



Homeland
Security
Institute

Risk Analysis for DHS S&T:

A Perspective on Research Needs

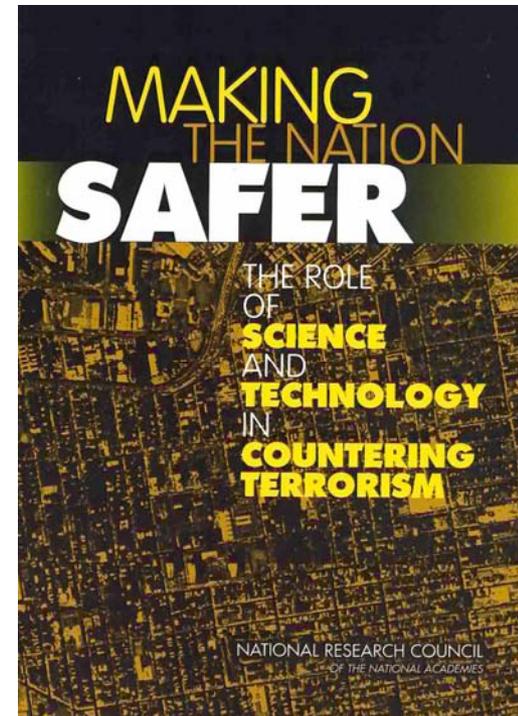
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The Homeland Security Institute (HSI)

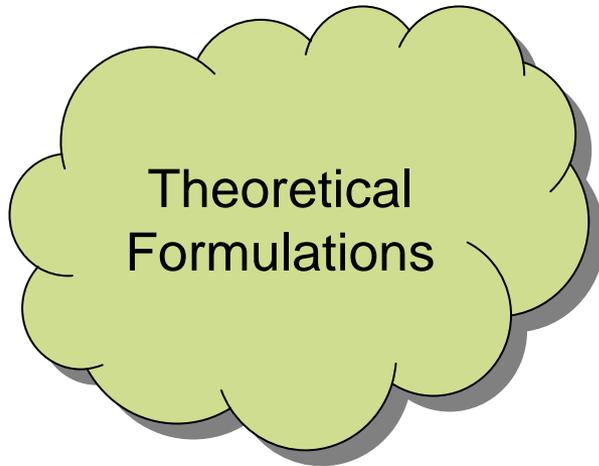


- A Federally Funded Research and Development Center (FFRDC) that provides
 - Independent analysis of homeland security issues
 - Decision support for analyzing homeland security risks to help set priorities and guide investments
- Background
 - Jul 2002 National Academies report “Making the Nation Safer” recommended creation of this entity
 - Homeland Security Act of 2002, §312, established HSI
 - U/S S&T is the Primary Sponsor
 - HSI serves the Secretary, S&T, and DHS operating elements



Only congressionally-chartered FFRDC whose sole mission is homeland security

S&T Needs Center on “Risk-Management Middleware”



“Middleware”

Models

Analysis
Processes

Organizational
Polity

Decisions



Budgets



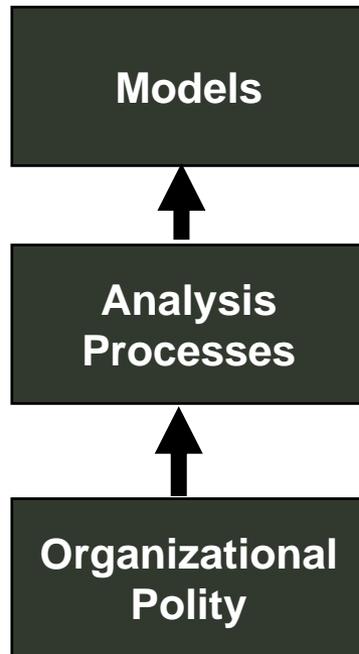
Procedures
and Standards



Policies

...many other
topics

Polity is the Key Component



- Decisionmakers' needs

- “What is the question we are trying to answer?”

- *How the needs will be met*

- “Do a risk analysis”

versus

- “Institutionalize risk analysis in DHS decisionmaking”

The need to accommodate DHS involvement – at all levels – dominates the design of the middleware

Organizational Polity Drives Other Middleware Components



- Analysis Processes

- Processes should be designed to leverage standard and/or widely-accepted data sets
- Data must be obtained from and/or vetted by DHS participants with a stake in the decision
- Schedules are invariably compressed (changing “rules of engagement,” fixed deadlines)

- Models

- Concepts must be simple and straightforward
- Algorithms must be engineered to keep demands on DHS staff manageable

Some Research Needs

- Consequence and relative potential* of standard-planning-scenario events / families
- Parameters and associated uncertainties
- Capabilities needed to impact risk elements
- Psychological consequences, second-order economic consequences, risk communication
- Methods to determine the “true” costs and indirect benefits of homeland security investments
- Methods to account for synergies and overlaps
- “Vertical” (vice “horizontal”) frameworks / integration
- Real incorporation of threat-shifting

* Frequency or ease/difficulty from an “adversary” perspective, depending on whether the event is natural or man-made