human, social, culture, behavior models have the ability to help frame and conduct the CA campaign. As the international community continues to embrace and enact the concept, it is necessary for researchers and developers to continue to situate their tools for use in this capacity. ♦

Reference

1. US Army Field Manual 3-07, *Stability Operations*, October 2008, page 1-4.

HUMAN SOCIAL CULTURE BEHAVIOR MODELING PROGRAM

The Human Social Culture Behavior (HSCB) Modeling Program Focus 2011 Conference, the third in a series of technical exchange meetings hosted by the Office of the Secretary of Defense (OSD) HSCB Modeling Research Program, will be held from 8–10 February 2011 at the Westfields Marriott Hotel, near Dulles Airport, in Virginia. This meeting will be a gathering of Department of Defense (DoD) and other US government agencies that fund, develop, and transition HSCB related research and development as well as transition partners, potential technology end-users, and program awardees.

Focus 2011 will focus on providing an overview of methods, models, technologies and analysis with the DoD, Interagency, and allied partner social-cultural domains. This emerging area affects many organizations within DoD, including a large part of the operational forces and portions of the intelligence and research communities. Operational forces have begun to incorporate social science methodologies into planning, and there are programs that have implemented social science methodologies and advising on a large scale within the military services, primarily the brigade staff. Clearly, emerging priorities at the operational level must be met with both policy and social science research that are supportive of the warfighters' goals. Traditional research, development, testing, and engineering are becoming more and more integrated with the social and behavioral sciences and emerging analytic tradecraft making it ever more important that relevant policies be examined and perhaps updated to reflect new research thrusts.

Registration for the conference must be completed online via the conference website. The deadline to register is 12 January 2011 and the registration fee is $395.00 USD. All presenters and exhibitors must register for the conference. The HSCB Focus 2011 Conference has limited space available for exhibitors. For additional information regarding exhibits and to apply online, visit the conference website. The exhibit application deadline is 12 November 2010.

CALL FOR ABSTRACTS

HSCB FOCUS 2011 will consist of presentations, poster sessions, and exhibitions to showcase research and applications in the general HSCB modeling area and to engage OSD HSCB Modeling Program personnel as well as leading scientific and technical experts working in HSCB related fields in a technical exchange. The opportunity to give presentations will be awarded based on the quality of the abstracts received and the relevance to a conference track. The Conference is also interested in any relevant innovations or developments that have not yet been introduced to the defense community.

Conference Tracks include the following:
- Operational Use and Requirements with Social-Cultural Science: Combatant Commands (COCOMS)
- Application of Social Cultural Methods, Models, and Tools (MMT)
- Commercial Research and Applications of Social-Cultural Science
- Social-Cultural Data
- Analytic Methods Science and Technology
- Hybrid Models
- Comprehensive Approach to Operations
- Understanding and Modeling Human Behavior
- Visualization for Computational Social Science
- Cultural Training
- Valid Model Use and Validation

In addition to the conference tracks listed above, a separate track has been established that provides a comprehensive overview of funding opportunities and work across several DoD organizations and other federal government entities in these areas.

Abstracts should be submitted through the conference website by 12 November 2010. The abstract should follow the structure and formatting found below.

Title of Presentation and Authors

Conference Track: List the primary and second track choice for your submission.

Abstract: The abstract of the presentation should clearly state the objective and significant conclusions in no more than 200 words.

Research Description: The description should discuss the objective, methods, and significant results and conclusions, and may include relevant tables and figures. The description should be no longer than 1,000 words.

Acknowledgments

Biography: A short biography (150 words or less) for the presenting author only should be included.

References

A template for the abstract can be downloaded from the conference website. A panel of subject matter experts will review each submission and notifications will be sent by 10 December 2010.

Track descriptions, registration, and additional information regarding the conference can be found in the attached flyer or on the conference website: www.sa-meetings.com/hscbfocus2011

REGISTRATION

Registration for the conference must be completed online via the conference website. The deadline to register is 12 January 2011 and the registration fee is $395.00 USD. All presenters and exhibitors must register for the conference.

HSCB FOCUS 2011:
INTEGRATING SOCIAL SCIENCE THEORY AND ANALYTIC METHODS FOR OPERATIONAL USE

CONFERENCE TRACK DEFINITIONS

Operational Use and Requirements with Social-Cultural Science: Combatant Commands Track

This track seeks posters/presentations that address the specific operational use and requirements for social science within the different combatant commands. Focus of this track will be on the application of HSCB tools and methods to the specific operational uses and requirements of the specific COCOMs.

Application of Social Cultural Methods, Models, and Tools (MMT) Track

This track seeks posters/presentations addressing the application to an enterprise (including, but not exclusively, military enterprises) of social cultural methods, models, and tools (MMT). The track is divided into specific enterprise domains, including: training, intelligence analysis, influence operations (IO), operational planning, and experimentation.

Commercial Research and Applications of Social-Cultural Science Track

This track seeks posters/presentations that include research in or applications of the social—behavioral sciences that are primarily focused on non-DoD applications but may be relevant to military needs. This includes, but is not limited to, theory, models, analytic methods, and software developed for applications in the following domains: consumer behavior/psychology, financial markets, fraud and security, gaming and entertainment, health science/social response to health threats, and social dynamics of education.

Social-Cultural Data Track

This track seeks posters/presentations that address methods and tools for the collection and generation of socio-cultural data, developing socio-cultural trip wires, developing socio-cultural taxonomies, approaches and methods to overcome challenges in data, and establishment of culture/society specific baseline data and identifying the most critical/salient driving factors for different cultures.

Analytic Methods Science and Technology Track

This track seeks posters/presentations that address scientifically-based analytic methodologies for using qualitative and quantitative data on human, social, cultural and behavioral factors for decision support, hybrid methodologies that integrate human, social, cultural and behavioral factors with decision support by combining analytic methods from various social science disciplines, and analytic methods that incorporate social-cultural influences and dynamics.

Hybrid Models Track

This track seeks posters/presentations that address applications of hybrid modeling to address operational questions, methods of using data or combinations of data that were not designed or optimized for given model, theories that support hybrid, generalizable models across the spectrum from tactical to operational to strategic applications, effectiveness of models at the tactical, operational, and strategic levels of granularity using uncertainty. This tracks also seeks posters/presentations that look at determining the data fidelity requirements for each level of modeling granularity, architectures or frameworks that allow for

joining heterogeneous collections of models, including allowing the integration of models to form a hybrid model, and multi-disciplinary research for new models that integrate across disciplines.

Comprehensive Approach to Operations Track

In the current global security environment, operations are increasingly complex, with objectives focused on impacting civilian, non-combatant populations, and often involve facilitating the post-conflict recovery, reconstruction, and transition of a region. Success depends on leveraging all instruments of national and international power in a coherent fashion. Such a "comprehensive approach to operations" (CA) involves coordinated and coherent action by multiple operational entities that may include national/international government agencies, militaries, non-governmental organizations, corporations, and other actors.

Understanding and Modeling Human Behavior Track

Computational social science (CSS) is an emergent field at the intersection of the social sciences, mathematical models, quantitative analysis techniques, and computer programming. The focus of this track will be basic social science and theory which are amenable to such computational development.

Visualization for Computational Social Science Track

This track seeks posters/presentations that address visualization capabilities for translating socio-cultural behavior model outputs into military decision-making processes, spatio-temporal

visualizations methods to display sociocultural model outputs within temporal / spatial contexts, identification and evaluation of common visualization methods that can be applied to socio-cultural modeling, data requirements to improve the usability and utility of socio-cultural model outputs, perceptual and cognitive processing methods to improve the usability and utility of socio-cultural model outputs, and imagery that leads to better analysis and enhanced socio-cultural understanding.

Cultural Training Track

This track seeks posters/presentations that address research in the training approach for social-cultural skills and cultural awareness, training that provides warfighters with the ability to quickly assess and identify the societal norms, behaviors, and social structures in a social or cultural group, HSCB-related training that provides an understanding of adversarial or neutral populations, analysis of culture-general cross-cultural skills and training applications/curriculum to teach these skills, integration of culture specific skills training into existing training deployable training systems for current areas of interest, and identification and/or assessment of characteristics and conditions that make the warfighter more culturally adaptable.

Valid Model Use and Validation Track

Realizing that validation within a socio-cultural context presents unique challenges, this track will take a broad perspective. We see valid use of these models, given their inherent deep uncertainty, as complementary to validating the models themselves.

Date	Event	Location	Sponsor	Website
February 8–10, 2011	HSCB Focus 2011: Integrating Social Science Theory and Analytic Methods for Operational Use	Westfields Marriott Hotel, Virginia	OSD HSCB Modeling Program	www.sa-meetings.com/hscbfocus2011
March 21–24, 2011	Behavior Representation in Modeling & Simulation (BRIMS) Conference 2011	Sundance Resort, Sundance Utah	BRIMS	http://brimsconference.org/current/
July 9–14, 2011	14th International Conference on Human-Computer Interaction	Orlando, FL		www.hcii2011.org
September 19–23, 2011	Human Factors and Ergonomics Society Annual Meeting	Red Rock Hotel, Las Vegas	HFES	www.hfes.org

HUMAN SOCIAL CULTURE BEHAVIOR MODELING PROGRAM

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