



Develop America's Airmen Today ... for Tomorrow

Behavioral Influences Analysis Workflow Example

“Analyze to Understand; Assess to Influence”

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<http://www.au.af.mil/bia/>

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Values/Beliefs/Worldview



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Data requirements:

1. Textual/narrative materials: e.g., academic studies, ethnologies, observer/participant immersion descriptions, operational and intelligence reporting, translations of native language literature/religious texts/mythology/genealogy, etc.
2. Audio/video interviews, news media clips, etc.

Tools: automated text extraction, data mining, database management, e.g., ATEA, AUTOMAP, ACCESS databases, EXCEL spreadsheets,

Structure/objective: Relational database; taxonomy



OPNL. BEHAVIORAL HISTORY



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Data requirements:

1. Intelligence, media, and OSINT reporting of individual's/group's activities of interest/concern (typically assaults, attacks, kidnaps/hostages, sniping, riots, bombings, subversion, assassinations...)
2. Organizational changes or reorientations: leaders, goals, membership recruitment/selection, growth, relocation, adopting cellular structure, etc.

Tools: SEAS, time-event-location traces, WEBTAS

Structure/objective: graphical/visual portrayal of known activities and discernible patterns



PERCEPTIONS



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Data requirements:

1. Public statements, demarches, press releases, internal guidance documents, and written verbal, or behavioral reactions to U.S./allied/other actions
2. Interrogations, defector interviews, third-party access reports, back-channel diplomatic work

Tools: Cultural awareness simulators, AI agent-based modeling, cognitive task assessment, kinesics/oculesics assessment

Structure/objective: baseline assessment of adversary's current appreciation of situation, our intention, 'next'



MOTIVATIONS



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Data requirements:

1. Statements of needs, grievances, insults, vengeance, goals, “purpose/cause/calling/duty”
2. Past targets, actions, rationale, “justification”

Tools: Values-Motivations constructs (Schwartz, Maslow, VFT, etc.), ORA, preliminary use of Bayesian belief network tools, e.g., PYTHIA, JCAT, SIAM

Structure/objective: preliminary assessment of behavioral antecedents currently in play; basis for capabilities-capacity-intention judgments



CURRENT CAPABILITIES



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Data requirements:

1. Order of Battle/General Military Intelligence (OB/GMI); S&T analysis of weapons/systems; manpower/readiness & morale; C4/ISR traditional and unconventional; leaders/plans
2. Supporters, sponsors, allies, collaborators

Tools: Spreadsheets, principal component analysis, ORA, DYNET, MATLAB (SIMULINK), SNA tools (NET MINER, ORA/DYNET, UCINET, others)

Structure/objective: data analysis of raw, available capabilities; initial assessment of capacity and readiness



SITUATIONAL FACTORS



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Data requirements:

1. Current intelligence reporting on actor(s), operational environment, recent activities, readiness, and pre-determined “indicators”
2. Existence of attractive targets, locations, and opportunities, and time-sensitive elements
3. Tools: IPB methods, multi-layer (graphical) assessment, imagery exploitation

Structure/objective: visual representation for simulating adversary pre-decisional context



Core Questions



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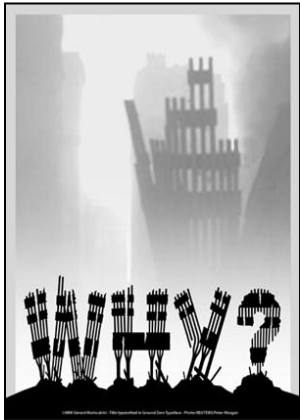
WHO ?

...is the adversary, in terms of his motivations and “behavioral history”?



WHY ?

....would an adversary or competitor choose to oppose us?



HOW LIKELY ?

...is the adversary to select any one of the behaviors (courses of action) available to him?

Threat = Capability + Intent + Opportunity



DECISION PROCESS



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Data requirements:

1. Decision style (e.g., single-actor, expert, heuristic, consensus/collaborative, rational actor, intuitive..), and key decision makers/supporters
2. Key sources of information -- available, accessed, trusted, and typically used (public, ISR-based, human, network provided...)

Tools: Game theoretic, multi-agent influence weighing, information processing simulation, ORA/DYNET, TEMPER, etc.

Structure/objective: basis for analysis of “next” decision, or decision of most interest/concern



KEY FACTORS FOR RESEARCH AND MODELING



PSYCHOLOGICAL

- perceptual pattern; cognitive style; decision making

ORGANIZATIONAL

- operational code; cohesion; friction; structure; purpose/mission;
- member/leader selection; information processing; decision making

CULTURAL

- language; ethnicity; religion; nationality



BIA WORKFLOW



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Analytical Workflow: General to Specific (Knowledge to Assessments)

Values, Beliefs, Worldview (*cultural anthropology/social psychology*)

Operational Behavioral History (*organizational dynamics*)

Perceptions

Motivations (Needs and Objectives)

Current Capabilities

Situational Factors

Decision Process

Probable Intent

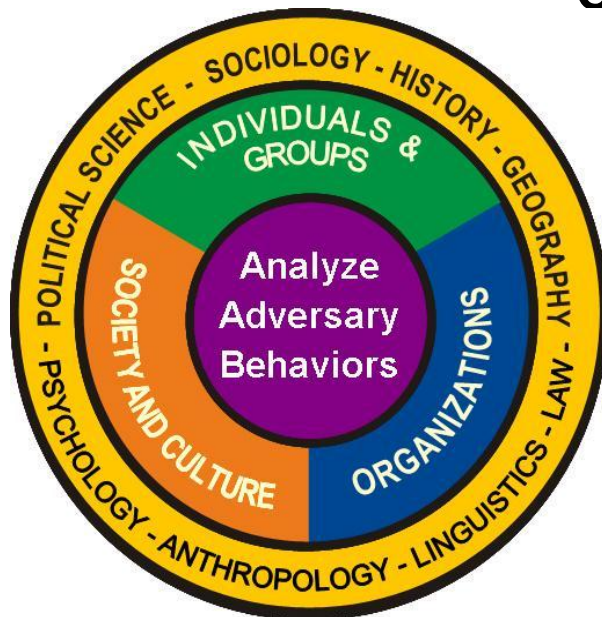
Likely Behavior (COAs)

Vulnerabilities

Influence Susceptibilities

Accessibility

Recommendations





PROBABLE INTENT



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Data requirements:

1. Current adversary situation (in IPB sense), motivational “update,” and decision process outcomes (if/as knowable) or anomalies
2. “Guidance,” directives, or orders from leaders, and/or across the organization/network; recent or new acquisitions of weapons, or other capabilities indicating tool-for-task behavior

Tools: Causal probability/Bayesian belief networks, SIAM, PYTHIA, JCAT, etc

Structure/objective: probabilistic assessment of adversary’s desired actions, objective(s), and outcome



LIKELY BEHAVIOR



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Data requirements:

1. Any available I&W changes or alerts; movements of forces, resources, or leaders
2. Statements, supporter/sympathizer activities or reactions, atypical/diversionary behaviors

Tools: Causal probability/Bayesian network, SIAM, PYTHIA, JCAT, TEMPER, ORA, DYNET, adversary COA analysis/Red Team emulation

Structure/objective: probabilistic assessment of likelihood of any/each available, specific adversary COA being selected

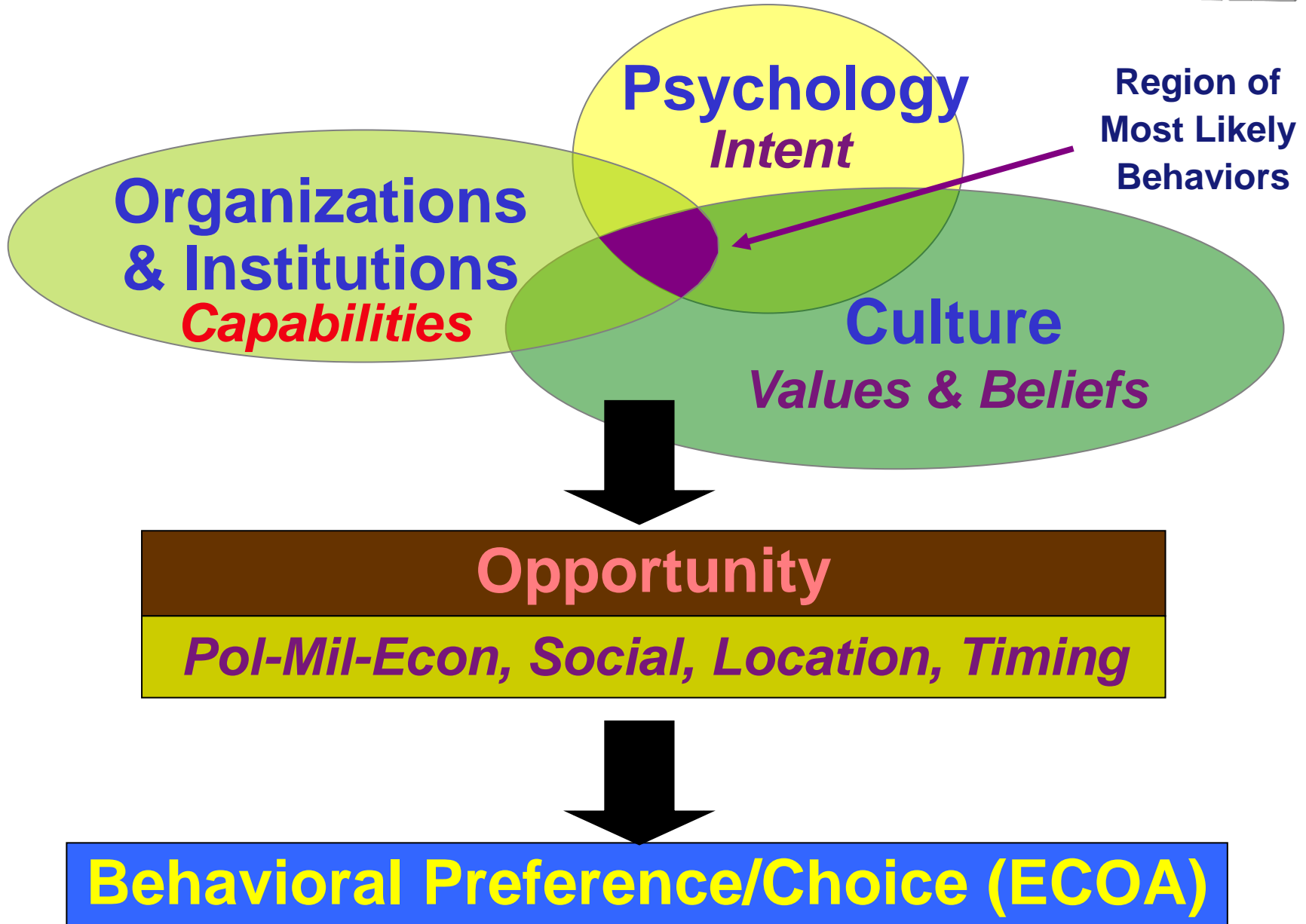


Adversary "Net Assessment"

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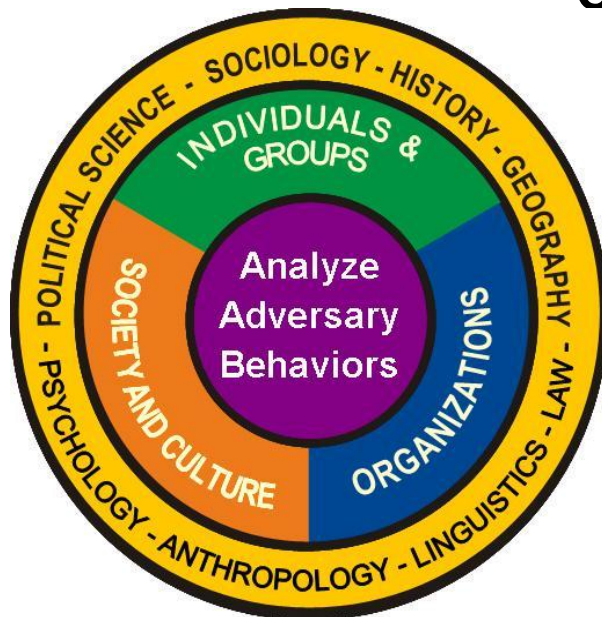
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What Have We Done For Them Today?

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AEYC

Develop

Kinetic

Influence Operations

Non-Kinetic

Grow

Messages & Actions

Vuln, Suscept, Access

Modeling & Hypoth Testing

Behavioral Preference/ECOA

Social Network Analysis

Bayesian Belief Networks

Operational Behavior History

Situational Factors

Capabilities (perceived)

World View Values & Beliefs

Motivation Goals & Intent

Cognition

Organizational Factors

Cultural Awareness/Understanding

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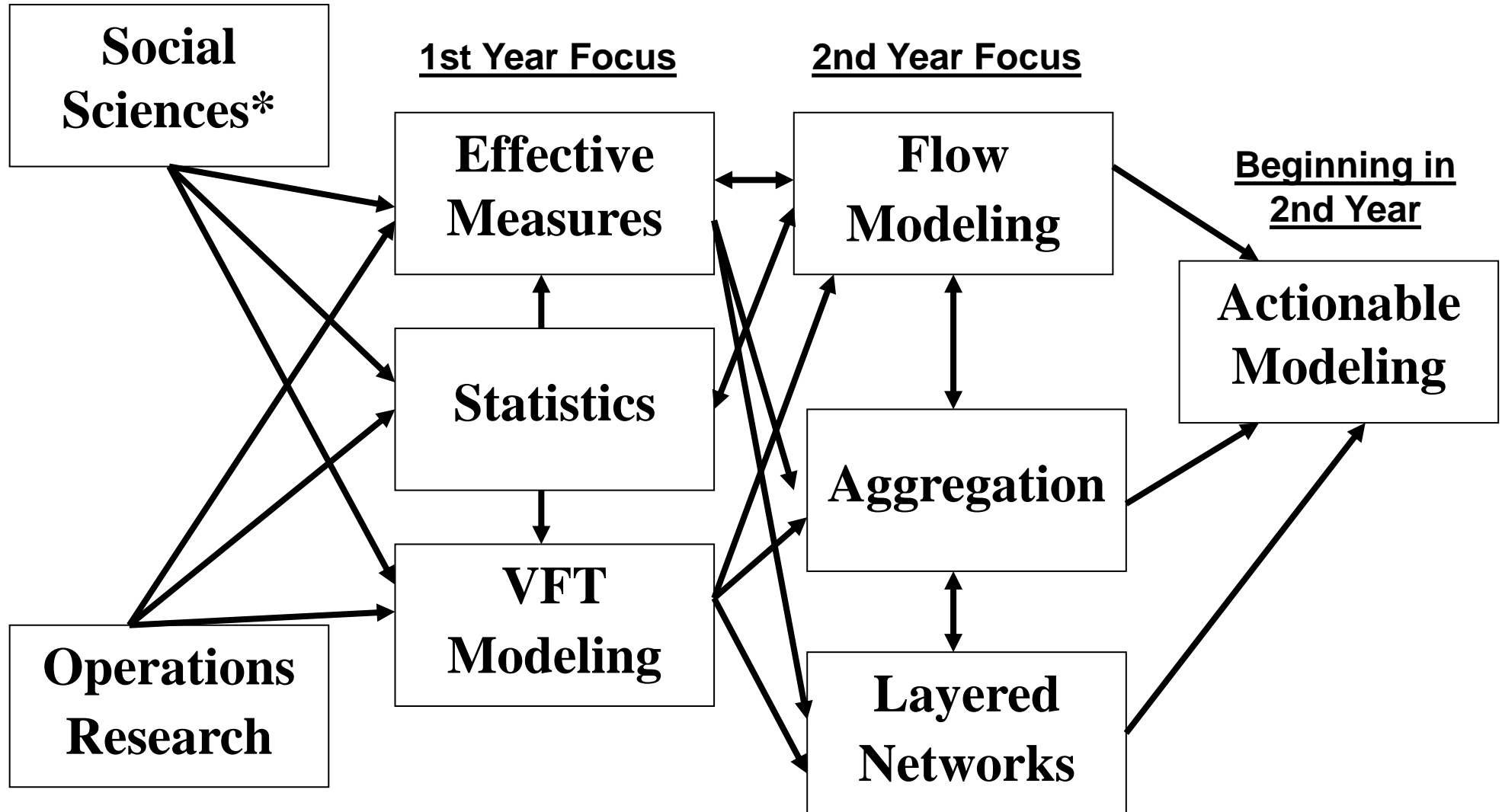


BEHAVIORAL INFLUENCES ANALYSIS CENTER

Tools and Methods R&D Partnership Approach



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*Social Sciences = Social, behavioral, cognitive, and decision sciences data/methods/tools