Human Social Culture Behavior Modeling (HSCB) Program

CDR Sean Biggerstaff
Assistant Director, Human Systems

ODUSD (Science & Technology)

Human Social Culture Behavior Modeling
- Background -

- **2006 QDR:**
  - "….the importance of early measures to prevent problems from becoming conflicts and conflicts from becoming crises (pp.17-18)"
  - "..This war is both a battle of arms and a battle of ideas – a fight against terrorist networks and against their murderous ideology (p.24)"
  - "..considerably improved language and cultural awareness to develop a greater understanding of emerging powers and how they may approach strategic choices (p.31)"
  - "..Human intelligence, language skills and cultural awareness to understand better the intentions and motivations of potential adversaries and to speed recovery efforts (p.35)"
  - "..foster a level of understanding and cultural intelligence about the Middle East and Asia comparable to that developed about the Soviet Union during the Cold War (p. 78)"

- **DoDD 3000.05 (Military Support for Stability, Security, Transition and Reconstruction Operations):**
  - "Stability operations are a core U.S. military mission…given priority comparable to combat operations…."
  - "U.S. military forces shall be prepared to perform...stability operations tasks…Rebuild indigenous institutions…..bottom-up economic activity and constructing necessary infrastructure… "

Human Social Culture Behavior Modeling
- Background -

- **Recognized Operational Need:**

    - "..the QDR acknowledges that victory in this long war depends on information, perception, and how and what we communicate as much as application of kinetic effects. These cultural and language capabilities also enhance effectiveness in a coalition setting during conventional operations." Gen. P. Pace (2006 QDR: Commander's Assessment)

    - "I asked my Brigade Commanders what was the number one thing they would have liked to have had more of, and they all said cultural knowledge." Lt. Gen. P. Chiarelli (Dec 06)

    - "Must develop the ability to understand the complex human factors and must incorporate them into all facets of operations." Maj. Gen. L. Freakley, CG 10th Mountain Div (Operational Needs Statement, Feb 06)

Human Social Culture Behavior Modeling
- Description -

- <u>Reason for Initiative</u>: DoD has gone beyond its traditional role/capabilities in large force-on-force scenarios to support GWOT. Current and future operations demand the capability to understand the social & cultural terrain and the various dimensions of human behavior within these terrains.

- <u>Description</u>: Initiative will develop a military science base and field technologies that support socio-cultural understanding and human terrain forecasting in intelligence analysis, operations analysis/planning, training, and joint experimentation.
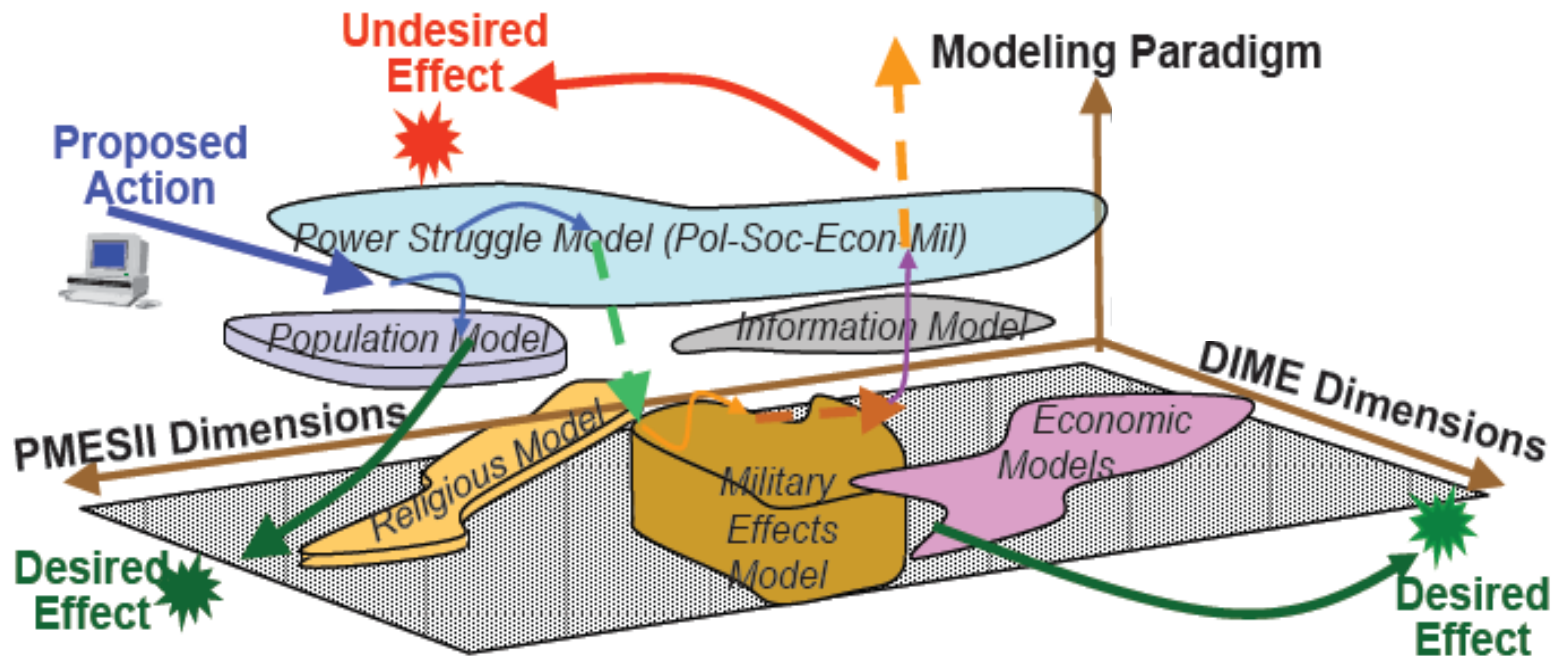
'Predicting' Human Behavior

- Science is more than a mere description of events as they occur. It is an attempt to discover order, to show that certain events stand in lawful relation to other events…If we are to use the methods of science in the field of human affairs, we must assume that behavior is lawful and determined. (B.F. Skinner)

- …..when human beings act in certain ways and it seems that the acts are not predetermined and therefore there's an element of free will, perhaps more likely we are acting from hidden motives than because we have a quantum mechanical random number generator concealed within us. (M. Gell-Mann)

- …we have noted that as we proceed from the…physical through to biological, psychic and sociocultural, the system becomes "looser", the interrelationships among parts more tenuous, less rigid, and especially less directly tied to physical events as energy relations and transformations are overshadowed by symbolic relations and information transfers….Complex systems are open systems in intimate interchange with an environment characterized by a great deal of shifting variety…the concept of equilibrium developed for closed physical systems is quite inappropriate and usually inapplicable to such a dynamic situation. (W. Buckley)

"Infinitely (?) complex problem space……"

Human Social Culture Behavior Modeling
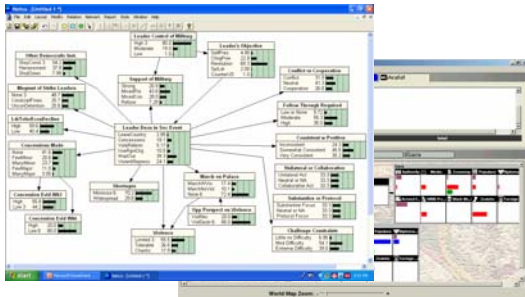## - Reasoning Behind the Program -

- **No existing U.S. technical HSCB core (in academics, government labs, or industry) for the military domain**
  - Need to develop U.S. commercial and government capability to support GWOT
  - Need to be able to immediately tap HSCB understanding/experiences outside the U.S.

- **Growing ad hoc investment in expedient tools (2003-2006)**
  - Unorganized demand for work in this area
  - Over-focus on near term deliverables that support OEF/OIF specific Phase 4 operations
  - Narrow customer base (e.g., Intelligence Analysts)
  - Half of current technical capability gaps in HSCB are unfunded

- **Limited 'reuse' of data & software and no life-cycle management plan for products**
  - No resources to port and/or extend relevant data, knowledge and tools from one system to another
  - Products being designed with limited capability, and not to receive deeper cultural understanding/future capability
  - Tools and models not designed to generalize to new regions, new tribal/societal structures
  - Tools and models not designed for broader application areas (strategic to tactical)
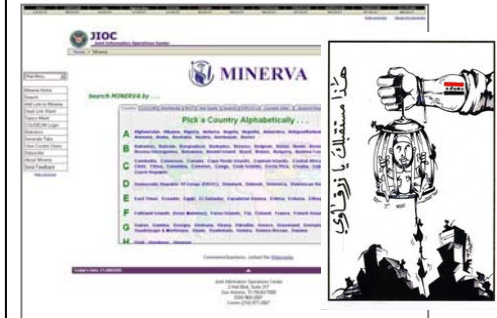
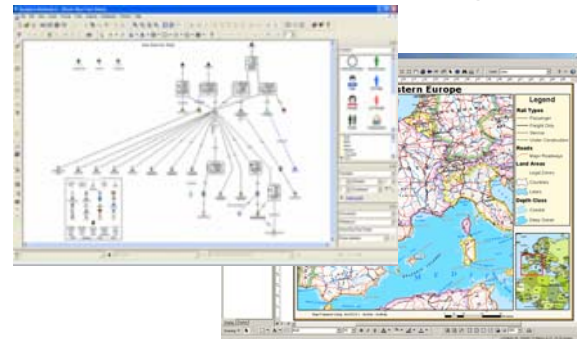# Operational Environments for HSCB Product Use

Intelligence Analysis

Apollo/Athena
Analysts Notebook
Skope
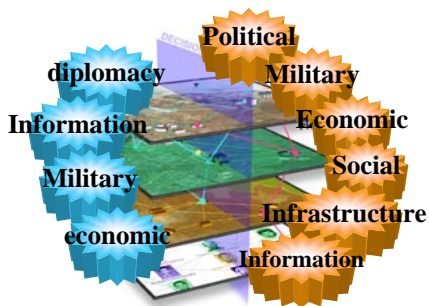
Influence Operations

Assymetrical software kit
Situational Influence Assessment Module
JCURE data collection system

Operations Planning

Analysts Notebook
MAP-Human Terrain toolkit
Joint Integrative Analysis and Planning
Capability (JIAPC)

Experimentation

Political
Military
diplomacy
Information
Economic
Military
Social
Infrastructure
economic
Information

Multinational experiments
Joint Doctrine Experiments

Training & Mission Rehearsal

Tactical Language Trainer
Battle Command Knowledge System

Human Social Culture Behavior Modeling
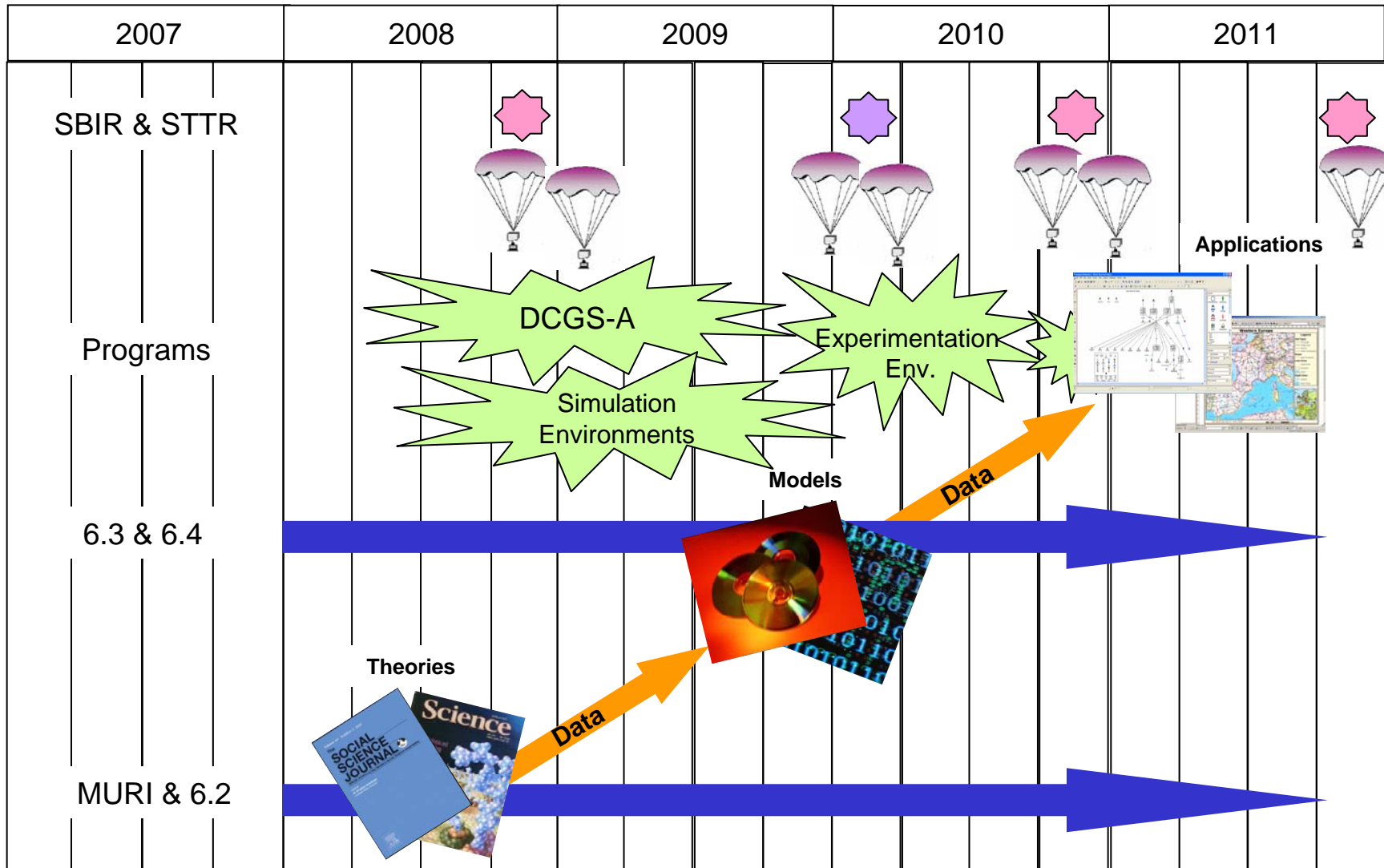## - Program Overview -

Program Motivation: *Response to QDR and CoCOMS* - models and understanding of societies, cultures, and human behavior for individuals and groups are complex, not fully understood, accurate for use in DoD planning and decision making for "Phase 0" (Pre-planning/shaping) to "Phase 4" (Stabilization) military activities

Approach: Developed an integrated Research and Engineering (R&E) Initiative, encompassing Basic Research through Prototype/Transition (BA 1 to BA 4), to understand and model HSCB factors

- Develop models to forecast societal, and cultural behaviors and display options for decision makers
- Known need for better capabilities in four areas:
  - Database Infrastructure/Framework
  - Theory
  - Visualization
  - Education and Training

HSCB Program Plan

Human Social Culture Behavior Modeling
- Funding & Technical Goals (FY08-13) -

Applied Research (BA2): Data and Visualization frameworks/Infrastructure

- **Generate data and database architectures that provide vertical & horizontal dissemination of social/cultural information**
- **Create quantitative models of social/cultural factors in coalition, enemy, and neutral forces and validate models for military applications**

Advanced Research (BA3): Demonstration in relevant environment

- **Creation of valid, dynamic synthetic adversaries for U.S. and coalition planning and Joint Experimentation**
- **Integration and demonstration of decision support tools that include political, religious, cultural and other factors within battle command planning/re-planning and Command and Control (C2) systems**
- **Demonstration of a battle command/C2 common visualization tool that vertically integrates cultural information into operational planning**
- **Demonstration of operational/tactical training systems that use flexible cultural models/entities.**

Research and Engineering (BA4): Mature and harden models, tools and products for transition

- **Maturation of data collection tools and software into program of record (POR) to support tactical level collection and dissemination of social/cultural data**

- **Maturation of visualization software into POR that supports cultural referenced, actionable information within operational-tactical level C2**

- **Maturation and delivery of training and mission rehearsal systems and software that provide pre-deployment and deployed, scenario-based social/cultural experience to forces for combat, security, stability, transition, and reconstruction operations**

- **Delivery into POR of validated, generalized societal and culture behavior models, with supporting software architectures, applied within multiple user domains**

Human Social Culture Behavior Modeling
- Categories of Anticipated Deliverables -

- **<u>Theory & Science Base</u>**: A military science of societies, cultures, and associated human social dynamics and behaviors

- **<u>Data Models and Methodologies</u>**: Techniques and procedures for data collection, management and dissemination
  - **Formal data models and enabling data collection tools**
  - **Protocols for meta-data tagging**
  - **Protocols for geospatial visualization for planners and analysts**

- **<u>Computational Models</u>**: Software for Command and Control (C2), intelligence and simulation systems
  - **Validated models to support Human Terrain understanding within existing military planning and analysis systems**
  - **Software delivered to new and existing training systems**
  - **Validated models that supports AOR-specific Joint Experimentation exercises**

Questions?

CDR Sean Biggerstaff
Assistant Director, Human Systems
ODUSD (S&T)
Phone: 703-588-7404
Email: sean.biggerstaff@osd.mil