

Analysis for Non-Traditional Security Challenges: Methods & Tools

Military Operations Research Society (MORS) Workshop

WG 5, Decision Making and Integration

Outbrief

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WG-5 Decision Making and Integration Charter

- **Initial**

- ◆ “Effective decision-making requires new methods and tools to incorporate Non-Traditional Challenges. Existing methods of collaboration will need to be reevaluated to consider the effects of incorporating the new challenges across all levels of classification.”

- **Final**

- ◆ “Using the QDR as a starting point, assess the decision making and integration issues of future non-traditional security challenges. Focus on force sizing issues for FY08 POM.”

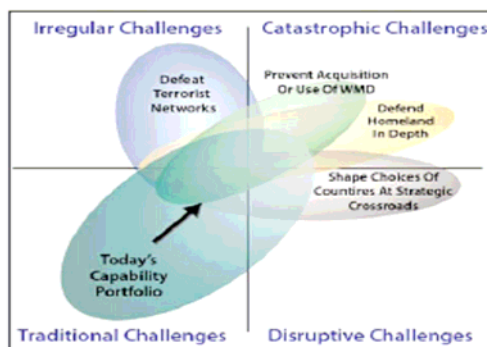
WG-5 Contribution:

We assessed our ability to measure the capabilities identified the four QDR Focus Areas. We concluded that we need better measures for many of the capabilities that will have the most impact on non-traditional security challenges. We also found that risk analysis may be the most promising resource allocation framework for two of the four areas.

Overview

- **WG 5 framework for analysis**
- **Characterize the future (2025)**
 - ◆ Environment
 - ◆ Threats
 - ◆ Opportunities
- **Focus on decision making**
 - ◆ Decision makers
 - ◆ Decision maker questions
 - ◆ Integration challenges
- **Assess QDR capabilities**
 - ◆ Identify capabilities that will influence force sizing
 - ◆ Identify or develop measures for force sizing capabilities
- **Assess resource allocation frameworks**
- **Recommendations**
- **Next steps**

WG 5–Decision Making and Integration



As the diagram shows, the Department is shifting its portfolio of capabilities to address irregular, catastrophic and disruptive challenges while sustaining capabilities to address traditional challenges.

QDR, page 19

- **Framework for Analysis for each of 4 QDR focus areas**

- ◆ Characterize future (2025)
 - Range of operations that our forces may be required to support
- ◆ Identify decision making and integration questions
- ◆ Assess QDR capabilities
 - Identify capabilities that will influence force sizing
 - Identify or develop measures for force sizing capabilities

- **How would this change the joint analytic agenda**

- ◆ Time phase

QDR Focus Area Team Members



Defeat Terror Networks	Defend Homeland in Depth	Shaping Choices of Countries at Strategic Crossroads	Preventing the Acquisition or Use of WMD
CDR Bryan Clark	Chris Appleby	Jeff Brown	Venton Duncan
Amy Henninger*	Sue Iwanski*	Jason Dechant*	Bill Greer
Steve Hunt	Alice Ling	Kim DeWitt	Erik Jilson
LTC Zvi Mintzer	Bryan Linkous	Craig Munshower	Steve Richter
John Regner	Rafael Matos	Janet Peasant	Phil Sauer*
Wayne Zandbergen	CAPT John Yurchak	Marla Roth Tom Sterle	

* Lead

Each focus area team produced annotated briefing of their analysis.

*WG 5 – Decision Making and Integration
Future - Environment*



- **Defeat terrorist network**
 - ◆ Internet will be pervasive and exploitable for good and evil
 - ◆ Data will be plentiful but noisy and hard to analyze for desirability
- **Defend homeland in depth**
 - ◆ Status quo or significant shift in magnitude of defense budget and/or authorities
 - ◆ Integrated or balkanized interagency operations
 - ◆ High trust partnerships or low trust, independent relationships
- **Shaping choices of countries at strategic crossroads**
 - ◆ Complexity created by influencing factors (e.g., foreign govts, NGOs, industry)
 - ◆ Capability deltas between allies, partners, and adversaries
- **Preventing the acquisition or use of WMD**
 - ◆ Adversaries - state, non-state, individuals with increased access to knowledge/resources
 - ◆ Cyber and near space concerns

Future catastrophic events will shape the environment.

WG 5 – Decision Making and Integration

Future – Threats in Long War



• **Terrorist organizations and individuals**

- ◆ State sponsored
- ◆ Ideological (not state sponsored)
- ◆ Religious fundamentalists
- ◆ Anti-globalization groups
- ◆ Criminally-based networks

• **Strategic drivers**

- ◆ Geo-politics will shift QDR 2005 key regions
- ◆ Globalization and proliferation of technology
- ◆ Impact of demographic trends
- ◆ Competition for strategic resources (energy, water, etc.)

• **Threat technology advances**

- ◆ CBRNE/future technology (nano, bio); novel technologies outside WMD paradigm
- ◆ Indiscriminate adversary delivery
- ◆ New combinations
- ◆ Perception control and management

Asymmetric challenge – cost imposing strategies

WG 5 – Decision Making and Integration

Future - Opportunities



• **For all four focus areas there are significant opportunities for cooperation at multiple levels**

- ◆ Interdisciplinary
- ◆ Intraservice
- ◆ Intradepartmental
- ◆ Interagency
- ◆ Regional
- ◆ International

WG 5 – Decision Making and Integration
We need to identify the decision makers



Decision makers and stakeholders span Defense Senior Leader Council, Senior Leader Review Group, OSD, services, government departments, agencies, Congress, allies and partners.

Execution authorities

- **Defeat terrorist network**
 - ◆ SOCOM
 - ◆ Other COCOMs
- **Defend homeland in depth**
 - ◆ NORTHCOM, DHS
 - ◆ Governors and National Guard
- **Shaping choices of countries at strategic crossroads**
 - ◆ SECDEF, CJCS, COCOMs
 - ◆ Interagency
- **Preventing the acquisition or use of WMD**
 - ◆ STRATCOM, NORTHCOM, DHS
 - ◆ Governors and National Guard

WG 5 – Decision Making and Integration
Expected questions from decision makers



- **Defeat terrorist network**
 - ◆ What is return on investment within capabilities?
 - ◆ What are trade spaces between capabilities?
- **Defend homeland in depth**
 - ◆ What is the relative payoff of awareness and consequence management?
 - ◆ What balance of capabilities across layers of defense (home vs. away)?
- **Shaping choices of countries at strategic crossroads**
 - ◆ Which are the key countries we need to/can shape?
 - ◆ What does DoD have/need to accomplish shaping and who are our partners?
 - ◆ How should we allocate resources across competing objectives?
- **Preventing the acquisition or use of WMD**
 - ◆ What are the investment priorities? How much is enough?
 - ◆ What are our adversaries' measures of success?

How does DoD balance capabilities and risks with limited resources?

WG 5 – Decision Making and Integration
Each focus area faces challenging integration issues



- **Technical**
 - ◆ Capability measures
 - ◆ Data
 - ◆ Models and simulation
 - ◆ Systems of systems integration (optimization across services, platforms and CONOPS)
- **Resource**
 - ◆ Matching tools to objectives
 - ◆ Apportionment across AORs
 - ◆ DoD and other department
- **Organizational**
 - ◆ Reconciling innovation with integration
 - ◆ Resistance to change (cultural, organizational)
 - ◆ Leadership buy-in and commitment
- **Political**
 - ◆ Interagency, allied, coalition, NGO

WG 5 – Decision Making and Integration
Defeat terrorist network capabilities



1. **Human intelligence to discern the intentions of the enemy.**
2. **Persistent surveillance to find and precisely target enemy capabilities in denied areas.**
3. **Capabilities to locate, tag, and track terrorists in all domains including cyberspace**
4. **Special Operations Forces to conduct direct action, foreign internal defense, counter terrorist operations and unconventional warfare.**
5. **Multipurpose forces to train, equip, and advise indigenous forces, deploy and engage with partner nations, conduct irregular warfare, and support security stability transition and reconstruction operations**
6. **Capabilities and organizations to help fuse intelligence and operations to speed action based on time sensitive intelligence.**
7. **Language and cultural awareness to facilitate the expansion of partner capacity.**
8. **Non lethal capabilities**
9. **Urban warfare capabilities**
10. **Prompt global strike to attack fleeting enemy targets rapidly.**
11. **Riverine warfare capabilities to improve the ability of U.S. forces to work with the security forces of partner countries to deny terrorist groups the use of waterways.**
12. **Ability to communicate U.S. actions effectively to multiple audiences, while rapidly countering enemy agitation and propaganda.**
13. **Joint coordination, procedures, systems, and when necessary, command and control to plan and conduct complex interagency operations**
14. **Broad flexible authorities to enable the United States to rapidly develop the capacity of nations to participate actively in disrupting and defeating terrorist networks.**

Need capability measures.

Assess the QDR capabilities - High Impact

	Cost	Availability
◆ Language and cultural awareness to facilitate the expansion of partner capacity	Low	Near
◆ Ability to communicate U.S. actions effectively to multiple audiences, while rapidly countering enemy agitation and propaganda	Low	Near
◆ Human intelligence to discern the intentions of the enemy	Low	Mid
◆ Prompt global strike to attack fleeting enemy targets rapidly	High	Near
◆ Capabilities to locate, tag, and track terrorists in all domains including cyberspace	High	Far

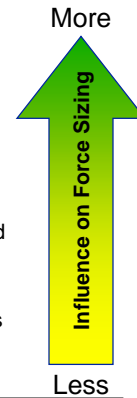
Need capability measures.

Assess the QDR capabilities for DHiD

- Cap1 Joint Cap2 for HLD and Civil Support
- Cap2 Air and Maritime Domain Awareness
- Cap3 Consequence Management
- Cap4 Medical Countermeasures
- Cap5 Tailored Deterrence
- Cap6 New / expanded authorities

Capabilities that will influence force sizing (in order of potential impact)

- ◆ Cap2 and Cap3 may have the same impact, but
 - Cap2 success depends on building actionable awareness
 - Cap3 acknowledges inevitability of an event, and value of Cap3 in other-than-HLD capabilities
- ◆ Cap6 impacts could be significant if guard/reserve authorities are adjusted
- ◆ Cap5 could imply significant force (re)sizing/rebalancing, depending on CONOPS
- ◆ Cap4 could result in rebalancing organizations, end-strength and skill sets
- ◆ Cap1 is really a policy / alignment / resource issue, not technology or force structure

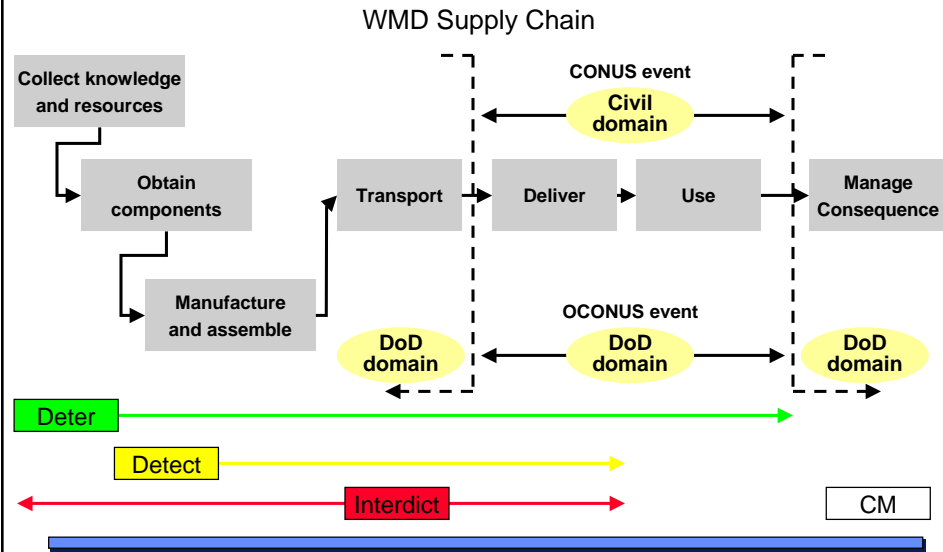


Need capability measures.

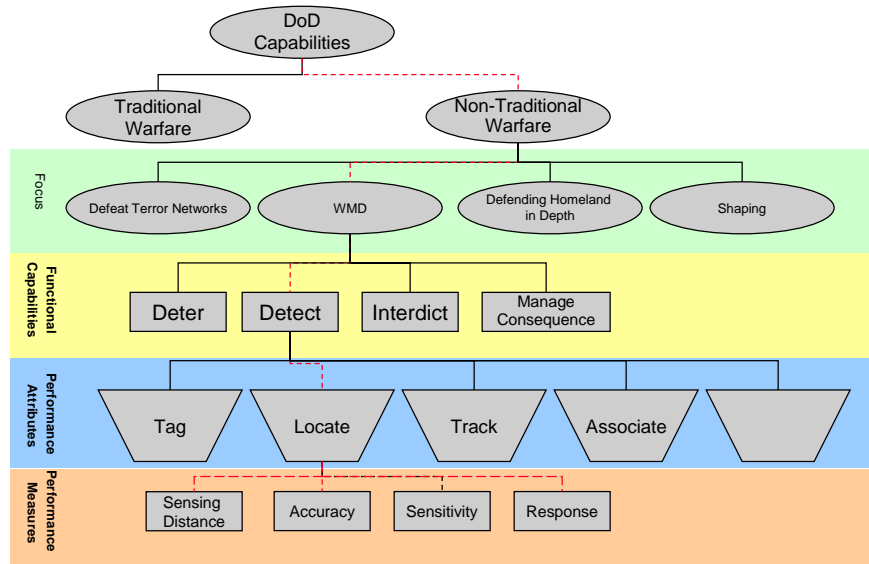
- **All QDR capabilities will influence force sizing**
 - ◆ Shaping to achieve cooperation
 - Security cooperation (training, mil to mil co-op, etc...) with allies and potential partners
 - Language and cultural awareness training (content, instructors, trainees)
 - ◆ Shaping to deter competition and/or attack
 - Persistent surveillance
 - Rapid mobility and power projection
 - Increased prompt global strike
 - Secure broadband into contested areas, (GIG)
 - Integrated ballistic and cruise missile defenses
 - Air dominance
 - Undersea warfare
 - Shape and defend cyberspace
 - Joint survivable C2
- **Additional shaping capabilities**
 - ◆ Net assessment to support long term planning
 - ◆ Effective strategic communications (mil, non-mil)
 - Use IO to influence risk perception
 - ◆ Increased engagement in host countries

Need capability measures.

Operational Context



WG 5–Decision Making and Integration
Focus Area: Preventing the Acquisition or Use of WMD



WG 5–Decision Making and Integration
Focus Area: Preventing the Acquisition or Use of WMD



- **Assess the QDR capabilities –**
 - ◆ Identify capabilities that will influence force sizing

QDR Capabilities	Deter	Detect	Interdict	Manage Consequence
SOF locate / characterize/ secure				
Locate / Tag / Track				
Detect fissile material at standoff range				
Air / maritime / ground interdiction				
Persistent surveillance over wide areas				
HUMINT / language skills / cultural awareness				
Teams to render safe / secure				
Non Lethal weapons to secure WMD sites				
JC2				
Deploy / sustain / support / protect / redeploy SOF hostile environs				
Shield critical systems / technologies from EMP				

Detection, interdiction, and management capabilities may enhance deterrence.

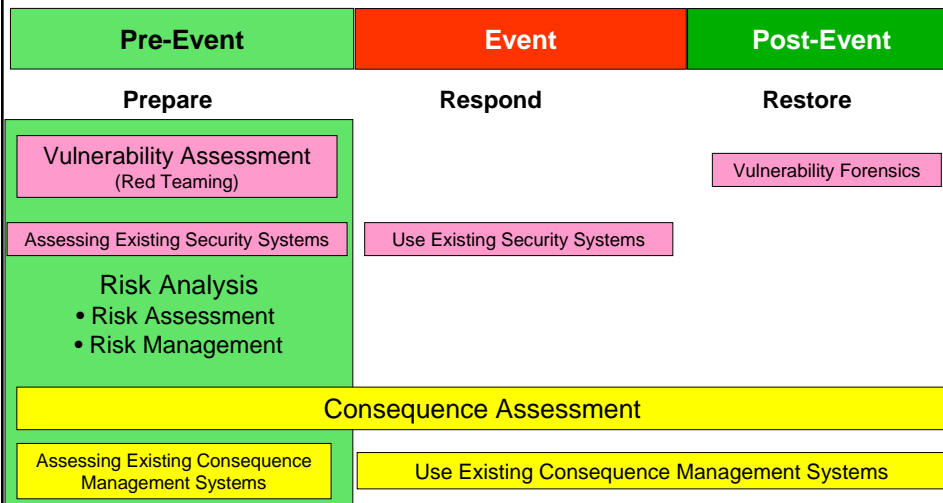
WG 5–Decision Making and Integration
Conclusions



- **Future makes scenario based planning more important**
 - ◆ Uncertain and dangerous
 - ◆ Complex, intelligent, adaptive threats
- **Larger, more diverse group of decision makers and stakeholders**
 - ◆ Difficult to trade-off between diverse capabilities
 - ◆ Fundamental issue may be balancing risk
- **Non-traditional complexity present new integration challenges**
 - ◆ Many complexities caused by threats, distributed decision making, and very large number of stakeholders
 - ◆ Difficult to integrate priorities across non-traditional security areas
- **Defining functions of each focus areas will help measure, model and simulate QDR capabilities**
 - ◆ We need measures for some of the most important capabilities

Makes Title 10 provider's job more challenging.

Risk analysis may be a useful framework for defense analysis. Illustrative operational risk.



Impact systems in design.

• **Potential Resource Allocation Methods***

- ◆ New focus on risk analysis methods

		Large Simulations	Model(s)	Benefit Cost Analysis	Risk Analysis	Gaming
QDR Focus Areas	Defeat terrorist networks	Potential in Long Term		FY08 POM & Long Term Goal		
	Defend Homeland in Depth				FY08 POM & Long Term Goal	
	Shape choices of countries at strategic crossroads		Potential in Long Term			FY08 POM
	Preventing the acquisition or use of WMD	FY08 POM & Long Term Goal	FY08 POM		FY08 POM & Long Term Goal	

* Caveat – WG 5 did not examine specific models and simulations.

• **Next steps**

- ◆ For each QDR focus area and across the focus areas
 - ➔ Use creative new scenarios
 - ➔ Define functions
 - ➔ Identify capabilities to perform functions
 - ➔ Develop measures for each capability
 - ➔ Develop models and simulations to calculate measures

