

PANEL 16: Challenges and Innovations in Risk Assessment for the Homeland Security Enterprise

- Moderator: Debra Elkins, DHS/NPPD/Office of Risk Management and Analysis (debra.elkins@dhs.gov)
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- Panelist 1: Samrat Chatterjee, Univ. of Southern California, CREATE (samrat.chatterjee@usc.edu) – “Development of Risk-Based Preventative Radiological/Nuclear Detection Resource Allocation Decisions”
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- Panelist 2: Douglas Humberger, NORC at the University of Chicago (humberger-douglas@norc.uchicago.edu) – “Seaborne Attack Impact at Transportation, Energy, and Communications Systems Convergence Points in Inland Waters”
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- Panelist 3: Henry H. Willis, RAND Corporation, CREATE (hwillis@rand.org) – “Setting Priorities for Protecting Transportation Systems”
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- Scribe: John Lickfett, NORC at the University of Chicago (lickfett-john@norc.org)

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March 30 - April 1, 2011
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Questions that the panelists will discuss

- What is the key question or decision problem you would like to risk-inform?
- Who are the decision makers for the modeling and analysis?
- Who are the customers and users (or ideal customers and users) who can implement the modeling and analysis in DHS or in the extended Homeland Security enterprise to support decision makers?
- What is the state of current practice and the limitations of current practice?
- What is new in your modeling and analysis approach, and how does it help address limitations of current practice?
- Why should DHS, extended Homeland Security technical practitioner community, and/or decision makers care about your modeling, analysis, findings, etc.?
- Are there any technical or organizational challenges that still must be overcome for risk analysts in DHS or extended Homeland Security enterprise to implement and use your research?
- What are next steps? Are there any key learnings that were surprising?

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Samrat Chatterjee, Univ. of Southern California, CREATE

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“Development of Risk-Based Preventative Radiological/Nuclear Detection Resource Allocation Decisions”

- CREATE is working with California Emergency Management Agency for Preventive Radiological and Nuclear Detection (PRND) issues
- The Team developed a risk and economic assessment framework to evaluate effectiveness of programs to protect against Radiological and Nuclear Risks at the State-level and Local-level
 - State-level model (influence diagram based with a nonlinear optimization routine) includes RN target modeling and countermeasure allocation modeling
 - Local-level detection architecture options are evaluated by probabilistic models based on PRND operations (area, fixed, and choke points) and PRND activities (mobile and fixed detection)
- A suite of sophisticated, though early-stage, risk and decision models and quantitative methodologies have been developed to support PRND risk management and resource allocation deployment and capability-building decisions
- **DHS & Enterprise Customers: Calif. EMA, DNDO/Office of System Architecture, Office of Policy / Policy Development, NPPD/RMA**

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Douglas Himberger, NORC at the University of Chicago
(himberger-douglas@norc.uchicago.edu)

“Seaborne Attack Impact at Transportation, Energy, and Communications Systems Convergence Points in Inland Waters”

- The research team is planning to use advanced information search capabilities and state-of-the-art GIS techniques for geo-location to catalog risk information related to inland waters convergence points.
- The team is exploring jurisdictional and infrastructure boundary vulnerabilities with emphasis on the overlap of a set of primary research domains – security, energy, and environment – drawing on a multidisciplinary team of SMEs (engineering, social sciences, law, emergency management, etc.).
- The team reported on next steps toward:
 - building a more robust analytic framework for identifying, quantifying, and prioritizing inland waters convergence points risks, and
 - developing a process for risk mitigation and management.
- **DHS & Enterprise Customers: NPPD/Office of Bombing Prevention, Coast Guard/Directorate of Assessment, Integration & Risk Mgmt, NPPD/RMA**

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Henry H. Willis, RAND Corporation, CREATE (hwillis@rand.org)

“Setting Priorities for Protecting Transportation Systems”

- CREATE is investigating comparative risk assessment methods for diverse hazards that affect transportation systems.
- They reported on identifying a set of characteristics that must be covered when describing terrorism and disaster hazards in a comprehensive manner.
- The team discussed eliciting relative concerns about the hazards that are being managed. The relative concerns about hazards provide a starting point for prioritizing solutions for reducing risks to transportation systems.
- The findings of this research provide insights into how to reliably compare terrorism, crime, accident, and disaster hazards.
- These results contribute to DHS developing methods needed to conduct a national-level assessment that compares risks across its broad mission space
- **DHS & Enterprise Customers: NPPD/RMA, FEMA, Office of Policy/Requirements, Capabilities & Assessments, NPPD/IP-HITRAC**

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Summary of PANEL 16: Challenges and Innovations in Risk Assessment for the Homeland Security Enterprise

- Researchers reported on progress in developing methods and approaches to engage multiple decision makers to use risk information in enterprise level decisions
 - CREATE Team talked about coordinating and optimizing state & local decisions after federal level decisions
 - NORC Team talked about coordinating across multiple jurisdictions where CIKR converges
 - RAND talked about comparative risks methods in other fields, and exploring potential to apply to DHS mission space spanning terrorism, natural hazards, and accidents