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Societal Ripple Effects from Terrorist Attacks and Risk Communication Strategies Based on Fear and Anger

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Societal ripple effects from terrorist attacks
and risk communication strategies based on fear and anger

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November 30, 2011

1. Executive Summary

Originally the three year research project was to 1) Develop social amplification of risk grids to capture and summarize the findings from three terrorism case studies on how amplification stations within the targeted country amplified or reduced dread risk perceptions, and how these may have manifested themselves into avoidance behavior, and 2) Employ scenarios to develop and test risk communication messages and identify behavioral responses to two scenarios and two sets of risk communication messages covering fear and anger.

Due to a budget reduction the project was reduced from three years to one year. The re-scoped project therefore could not proceed with the intended scenarios to test fear and anger messages. Instead the project focused on the following:

The project will 1) Gain a detailed understanding of the ripple effects from three terrorist events (9/11, 2005 London bombings, and the Second Intifada in Israel), and 2) conduct a preliminary literature review on the psychological and behavioral effects of terrorism-related public communication messages. The literature will be surveyed to capture how amplification stations within the targeted country amplified or reduced dread risk perceptions, and how these may have manifested themselves into avoidance behavior.

This research was supported by the United States Department of Homeland Security through the National Center for Risk and Economic Analysis of Terrorism Events (CREATE) under award number 2010-ST-061-RE0001. However, any opinions, findings, and conclusions or recommendations in this document are those of the authors and do not necessarily reflect views of the United States Department of Homeland Security, or the University of Southern California, or CREATE or START at the University of Maryland.
The social amplification of risk grid (one grid per case study) will be developed to capture and summarize the findings from the terrorism case studies. The report will contain the social amplification of risk grids and a review of the behavioral effects. The outputs would help inform other CREATE initiatives including the systems dynamic model.

The re-scoping of the project also examined the ripple effects from the Fukushima nuclear reactor disaster to assess the lessons learned for preparing and responding to nuclear terrorism in developing and sustaining a compelling narrative to guide communications to assist long term recovery.

The Social Amplification of Risk Framework (SARF) can help identify what the adverse ripple effects may be following a disaster, and what communication messages need to be developed to elicit desired behavioral responses (Kasperson & Kasperson, 1996). The framework posits that the public’s risk perceptions and ripple effects can be amplified by institutions failing to take the social context of risk into account when making decisions and conveying information to the public (Rogers et al, 2007). SARF provides a theoretical and empirical substance to guide what processes should be modeled and how system feedback loops and delays may contribute to impacts far in excess of what may be expected. The framework helps to contextualize the identification of amplification and attenuation stations, their ripple effects, and impacts. In turn this can inform risk communication development. Although most SARF studies are qualitative, they enrich the framework’s methodological approach. SARF studies include methodological (Pidgeon 2003), media and risk reporting (Freudenburg, 1996), organizational amplification and attenuation (Pidgeon, 2003; Kasperson, 1992), institutional trust (Slovic, 1993; Slovic, 2000), and nuclear power and stigma (Flynn, 2001). Empirically based SARF approaches like systems dynamic modeling can guide communicators to better anticipate what messages may be needed to mitigate adverse avoidance and adaptive behaviors following a disaster (Burns, 2007). Risk communication by policy makers after the event has to be crafted in a way that neither unnecessarily alarms nor provides false comfort to people (Winterfeldt & Prager, 2010).

The grids permit the comparison of systemic attacks (e.g. Second Intifada) with mass casualty attacks (e.g. 9/11) to understand the short and long term societal effects. Cross comparisons can also take into account how moderating influences in each country may impact a population’s response. For example, prior experience of terrorism. We believe our framework presents the foundations for developing a social amplification of risk terrorism database.

Key findings are as follows:

1) The public can undertake adverse avoidance and adaptive behaviors that broadly fall into two categories: a) Neutral effects that include a reduction in the use of a recently targeted transport system, or less frequently going to locations previously attacked (e.g., shopping districts or restaurants); b) Adverse consequences that undermine the well being and health of individuals and communities.

2) Users need to be aware of the methodological limitations of the grids which include reliance upon historical evidence, encompassing single and systemic attacks in a single grid structure, and comparing studies that contain a variety of survey approaches. Despite the limitations the grids provide a valuable contextual analysis and snap shot of some of the key variables involved in impacting the public’s response to terrorist events in the following weeks, months and years.

3) Survivors from an attack expressed a high degree of resiliency and calm in the immediate aftermath of an event. However, that sense of clam was easily disturbed should rescue efforts be perceived as delayed beyond initial expectations.

4) Sustaining a compelling narrative can guide risk communication to augment the medium-long term recovery process.
5) Evidence reinforced previous findings that the public is not prone to panic following terrorist events, but can undertake avoidance and adaptive behaviors.

The Appendices contains three sections:
Appendix A: Social Amplification of Risk Grids
Appendix B: Terrorism-Related Public Communication: A Literature Review
Appendix C: References

Keywords: risk communication, risk perception, social amplification of risk

2. Research Accomplishments

2.1. Mapping the key amplification and attenuation stations from terrorist attacks

2.1.1. Social amplification of risk grids

First a detailed literature search was conducted to understand the societal ripple effects following terrorist attacks. Particular emphasis was placed on three terrorist events: 9/11, July 2005 London bombings, and the Second Intifada. Surveying the secondary literature identified how amplification stations within the targeted country amplified or reduced dread risk perceptions, and how these may have manifested themselves into avoidance behavior. Based on case studies, the research a) developed a detailed understanding of the societal consequences of single or multiple terrorist attacks; and b) employed the social amplification of risk framework to understand the inter-relationships between environmental actors (e.g. government communicators, emergency services, media). Through using Excel, the social amplification of risk grids (one grid per case study) were populated to capture and summarize the findings from the terrorism case studies (9/11, July 2005 London bombings, and the Second Intifada). The Excel file is imbedded in this electronic document in Appendix A. Below is a generic version of the grid:

<table>
<thead>
<tr>
<th>Amplification stations</th>
<th>Pre-event</th>
<th>Events on the day</th>
<th>2-7 days</th>
<th>2-4 weeks</th>
<th>2-6 months</th>
<th>7-12 months</th>
<th>1-2 years</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>Local</td>
<td>Nat</td>
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<td>Local</td>
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<td>Emergency services</td>
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<td>Media</td>
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<td>Government communication and actions</td>
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<td>Significant terrorist events</td>
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<td>Moderating influences</td>
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<td>Existing societal resilience levels</td>
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<td>PTSD and related symptoms</td>
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<td>Risk perceptions</td>
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<td>Behavioral responses</td>
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</table>

Note: Nat = National
The literature review identified a range of content that can improve the understanding of the ripple effects of terrorist events. The project examined whether social amplification of risk grids can provide a user friendly format to capture and analyze the data. The objective was not to fill all the cells, but to provide a framework to capture existing content (and identify gaps in the literature). The grid approach permits analysis by theme area on the vertical axis (e.g. risk perception, or PTSD effects) or time point on the horizontal axis (e.g. 2-4 weeks or 1 year after an attack). Each theme area is subdivided into local and national columns: local for events in the targeted city, and national for events at the country level. This permits an assessment of potential impact of proximity. The grids can also be updated over time as new literature and data becomes available, serving as a useful central repository. They also expedite case study comparisons and analysis of content in different combinations.

To zoom in and out of the spreadsheet, users should use ‘control’ + mouse wheel. Although Excel does not provide a smooth movement to move between the cells, this approach provides a reasonable degree of navigation. Future research could examine alternative off the shelf software packages for a more flexible user interface. The size of the spreadsheets makes them unsuitable for printing on letter size paper. They could, however, be printed on poster size paper.

2.1.2. Methodological limitations

Capturing systemic and single attacks in one grid structure
Terrorist events vary greatly from the type device used, the strategic objectives of the perpetrators, to the geographic spread of the attacks (Hoffman, 2006). A key challenge was developing a grid structure that encompassed single and systemic attacks (those carried out over months or years). The project therefore selected a systemic case study (Second Intifada from 2000-2004), and single attacks (7/7 bombings and September 11). Although 9/11 was a series of coordinated attacks over different parts of the US (and are included in the START Global Terrorism Database as separate events), for the purpose of the grid they have been treated as a one event as they occurred on a single day. Furthermore, the 9/11 grid emphasizes the attacks on the World Trade Center in New York. Encompassing a timeline perspective presented the following methodological challenges:

1) Single attacks may be succeeded by other terrorist related events in the following weeks and months that may amplify or reduce the ripple effects of the original event. For example, the anthrax attacks in the weeks after 9/11, and the failed bombings in days after the 7/7 London attacks. Without longitudinal surveys before and after subsequent events it is difficult to establish the exact impact of the original attack.

2) Systemic events are harder to assess given attack variations. Attack severity and target type, for example, may vary over time. We therefore expanded the timeline to cover the duration of the terror campaign (four years in the case of the Second Intifada) to capture the variations where possible. Where applicable each grid entry included the date of when the survey was conducted in that particular cell time point. This provided a series of snap shots of the societal impact, and the accumulative effects. Some surveys did study the consequences of specific terrorist events, notably Stecklov & Goldstein (2004) who during the Second Intifada identified an increase in road traffic fatalities in the days after an attack.

Content availability
The project required relying upon historical evidence to capture risk perceptions and risk communication, and avoidance and adaptive behaviors that ensued. The literature review revealed limited content on risk perception and risk communication for some cases studies. Of the three case studies examined, 9/11 contained the most comprehensive risk perception and communication research. Content gaps were addressed through identifying alternative sources. These ranged from quantitative evidence (e.g. opinion
polls and changes in travel behavior on previously targeted transport systems), through to qualitative evidence (e.g., firsthand accounts and observations made in the days and weeks following an event). Firsthand accounts were particularly valuable in capturing the perceptions of those in the immediate vicinity of an attack. Throughout the project emphasis was placed on quantitative evidence. For example changes in travel patterns and PTSD and related symptoms that reflected the extent of trauma of the local and national populace.

Furthermore, the completed grids show a proportion of the content gravitated towards a selected number of cells reflecting the type of secondary sources available. For example, the Second Intifada grid contains a large number of studies that centered on the latter years of the terrorist campaign. Therefore content is not evenly spread throughout the grids.

Studies contained a variety of methodologies
The grids contain studies that employed various methodologies, limiting the ability to compare one study with another. Methodological variations included population sample size, socio demographics of those sampled, survey duration, and geographic area covered. This project therefore incorporated survey data on adults rather than other socio demographics to improve the ability of data comparison. Although there are studies that focus on other population groups (for example children during the Second Intifada - see Mandsorf, 2003), this would have further complicated potential cross comparisons. Furthermore, the number of studies conducted on terrorist events varies considerably. For example, the literature is more extensive on 9/11 than on the London 7/7 bombings. The 9/11 grid therefore has a greater number of sources and content.

Despite these limitations the grids provide a valuable contextual analysis and snap shot of some of the key variables involved in impacting the public’s response to terrorist events in the following weeks, months and years. We believe acknowledging these limitations will assist users to better evaluate the ripple effects.

2.1.3. Resiliency over panic

The grids reinforce evidence that the public is not prone to panic following major natural and manmade disasters (Wessely, 2005; Sime, 1980). Evidence from survivors of the attacks and emergency personnel on the scene together with observations on the days following the event suggest the public largely responds in a calm manner. The 9/11 and 7/7 case studies in particular provided a plethora of material that provided insights into how people responded in the immediate aftermath of the attack. This was backed up with analysis of voicemail recordings and video camera footage from the scenes. However, the public can undertake avoidance and adaptive behaviors, some of which can be detrimental to the well being of themselves and those around them.

2.1.4. Adverse and neutral consequences

Analysis of an array of terrorism case studies suggests there are two broad ends to responses. First, responses with neutral consequences for the well-being of individuals and those around them. Neutral effects include a reduction in the use of a recently targeted transport system, or less frequently going to locations previously attacked (e.g., shopping districts or restaurants). These pose regional economic consequences while the well-being of individuals are generally not affected. Second, adverse consequences for the safety and health of individuals and communities. These include individuals embarking on activities that pose a greater risk to their own well-being while believing they are reducing the risk of being subjected to a terrorist attack (e.g., choosing a mode of transport or behavioral change that poses a greater risk to them). While the complex nature of social amplification constrains precise
identification of influencing variables, there are some elements of social amplification which appear to influence behavior following terrorist events, for example, transportation behavior change (Winterfeldt & Prager, 2010). Changing risk perception can play a role in influencing transportation choice (Winterfeldt & Prager, 2010).

Neutral consequences include Israeli actions during the Second Intifada where 25% of Israelis kept away from buses when traveling in a car and traveled less often by bus, avoided peak rush hour and took taxis more often (Kirschenbaum, 2006). Those who took the bus undertook precautionary behavior that included choosing a seat on an empty bus (16%), sitting near the entrance of a bus (18%), sitting near the driver (15%), or toward the back of the bus (13%) (Kirschenbaum, 2006). Two weeks following the 7/7 bombings, there was a 10-15% decline in passenger numbers on the London Underground on weekdays and 20-25% on weekends (BBC Today Program, 2005). In the following months, there were 30 million less journeys than expected in 2005 and by 2006 passenger numbers returned to expected levels (Webster, 2005).

Adverse responses include evidence to suggest Israeli drivers drove more aggressively in the days after a terrorist attack leading to a 35% increase in fatal road traffic accidents three days after an attack (Stecklov & Goldstein, 2004). Bombings that killed 10 or more led to an increase of 69% of road fatalities leading in total to of an extra 28 road deaths during the survey period of January 2001 to June 2002 (Stecklov & Goldstein, 2004). In the northeast of the US, stress is believed to have caused an increase in drug and alcohol consumption which impacted driving quality and in turn increased the number of road traffic fatalities (approximately 353 in the 3 months after 9/11 (Su, 2009).

Whether neutral or adverse consequences ensue, avoidance and adaptive behaviors can in limited cases be part of probable post-traumatic stress disorder (PTSD) and associated symptoms caused by trauma individuals have experienced.

2.1.5. Future research

We propose that the existing grids be expanded and new grids developed to cover other case studies as part of a central repository for a social amplification of risk terrorism database. The grid approach provides a unique multi-disciplinary approach in a format that we believe has not been used before. It is recommended the existing grids be peer reviewed by selected subject matter experts on the respective case studies to capture their insights on: 1) Development of the generic grid structure; and 2) Input and recommendations concerning the terrorist event. Year two of the project was to have accomplished these tasks and conduct further analysis of the grids to identify possible interactions between the variables.

When expanding to other terrorist events, the available data may be more limited than captured in the case studies used here. Furthermore, long term systemic terrorist events like the IRA and ETA campaigns may require grids to be split into time points according to specific parts of their campaigns. For example, the end points of each timeline could be declared ceasefires by the terrorist groups before the resumption of violence months or even years later. The development time for each grid is estimated between 3-6 weeks depending on the case study.

Color coding could be employed to highlight certain features, for example, adverse avoidance and adaptive behaviors. Additional sub categories could also be developed where appropriate, for example, socio-demographics, and cultural attitudes. Such features would be part of a peer review process.

Future development of the grids could see greater sophistication of the spreadsheet format to improve navigation and user experience. For example, scrolling smoothly through entries which Excel does not
permit, and greater control over ‘locking’ and selecting cells. In addition, the functionality to view two or more case study grids side by side would allow for direct comparisons, and ideally an export function to save the personalization of the comparisons. An ideal platform may be a tablet style approach to allow users to more easily zoom in and out of the spreadsheet.

2.2. The narrative and framing in risk communication

Following the Fukushima nuclear disaster, an assessment was made of how risk communication may have influenced the narrative among the Japanese populace of the perceived competency and trust of government officials and the nuclear energy industry; and the perceived safety of returning to contaminated regions and purchasing food products emanating from the Fukushima prefecture. The narrative approach builds upon the ‘framing’ concept of how an individual’s personal experiences, social identity and pre-existing interpretations can influence the overarching theme of an issue. The narrative focuses not just at the individual, but also at the organizational and national level. We would like to acknowledge that the narrative research also involved Mary Crannell from Idea Sciences.

Frames are interpretive storylines that set a specific train of thought in motion, communicating why an issue might be a problem, who or what might be responsible for it, and what should be done about it (Nisbet, 2009). Kahneman and Tversky applied framing in experimental designs to understand how risk judgments and consumer choices are effected, noting that “perception is reference dependent” (Kahneman, 2002). There is no one single frame but a complex set of frames and counter-frames, and it contends with many other influences, such as ordinary experience, that also shapes public reactions (Price, Nir and Capella, 2005). Successful framing requires applying research from risk communication and other fields to tailor messages to the existing attitudes, values, and perceptions of different audiences to make the discourse understandable, relevant, and personally relevant (Nisbet, 2009).

The term narrative expands on the framing concept by recognizing that a collection of compelling stories represent the cultures, history, and purpose of individuals, organizations, and nations. Arguably risk perception and communication influence the strategic narrative of an event and how the public ultimately responds. The narrative determines how groups perceive the credibility and authenticity of leaders and organizations. Narratives reflect the values of movements, and successful leaders become part of the storyline in a narrative. A narrative continuously flows, determined by the actions and inactions of the parties involved. The narrative is an emergent property from within the cacophony of different ideas, opinions, facts, and information sources. The research identified the following key recommendations on developing and sustaining a compelling narrative.

Why Is the Narrative Important?
Public perception of risk influences the narrative and serves as one of the indicators in the narrative’s “taking hold.” A universal narrative is the umbrella for competing narratives. A robust narrative needs to be broad enough to encompass competing narratives but narrow enough to communicate a tangible path.

What Is the Narrative? Do People Resonate with the Story?
At the personal level, people need to identify with the story, understand the story, and be able to “link” their personal narrative to the broader narrative. Successful narratives have a “face” and are simple and elegant.

How Do You Tell the Narrative? How Do You Reinforce the Narrative?
Discipline within organizations is essential to staying on message. All too often organizations become distracted by events. It is important to focus on the entities’ priorities and not be lured away by quick news-cycle distractions. Leaders and staffs need to remain true to their core message and look at daily
events within the context of a long-term view. Crises are framed within the narrative; crises do not define the narrative. Organizations too frequently allow the crisis of the day to define their narrative. It is important to focus on how the crisis fits within the narrative and not allow the crisis to trump the narrative. Sustaining the narrative requires reinforcing and reinventing the story as events change. Over time the narrative will need refreshing. The purpose remains, but the stories that communicate that purpose should be renewed to continually engage and reengage the public.

**Who Communicates the Narrative?**
For the messenger to be seen as authoritative and credible, those communicating the narrative need to understand the personal stories. A compelling narrative is powerful if the person communicating the story is seen as a symbol that reflects and represents a microcosm of the story and if that person is authentic. Genuineness and authenticity play a role in communicating a compelling narrative. If the communicator’s personal narrative is not aligned with the overarching narrative, it will be weakened. Or the personal story may be so counter to the narrative that by this person outlining this direction, the narrative gains momentum.

**What Backdrop Supports the Narrative?**
The place where the message is delivered needs to support the narrative, whether virtual (e.g., Internet) or real world. Location helps to define the message; a symbolic backdrop reinforces the message.

**When is the Narrative Communicated?**
In addition to knowing where to plant seeds, it is important to know when to plant. Innovative ideas are accepted if the timing is right. Innovative ideas need to be relevant given the current events of the day.

Early warning indicators that the narrative is out of sync or “off rhythm” include:
1) Lack of trust surrounding the competency of the individual(s) or organization(s) in carrying out the intended strategies. A compelling narrative can be lost by losing the trust of one’s stakeholders. Trust is difficult to win but easy to lose.
2) Uncertainty concerning the risk or issue being communicated. For example, the lack of definitive scientific data or ambiguity of an organization’s intent.
3) Emergence of competing and compelling narratives, such as changing public attitudes or other organizations becoming successful in crafting and communicating their competing narratives.
4) Preexisting counter-narratives that flow against the preferred narratives. For example, new political leaders taking office in a highly charged partisan or low-trust environment seeking to enact their own policies. Or competing narratives emerging in one’s own organization.

### 2.3. Literature review on terrorism-related public communication

Our review indicates that communication and terrorism research is divided into three sub-areas, including risk communication, crisis communication, and media coverage. In particular, terrorism has been examined by many scholars in risk and crisis communication due to its nature. The full literature review is contained in Appendix B.

**Risk communication:** Risk communication research, based on its traditional approach, examines how people perceive risk regarding terrorism and how communication about the risks of terrorism is affected by risk factors. Based on several theoretical frameworks, research has advanced the understanding of perceived risk of terrorism. However, this research often does not provide practical implications except for a few cases.
**Crisis communication:** Crisis communication research, based on its public relations management approach, has examined more practical aspects regarding crisis situations. How practitioners cope with terrorism has been researched, and based on past experiences and literatures, practical suggestions to follow in a case of crisis are provided. Most empirical studies in crisis communication research have been conducted on how the public perceive the communication within crisis contexts. Unlike risk communication research, a big portion of crisis communication research is based on literature review, conceptualization, and practical implications. Admitting the importance of their practical contributions, a more systematic approach based on theories or a set of concepts is expected to speed up future studies by providing a platform to start.

**Media coverage:** Research on media coverage of terrorism also has helped our understanding on the relationship between terrorism and communication. Scholars have examined how media shape the public’s perception of terrorism and what factors are related with producing media contents. These studies illustrate mechanisms of how people make meaning of terrorism. However, due to their limited method use (i.e., content analysis), the studies ignore how the public actually interpreted media contents. Also, different perceptions on terrorism across cultures or countries are rarely examined.

3. **Applied Relevance**

The development of the social amplification of risk grids will enable the comparison of systemic attacks with mass casualty attacks to understand the short and long term societal effects. Cross comparisons took into account the moderating influences in each country that may impact a population’s response, e.g. prior experience of terrorism and systemic violence. Assessment of terrorist events needs to take into account the medium and longer implications rather than focusing on the events in the days following an attack.

Behavioral responses that may have a detrimental impact on people’s well being can also present economic implications for a region as individuals choose not to commute to their regular work place, eat out less often or not visit tourist destinations. Of greater concern are adverse avoidance and adaptive behaviors that DHS and related authorities need to have a better understanding of. The grids provide a means for DHS to better anticipate what type of adverse avoidance and adaptive behaviors could ensue following events to then better undertake measure to mitigate them through, for example, risk communication.

It is recommended that the grid approach be incorporated into the DHS National Planning Scenarios that tend to focus on the immediate aftermath of events (DHS, 2006). Similarly other public health agencies take a similar near term approach, for example, the Advanced Practice Centers who have developed risk communication guidelines for public health professionals (APC, 2011).

The project provides a greater understanding of avoidance and adaptive behaviors exhibited following a mass casualty event, and how risk communication could be employed to elicit desired behavioral responses. Avoidance behavior will also provide insights into the economic consequences.

Insights from the narrative component will assist DHS and other public agencies to better contextualize their strategic communications, and provide a greater understanding of how their perceptual environment may evolve. Narratives are not static but continuously evolve. Organizations will have their visions or mission statements of what they stand for and aim to achieve. The narrative can help support and execute these elements. Responding to crisis serves as a critical juncture that can define and frame the competency and effectiveness of organizations and their leaders.
The narrative concept is not new to Federal Government strategy. The State Department, for example, has established the Center for Strategic Counterterrorism Communications (CSCC) to counter violent extremisms under the direction of the White House (White House, 2011). The White House Executive Order tasked the CSCC to:

- Monitoring and evaluating narratives (overarching communication themes that reflect a community's identity, experiences, aspirations, and concerns) and events abroad that are relevant to the development of a U.S. strategic counterterrorism narrative designed to counter violent extremism and terrorism that threaten the interests and national security of the United States.

While the CSCC is focusing internationally, the strategic narrative concepts could be applied to other Federal agencies like DHS. The insights from Fukushima can assist the preparedness and recovery to nuclear incidents. This can include radiological dispersal devices and improvised nuclear devices which compared to other terrorist events like IEDs, are lower familiarity and affect rich (Peters et al., 2004).

Customers of the deliverables include:
- Department of Homeland Security Human Factors and Public Affairs divisions
- Federal, State and local preparedness and engagement programs
- National Security Council’s resilience directorate
- Homeland Security Institute to enhance their public preparedness research

The ripple effects insights could form the basis of integrating societal responses into the START Global Terrorism Database. The approach would a) develop a detailed understanding of the societal consequences of single or multiple terrorist attacks; b) employ the social amplification of risk framework to understand the inter-relationships between environmental actors (e.g. government communicators, emergency services, media).

4. Collaborative Projects

4.1. Publications and Reports

Ben Sheppard had an article published in the Journal of Homeland Security and Emergency Management that incorporated the project’s initial research findings, and a co-authored a commentary piece in the Air Force Strategic Studies Journal on the narrative.


Ben Sheppard & Mary Crannell, Preparing to Lead with a Compelling Narrative If You Don’t Frame the Narrative, Someone Else Will, Air Force Strategic Studies Quarterly, Fall 2011, pp. 11-21.

We intend to submit for publication additional findings from the project; e.g., we plan to submit a revised version of the write-up of the literature review on terrorism-related public communication to Communication Yearbook for review and possible publication.

4.2. Presentations - Conferences

We propose to present our findings at two conferences:

2. DHS University Summit in Washington DC, 2012 (proposed)

4.3. Presentations – Outreach

We intend on presenting our findings to DHS personnel through one-on-one and group meetings to disseminate our findings.

4.4. Related initiatives

This work maintained a close interface with CREATE’s risk analysis and risk management projects, most notably with the work of Burns, Slovic, John and Rosoff. Core theme areas are risk communication, risk perception, economic consequences and mitigation, and resilience through the systems dynamic modeling to quantify and model the ripple effects and identify potential solutions. This project also leveraged and built on START’s Societal Responses to Terrorist Threats and Attacks work group 3. We foresee that the Avoidance behavior data could be subsequently populated into START’s Global Terrorism Database as part of a separate project and funding stream. A proposal has already been submitted as part of START’s recompete bid to fulfill development of this initiative.

5. Education and Outreach Products

Ben Sheppard has incorporated the projects outcomes into the following terrorism courses he teaches:

1. Development of counter terrorism policies and programs (graduate), University of Maryland
2. Responses to Terrorism (undergraduate), University of Maryland
3. Global Terrorism (graduate), George Washington University

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<thead>
<tr>
<th>Education and Outreach Initiatives (Please detail below)</th>
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<tbody>
<tr>
<td># of students supported (funded by CREATE)</td>
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<tr>
<td># of students involved (funded by CREATE + any other programs)</td>
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6. Appendix A: Social Amplification of Risk Grids

Below is the imbedded link to the Excel spreadsheet that contains the three grids – one per spreadsheet tab. Click onto the icon to open the document.

Nan Sheppard
Appendix A Social Arr
7. Appendix B: Terrorism-Related Public Communication: A Literature Review

1. Introduction
In the aftermath of the September 11th terrorist attack, terrorism communication has become a new, important research topic as government officials, first responders, community leaders, and researchers realized that a number of barriers could limit the effectiveness of communication during or after terrorist events (Sparks, Kreps, Botan, & Rowan, 2005). Communication scholars in various sub-areas, including media studies, public relations, and persuasion, have attempted to better understand terrorism and to provide guidance for risk and crisis communication within the context of terrorism. In the following sections, we will discuss how crisis communication and risk communication differ and what kinds of communication research regarding terrorism have been conducted to date.

2. Risk and Crisis Communication
Risk and crisis communication both deal with hazardous issues. However, scholars have emphasized the differences between them (Ayotte, Bernard, & O’Hair, 2008; Coombs, 1999; Reynolds & Seeger, 2005; Sparks, Kreps, Botan, & Rowan, 2005) including different historical origins, goals, focal contexts, target audiences, and the theoretical and methodological frameworks (Ayotte, Bernard, & O’Hair, 2008; see Reynolds & Seeger, 2005, for a comprehensive comparison). Among a number of factors that differentiate these two approaches, one of the obvious differences between them is found in the ontological status of the harmful event, that is, whether the event has actually occurred or is likely to occur (Ayotte, Bernard, & O’Hair, 2008). Risk communication considers the probability of a hazardous phenomenon such as health problems or environmental issues and the degree to which such issues affect common values. On the other hand, crisis communication concerns a more proximate danger when it is in progress or after it has occurred. Here, the focus is on how to manage organizational relations with the community and how to minimize the negative effects of the dangerous events (Reynolds & Seeger, 2005).

Historically, risk communication has been derived from persuasion research, focusing on how to persuade audience via advertising or public education campaigns. Risk communicators design messages to inform the public of the probable risks and influence people’s behaviors to reduce the negative effects. Typically, the communication aims to have long-term effects in the future (Reynolds & Seeger, 2005).

Crisis communication, on the other hand, is grounded in the public relations tradition, the goal of which is to strategically manage the relationships between organization and the public by alleviating the perceived harmful effects. In specific, crisis communication message is based on the current states about an event, as well as unknown consequences resulting from the crisis. It is primarily informative and responsive to publics’ inquiries during and after the crisis.

In other words, risk communication focuses on risk assessment and perception before a hazardous event occurs while crisis communication aims to manage the crisis during and after the event has occurred (Reynolds & Seeger, 2005).

3. Terrorism and Risk communication
Recently, a number of scholars have advanced the research on terrorism in twofold: risk perception applied to the threat of terrorism and communicating about the risks of terrorism (Goldstein, 2005). Scholars have examined specific factors that lead to risk perception to better understand how individuals would respond to threats of terrorism (Jenkin, 2006). In particular, unlike danger which actually exists, risk is a socially constructed phenomenon, and is based on subjective perception rather than on objective fact (Slovic, 1987, 1999). An empirical study by Slovic, Fischhoff, and Lichtenstein (1979) found that
subjects’ perceived threats of a number of risks did not match their actual mortality estimates, implying the subjective and perceptual nature of risk. Moreover, for a practical reason, risk perception has been researched by risk communication scholars. To develop an effective communication related to terrorism, practitioners need to understand what risk is and how the public perceive it. Therefore, risk communication research on terrorism has been approached closely with the investigation of psychological factors predicting perceived risk of terrorism.

3.1. Risk perception of the threats of terrorism
Some scholars have researched what factors influence or are related to risk perception in the case of terrorism. Sjöberg (2005), for example, found that people perceive a higher level of risk to occur to others than to themselves. Also, some demographic traits such as older age or being female showed a positive relationship with perceived risk. Stevens, Agho, Taylor, Barr, Raphael, and Jorm (2009), using a survey with 2,081 respondents, found that those with low education level perceive a higher risk of terrorism and are more concerned about the consequent impacts. They emphasized the need for tailored message depending on the different social-educational levels of population.

Psychologists (Lerner, Gonzalez, Small, & Fischhoff, 2003; Small, Lerner, & Fischhoff, 2006) have examined how emotion affects people’s responses to risks. Based on a national field experiments, Lerner et al. found that fear predicted a higher level of risk perception and stronger intentions for adopting precautionary measures, while anger showed the opposite results. Emotions also predicted different preferences for public policies. Another study conducted by the group (Small, Lerner, & Fischhoff, 2006) found that anger elicited stronger causal attributions regarding 9/11 compared to sadness. The line of research investigated how specific emotions shape individuals risk perception.

3.2. Communicating about the risks of terrorism
Researchers have identified several factors that impact risk perception. Among them, trust has been regarded as the most significant factor that influences effective risk communication (Heldring, 2004; Rogers, Amlôt, Rubin, Wessely, & Krieger, 2007). According to a study by Johnson and Slovic (1995), in which various features of risk communication were manipulated, trust in government was found to be the most important. In particular, when the public has little knowledge, communicators’ credibility is vital to make them follow the direction such as evacuation, or sheltering (Gerber & Neeley, 2005) because otherwise instructions might be ignored by the public (Jenkins, 2006). Rogers et al. (2007) investigated how effective government communication could reduce morbidity and mortality under a terrorist attack. Risk factors such as reputation, uncertainty, trust, or the social amplification of risks were identified to have impact on risk communication.

Slovic (1999) found some systematic problems what make it hard to build trust among the public specifically in the case of terrorism. First, due to the nature of intelligence sources, successful story of the war on terror is not publicized. Second, in terms of salience, success is less weighted. For example, compared to the benefits of keeping status quo through anti-terrorism, the costs of failure are much easily noticed by lay people. Third, once government loses trust through unsuccessful stories, the public become more focused on the information consistent with their attitudes, resulting in low trust on government. Especially, the U.S. public is exposed to contradictory expert testimony regarding risks (Vardeman & Aldoory, 2008). Therefore, trust is a very fragile factor despite its significance (Jenkins, 2006).

Other scholars (Breakwell & Barnett, 2003; Heldring, 2004) also researched a number of factors that influence risk communication. Heldring provided a series of factors to be considered for risk communication, including credibility, specificity of the information, and empathy. Breakwell and Barnett model a mechanism by which past history of risk communication impacts future risk communications within the minds of the public. They argue that such a hazard template, which is a set of heuristics related
to risk, influence the reaction of the public in the future. Therefore, to better respond to future terrorism, it is critical to understand how people’s hazard template has been shaped. Dutta-Bergman (2005) examined the relationships between mental depression and news consumption after September 11, 2001. The finding revealed that individuals who closely follow news across different types of media (i.e., the Internet, radio, TV, newspaper) in response to the terrorist attacks on 9/11 were more likely to be depressed than those who did not follow.

4. Terrorism and Crisis communication
According to Coombs (1999), crisis is composed of victims and high visibility, and terrorism easily meets such criteria to become a crisis. Sparks et al. (2005) define crisis communication as “study and application of the use of strategically designed messages delivered through selected sources (mediated and interpersonal) to convey relevant information to targeted audiences in crisis situations that have the following features: (1) uncertainty; (2) intense emotion; (3) disparate target audience; (4) time is of the essence; and (5) communication of appropriate and effective strategic message(s) is urgent” (p. 3).

Crisis communication research about terrorism shares the goal of managing risk or crisis communication, and it has been approached from three perspectives: (1) practitioners’ responses to public, (2) how-to instructions under an event of crisis, and (3) public perceptions within a context of crisis.

4.1. What and how practitioners communicate within a context of crisis
Many crisis communication scholars have researched terrorism within a practical setting by focusing on what practitioners actually do under crises. Due to the nature of terrorism, scholars have specifically looked at various aspects of risk and crisis communication occurring in government agencies. Scholars examined how government communicates with terrorists in an uncertain and urgent environment. The study by Venette, Veil, and Sellnow (2005) explored preferred communication resources for employees in a risk intense context. Specifically, the Animal Plant Health Inspection Service of the United States Department of Agriculture was asked regarding their communication preference for the prevention of bioterrorism and unintentional infestations of dangerous pests and diseases. Findings indicated that more rapid and flexible communication resources such as email or the Internet, and manuals are preferred, while frequent risk messages like pest alerts were not valued. In addition, the more employees feel that they have adequate sources, the more confidence they have for limiting or preventing bioterrorism or accidental infestation.

A more dynamic nature of terrorism was also researched. Sellnow, Littlefield, Vidoloff, and Webb (2009) examined the interaction between bioterrorist hoaxes and the New Zealand government’s responses. Through the analyses of the governmental communication, they found factors that make effective hoax responses, including source attack, reinterpretation of a given claims, and acknowledgement of the value threatened. In addition, Prue, Lackey, Swenarski, and Gantt (2003) investigated how the Centers for Disease Control and Prevention (CDC) has changed their communication monitoring system as an aftermath of 9/11, to enhance CDC’s emergency response to the public.

Some other scholars (Lowrey et al., 2007) examined media experts’ ability to deal with terrorism. Lowrey et al. employed interviews of 26 expert advisors, including journalists, public information officers (PIO), health officials, experts in terrorism and emergency preparedness, and experts in health, risk, and science communication. They found that the biggest problems were a lack of effective, efficient communication between PIOs and journalists. They showed different perceptions toward the counterparts’ role during crisis situations. Also, a lack of resources to evaluate and disseminate information was the other problem, which limits effective communication in emergencies.
4.2. Suggestions for emergency

The other group of crisis scholars aims to provide comprehensive, step-by-step manuals which can be employed for preventing, planning for, and responding to crisis. They do not empirically collect and analyze data, instead based on the prior literature or past experiences of crisis, they develop a series of practical take-away. For example, Kreps et al. (2005) provided the principles to follow under a biological threat, including collecting relevant information about threats, conveying risk information to health and safety professionals as well as to the media to enhance credibility, employing effective communication channels to reach multiple audiences, tailoring messages for diverse audiences, assessing feedbacks and updating communication strategies.

Some scholars (Fischhoff, 2011; Gray & Ropeik, 2002; Reynolds, 2005) advance the fields by integrating crisis and risk communication approaches. Based on prior research of risk communication literature, Gray and Ropiek identify risk factors, such as awareness, uncertainty, personal relevance, optimism bias, newness, the degree of the threats, voluntariness, controllability, or trust, and then, apply such factors to effective crisis communication designs. Using tactics and strategies, they develop a step-by-step manual to follow. For example, Reynolds states that the first official message during a crisis should show the following six elements: empathy, confirmed facts, what are not known facts, what is going on, statement of commitment, and the source to get further information. Through the manuals, these scholars aim to help practitioners under crisis, in which time compression is very high. The prominent risk communication scholar, Fischhoff, also stressed the unique role of risk communications for an effective decision making process. He provided a framework composed of four steps (i.e., analysis, design, evaluation, and iteration) through which specific personnel could contribute to each step to effectively manage risks.

4.3. Public perception under crisis

Lastly, a limited number of scholars (Aldoory & Van Dyke, 2006; Palenchar, Heath, & Oberton, 2005) have empirically investigated how various factors influence public’s view of terrorism and consequent crisis communication between organizations and public. Palenchar, Heath, and Oberton (2005) looked at a community which is located near the largest concentration of petrochemical plants in the U.S. Through a survey with 400 residents, they examined the relationships between a number of risk factors and perceived preparedness of the local chemical industry for security. They found that the more the public are aware of the industry’s terrorism security efforts, the higher the public’s sense of risk, cognitive involvement, trust in the local industry and government, and support for the industry. Even though supportive relationship does not necessarily reduce the level of perceived risk, better communication was associated with positive relationships between industry and a public.

Aldoory and Van Dyke (2006) explored public’s reactions to simulated media contents regarding food terrorism, using focus group. Findings showed a perceived shared involvement, being in the same boat, influenced participants’ risk perception. In addition, news contents led to information overload, resulting in participants’ shutting down of the cognitive information processing as well as denial of complying with protective action.

Spence, Westerman, Skalski, Seeger, Sellnow, and Ulmer (2006) examined the relationship between information seeking to reduce uncertainty and proximity to a crisis event by collecting data from 1329 subjects between two and five days after 9/11. Findings indicated that people showed lower levels of emotional response the more distant they are to 9/11, and locational proximity has relations with preferences for types of information they desire.

Another study by Veil and Mitchell (2010) examined campus safety campaigns within a framework of terror management theory. Using various mixed variables such as campaign channel types (e.g., Websites,
brochure, or ad) and message types (i.e., tolerance vs. warning), they examined effectiveness of campus safety campaign tactics in six different campuses. Findings implied the campaigns might decrease campus safety by spurring attacks on others triggered by a protection mechanism. These studies are unique in that they are among the few that used empirical data for investigating public’s perceptions while others, which will be reviewed in the following, mostly focused on managerial functions of communication.

5. Terrorism and Media Coverage
Some scholars investigated how terrorism related information is represented in the media. Pollock, Piccillo, Cabot, and Leopardi (2003) examined the relationships between city characteristics and news coverage frames by looking at 19 U.S. newspapers during the year after 9/11, 2001. Contrary to expectations, little relationship was found between the favorable/neutral coverage of Islam and the city characteristics. However, as the percentage of a city’s demographic of foreign-born citizens or number of Arabic/Farsi speakers goes up, the less favorably Islam was covered in news.

Other scholars examined how media construct social reality or foster certain aspects of terrorism phenomena. Swain (2007) examined how media develop outrage rhetoric, through which risk factors are characterized. She analyzed 833 articles from 272 newspapers, AP, NPR, and four national TV. Findings indicated that most stories were framed as fear, speculation, and confusing rhetoric, which in turn may have elicited outrage. Nossek (2008), on the other hand, critically examined the role of media in events of terrorism. She investigated how journalists change their rituals of news coverage when they cover terrorist attacks using longitudinal content analysis on the media coverage. Findings showed that journalists take a national-patriotic position abandoning professionalism, resulting in a message of patriotic messages against terrorist threats.

6. Conclusion
This paper comprehensively reviewed previous literature on terrorism communication. Largely, communication and terrorism research is divided into three sub-areas, including risk communication, crisis communication, and media coverage. In particular, terrorism has been examined by many scholars in risk and crisis communication due to its nature. Risk communication research, based on its traditional approach, examines how people perceive risk regarding terrorism and how communication about the risks of terrorism is affected by risk factors. Based on several theoretical frameworks, research has advanced the understanding of perceived risk of terrorism. However, this research often does not provide practical implications except for a few cases.

Crisis communication research, based on its public relations management approach, has examined more practical aspects regarding crisis situations. How practitioners cope with terrorism has been researched, and based on past experiences and literatures, practical suggestions to follow in a case of crisis are provided. Most empirical studies in crisis communication research have been conducted on how the public perceive the communication within crisis contexts. Unlike risk communication research, a big portion of crisis communication research is based on literature review, conceptualization, and practical implications. Admitting the importance of their practical contributions, a more systematic approach based on theories or a set of concepts is expected to speed up future studies by providing a platform to start.

Research on media coverage of terrorism also has helped our understanding on the relationship between terrorism and communication. Scholars have examined how media shape the public’s perception of terrorism and what factors are related with producing media contents. These studies illustrate mechanisms of how people make meaning of terrorism. However, due to their limited method use (i.e., content analysis), the studies ignore how the public actually interpreted media contents. Also, different perceptions on terrorism across cultures or countries are rarely examined.
8. Appendix C: References


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