



## ***Navy Non-Traditional Modeling & Analysis Challenges***

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21 February 2006***



## ***New Area of Focus for the Navy: “Sea Shaping”***



- Traditionally, Navy focused on four “Pillars”: Sea Shield, Sea Strike, Sea Basing, and FORCENet
- Recently, a fifth area of focus was created: Sea Shaping
- ***New Challenges of Sea Shaping:***
  - Understanding and Modeling Social Networks and Deterrence
  - Modeling, Shaping, and Stability Operations



## The Non-Traditional Warfare Tier 2 JCAs That Navy Must Support



### Defense Support of Civil Authorities

- Mil Assist. During Civil Disturbances
- Mil Assist. To Civil Authorities
- Mil Support to Civil Law Enforcement
- Emergency Preparedness

### Joint Access & Access Denial Ops

- Contingency Basing
- Sea Basing
- Forcible Entry
- Freedom of Navigation

### Joint Homeland Defense

- Air & Space Defense
- Land Defense
- Maritime Defense
- Critical Infrastructure Protection

### Joint Special & Irregular Ops

- Special Recon
- Direct Action
- Counter-Terrorism
- Unconventional Warfare
- Joint Irregular Warfare
- Foreign Internal Defense
- Civil-Military Ops
- Psychological Ops

### Joint Stability Ops

- Security
- Humanitarian Assistance
- Reconstruction

### Joint Shaping

- Military Diplomacy
- Defense Support to Public Diplomacy
- Strategic Info & Engagement Coord.
- Security Cooperation
- Presence

### Joint Interagency Coordination

- US Government Agency Integration
- Intergovernmental Org. Coordination
- Nongovernmental Org Coordination

### Joint Information Operations

- Military Deception
- Computer Network Attack

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## What is Navy doing to address Non-Traditional Challenges?



- **GWOT Campaign Modeling**
- **World Class Models (WCM) Initiative**
  - Model/Tool Development
  - FY06 start, funded across the FYDP
  - First year has 12% designated for non-traditional warfare models
    - Plus 9% in “discovery” efforts
    - Hard to find places to invest for near-term deliverables
- **Leveraging of other Service, Joint Staff, OSD models and efforts**
  - OSD’s “Irregular Warfare” Suite (e.g. SEAS)
  - TBD (MORS NTA Workshop)

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## GWOT Maritime Missions

- Deny terrorists *the use of the maritime environment* to develop, sustain and transfer the resources they need to operate and survive.
- Enable partner nations to counter terrorists and terrorist infrastructure *in the maritime environment*.
- Deny *the use of the maritime environment* for the proliferation of WMD, recover and eliminate uncontrolled materials in the maritime environment, and provide capacity for consequence management.
- **Exploit the maritime environment** in order to defeat terrorists and their organizations.
- In coordination with other government agencies and partner nations, counter state and non-state support for terrorism.
- **Employ naval capabilities** to counter ideological support to terrorism.

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## GWOT Operational Tasks

### Identified 25 GWOT-related operational tasks

#### Partner Nation Operations

Conduct Theater Security Cooperation  
 Conduct coalition, interagency and non-governmental organizations coordination and support  
 Share intelligence information  
 Provide Foreign Internal Defense  
 Support Proliferation Security Initiative

#### Intelligence/Information Operations

Conduct Information Operations  
 Conduct ISR  
 Conduct Command and Control  
 Conduct Maritime Domain Awareness

#### Logistics

Provide Logistics/CSS/Facilities Maintenance  
 Provide staging for the joint and combined force

#### Maritime Security/Force Protection

Provide support for Homeland Security  
 Conduct Maritime Interdiction Operations \*  
 Conduct Maritime Security  
 Maintain SLOCs \*  
 Provide Force Protection

#### Civilian Population Affairs

Conduct Evacuation of Noncombatants  
 Provide Consequence Management  
 Provide Humanitarian Assistance  
 Conduct Civil Affairs  
 Provide Law Enforcement and prisoner handling

#### Direct Combat Action

Provide Operational Air and Missile Defense  
 Conduct Expeditionary Operations \*  
 Conduct Strike/Power Projection  
 Conduct Special OPS

170 Naval specific capabilities

Other capabilities have potential to be sourced from joint assets

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## Goals of World Class Models



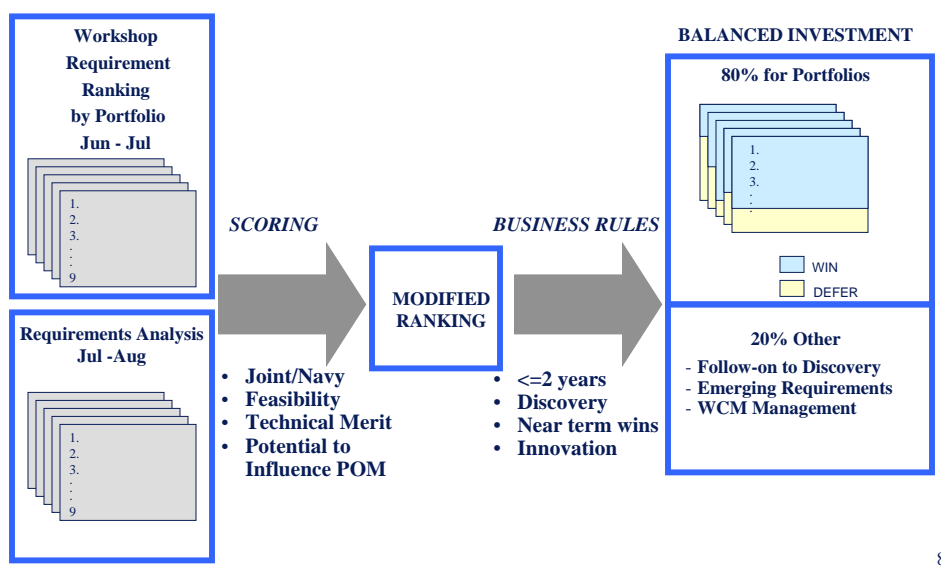
- Improve analysis tools that support Joint and OPNAV Analytic Agendas.
- Develop the ability to model emerging security challenges and new operational concepts.
  - *Irregular, Catastrophic, Disruptive challenges*
  - *FORCEnet, Effects-Based Ops, Distributed Ops*
- Improve traceability of data through modeling hierarchy.
  - *Engineering to Engagement to Mission to Campaign*
- Advance state of the art in M&S technology, practices, standards, and architectures.
- Refine linkages between cost and mission performance in performance-modeled programs.

Goals evolve each year based on new requirements

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## WCM Plan Development



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## ***FY06 WCM Projects in Support of Non-Traditional Warfare***



- **Small Unit Combat Ops**
- **EBO in Campaign Models**
- **Modeling of Terrorist Networks**
- **Modeling of Computer Network Warfare**
- **Modeling of Smart Swarming Tactics**
- **Human Behavior Effects on Campaign**
- **GWOT Campaign Model**
- **Nontraditional Warfare in GCAM**
- **Interactive Red/Blue Networks**
- **AT/FP Model for in-port environment**
- **Red Behavior Decision Modeling**

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## ***The Challenge of Validation***



- **Non-traditional models are harder to validate than traditional physics-based models, especially**
  - **Societal-based models**
  - **Human behavior representations**
  - **Models inter-relating political, diplomatic, information, economic, and military actions**
- **When evaluating new models/methods for application in the Non-Traditional warfare, must have model developers explain:**
  - **Approach/methodology used**
  - **Data required and its availability**
  - **Real-world baseline methodology**
  - **Assumptions & Limitations**
- **Our goal is to have and use models that have the credibility needed to influence resource decision-making**

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