

PANEL 13: Risk and Opinion: Assessing the Impact of Transportation Counterterrorism Policies

Moderator/
Scribe:

Heather Rosoff, University of Southern California, CREATE

Panelist 1:

William Burns, Decision Research, CREATE – “Public Response to Recent Terrorist Attacks in the US: A Longitudinal Look”

Panelist 2:

Robin Dillon-Merrill, Georgetown University – “Examining Divergent Beliefs and Values in the Policy Debate over Full-Body Airport Screening Technology”

Panelist 3:

Richard John, CREATE – “Modeling Effects of Counterterrorism Initiatives on Reducing Adversary Threats to Transportation Systems”

Panelist 4:

Jun Zhuang, University of Buffalo – “CREATE Technology Evolutionary Games in Complex Transportation Systems in the Face of Adaptive Adversaries”

DHS Panel
Coordinators:

Marilyn Morgan and Jessica Redburn

The DHS Science Conference - Fifth Annual University Network Summit

**Catastrophes & Complex Systems:
TRANSPORTATION**

March 30 - April 1, 2011
Renaissance Hotel · Washington, DC

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Risk and Opinion:

Assessing the Impact of Transportation Counterterrorism Policies

- Effective counterterrorism strategies are only as good as they are received/responded to by the general public and adversaries.
- An understanding of the impact of counterterrorism policies on the general public and adversaries can inform policy making and risk communication efforts.
- Two presentations addressed the nexus of counterterrorism policy effectiveness and public opinion.
- Two presentations used modeling to study the strategic interactions between terrorists and transportation systems.

Modeling Effects of Counterterrorism Initiatives on Reducing Adversary Threats to Transportation Systems

Authors: William Burns, Paul Slovic and Ellen Peters

Research Motivation: Exploring how newsworthy events influence feelings, risk perception and risk-related behavior.

Study: Conducted a longitudinal study of public response to the attempted attack on Flight 253 (underwear bomber).

Sample: Nation-wide panel of 600+ to 6 surveys from 12/09 – 12/10

Design: Questions related to fear, risk perception and postponement of air travel, and trust and perceptions of DHS and TSA

Findings:

- Fear of flying and intention to postpone occurred,
- Fear decreased right away, while intention to postpone took several months
- Trust in DHS remained moderately high
- Support for full body scanning was moderately high

Examining Divergent Beliefs and Values in the Policy Debate over Full-Body Airport Screening Technology

Authors: Robin Dillon-Merrill, R. John, G. Lester, C. Tinsley

Research Motivation: Recognized importance of increased domestic intelligence activities since 9/11.

Model: Used MAU to assess the “best domestic intelligence policy”

- Assessed 6 domestic intelligence policies
- Evaluated policies in terms of effectiveness, intrusiveness, cost, quality, and trust, and credibility
- Elicited holistic estimates of acceptability and their judgments about their risk attitudes and tradeoffs

Findings:

- Top ranked alternatives varied by group - automated surveillance, enhanced border security, and Federal investigation of personal communications
- General trend for greater weight on effectiveness of the policies was of greatest importance to experts

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Public Response to Recent Terrorist Attacks in the US: A Longitudinal Look

Authors: Richard John, Heather Rosoff

Research Motivation: Transportation systems are attractive targets for terrorist groups. Understanding the objectives and motivations that drive terrorist group behavior is critical.

Study: Use a value-focused decision framework to assess terrorist values and beliefs, followed by a random utility modeling approach to estimate the relative likelihood of an adversary selecting a particular attack strategy.

Data collection: Extensive interviews were conducted with an adversary value expert (AVE) to elicit information about terrorist beliefs, uncertainties, value trade-offs, and attitude towards risk.

Findings:

- The no attack strategy would be selected over 98% of the time, given no additional countermeasures.
- When no attack is removed as an option, the IED attack on gas stations is favored by the terrorist leader more than 8 times out of 10.
- With four countermeasures considered, the preferences do not change substantially.

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Technology Evolutionary Games in Complex Transportation Systems in the Face of Adaptive Adversaries

Authors: Jun Zhuang and Elizabeth Newell

Research Motivation: Understanding the implications of the evolutionary game between transportation systems and adaptive adversaries.

Why important: The interactions have high impacts on complex transportation systems, not only with respect to the security infrastructure, technologies and costs, but also to the general public's travel behavior.

Model: Use of evolutionary game theory to model the interactions between adaptive adversaries and transportation systems.

Model intended output: A framework to assist in decision making on when, where and what technology is beneficial in order to maximize the long-run social welfare of transportation systems.

Next Steps: Mathematically solve, verify, and evaluate the model using historical and simulated data.

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