HSPI Issue Brief Series

SMART, SAVVY, INSIGHTFUL:
ANALYTIC TRADECRAFT TO ENABLE HOMELAND SECURITY

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Overview

This issue brief highlights the value of applying analytic tradecraft techniques more widely throughout the homeland security community. Author and HSPI Senior Fellow Jon Nowick maintains that, especially when used to promote collaboration, these techniques can help members of the homeland security community enhance performance and mitigate risk.

> *"Don't believe everything that you think."*
> —*Bumper sticker*

What do the following have in common?

- A police chief trying to anticipate which targets in his city terrorists might strike during a national political convention.
- A public health official facing controversy over whether to vaccinate the public against a bioterrorism threat.
- A Midwestern fusion center head trying to assess if radicalization in her state will lead to violence.
- A FEMA official mulling over how to allocate resources against uncertain long-term contingencies.

Answer: All these members of the homeland security community face tough challenges with no easy answers … and all are likely to make smarter, more insightful decisions by applying structured analytic techniques to their problems.
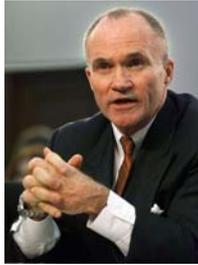
Police, emergency management, military, and other homeland security officials can all benefit from analytic tradecraft techniques.

A Quiet and Uneasy Celebration

More than 10 years after 9/11, the homeland security community has cause for at least modest celebration. The homeland has avoided a major new terrorist attack and is better positioned to thwart and, if needed, respond to a future one. Thanks to efforts by first responders, the private sector, the military, intelligence, law enforcement, non-governmental organizations (NGOs), health workers, and government at all levels, information-sharing is up, security measures have been enhanced, awareness has been raised, equipment and technology have been upgraded, borders have been tightened, and joint training is commonplace.

Overseas, Osama bin Ladin and his junior partner Anwar al-Aulaqi are gone. The Arab Spring has taken wind out of al-Qaeda's sails. With the onset of parliamentary politics in Egypt, Tunisia, and Libya, according to one observer, "al-Qaeda is no longer the vanguard of the Islamist movement of the Arab world."[1]

Any party is likely to be subdued and edgy, however. The homeland has experienced a rash of failures and close calls: a Fort Hood shooter, a Christmas 2009 "underwear bomber" on an airliner, a plot against New York City subways, an attempt to bomb Times Square, and a conspiracy to down cargo planes with exploding printer cartridges. The threat from al-Qaeda, its affiliates and allies, and those motivated by al-Qaeda's ideology persists and has morphed into something more decentralized, elusive, and

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[1] William McCants, "Al-Qaeda's Challenge," *Foreign Affairs*, September/October 2011, pp. 20-32

unpredictable. Our countermeasures have been strong but sometimes reactive—responses to the last incident.

The attempted 2010 Times Square bombing underscores challenges staying ahead of the evolving terrorist threat.

Moreover, while the Islamist terrorist threat grips our attention, incidents continue to come out of left—and often right—field. A lone wolf crashes a plane into an IRS building, an octogenarian shoots up the Holocaust Museum, and a cell in Georgia is arrested for allegedly plotting against government and corporate leaders. The radar screen isn't big or low enough to capture all threats. Nor should it be, or our freedoms would be endangered.

The political stakes have also grown higher. After two wars, tens of billions spent, an economic downturn, and inconveniences endured, the American public is in little mood for failure. Yet the risk remains that—despite our progress and best intentions—incorrect assumptions, overconfidence, complacency, misallocated resources, bad luck, or opportunities present in our open society may give terrorists room once again to test our imaginations.

The Growing Importance of Analytic Tradecraft

One area that holds promise for homeland institutions to manage such risks in these tricky times is sound analytic tradecraft, the methodology of intelligence analysis. In a recent HSPI survey of big city law enforcement and public safety intelligence officials, more than 60 percent said that increased analytic capability was either their first or second most important area of needed improvement.[2]

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[2] *Counterterrorism Intelligence: Law Enforcement Perspectives*, The George Washington University Homeland Security Policy Institute, September 2011, p. 13

Intelligence analysis tradecraft was a mystery even to the informed public until recent decades. Even analysts themselves resorted to intuitive expert judgment that was not necessarily transparent, duplicable, or transferable. But now this tradecraft is taught at universities, written about by practitioners, discussed in the media, and even shared by intelligence agencies. While some tradecraft remains classified, many of its precepts and techniques are available for wider use, including in the homeland security community.

Structured Analytic Techniques Come of Age

One of the more striking and positive developments in analytic tradecraft has been the mainstreaming of structured analytic techniques as a necessary complement to traditional subject matter expertise. Once called "alternative analysis" and seen as the realm of outlying thinkers, these techniques are increasingly used and accepted. To be sure, some techniques have deep roots in the most established institutions.

- *Devil's advocacy* was invented in 1587 when the Vatican designated an *advocatus diaboli* to raise arguments against each candidate for sainthood to promote more balanced discussion.[3]

- *Team A/Team B* analysis, pitting one view against its opposite, has been used for centuries as the format for courtroom trials and school debates.

- *Red teaming (adversary simulation)* has long been a tool of military planners. The U.S. Navy in 1932 successfully simulated a surprise Japanese naval air attack on Pearl Harbor. (The Navy regrettably did not heed its own findings.)

- *Brainstorming* was popularized by American advertising executive Alex F. Osborn in his 1953 book *Applied Imagination.* (But the concept probably dates back to when our ancestors sat around a fire, chewed mammoth fat, and tossed about ideas on how to secure their cave-homeland from the neighboring clan.)

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[3] Burtsell, Richard. "Advocatus Diaboli." *The Catholic Encyclopedia*. Vol. 1. New York: Robert Appleton Company, 1907 as cited by http://www.newadvent.org/cathen/01168b.htm

- *Scenario generation* has been a favorite in the corporate world to envision future business climates. Shell Oil used it to anticipate the 1973 oil shocks and in 2008 published scenarios stretching out to 2050.[4]

The Vatican was an early contributor to modern structured analytic techniques.

Reasons for the Trend

An impetus for greater use of structured analytic techniques was fallout from the Intelligence Community's failure to warn of the 1998 Indian nuclear tests, avert the 9/11 attacks, and provide more accurate assessments of Iraqi weapons of mass destruction (WMD). Some of these events may have been surrounded by shortcomings in policy, law enforcement, and military planning. But investigations focused on intelligence failures and on prescriptions for the Intelligence Community:

- The Jeremiah Commission of 1998 that investigated the Intelligence Community's performance before the Indian nuclear tests called for adding analytic rigor by bringing in outside experts to work with analysts to "study assumptions, mirror-imaging, and complex analytic processes."[5]

- The 9/11 Commission Report of 2004 called the U.S. failure to anticipate the attacks a "failure of imagination" and prescribed "routinizing, even bureaucratizing the exercise of imagination."[6]

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[4] See http://www.shell.com/home/content/aboutshell/our_strategy/shell_global_scenarios/

[5] Recommendations of the Jeremiah Report as cited by http://www.fas.org/irp/cia/product/jeremiah-decl.pdf

[6] The 9/11 Commission Report, 2004, p. 344, http://www.911commission.gov/report/911Report.pdf

- The Intelligence Reform and Terrorism Prevention Act of 2004 called on the newly created Director of National Intelligence (DNI) to ensure that "elements of the Intelligence Community conduct alternative analysis (commonly referred to as 'red-team' analysis) of the information and conclusions in intelligence products."[7]

- The WMD Commission Report of 2005 likewise said that the DNI "should encourage diverse and independent analysis throughout the Intelligence Community by encouraging alternative hypothesis generation as part of the analytic process and by forming offices dedicated to independent analysis."[8]

9/11 continues to serve as an impetus for more rigorous analytic tradecraft.

The Intelligence Community has taken this call increasingly to heart, even as implementation has varied from agency to agency. Agencies have trained analysts and even managers in structured analytic techniques, established "tradecraft cells" to promote their use, held tradecraft workshops, and used such techniques to craft assessments for the President, senior policymakers, and military commanders. The techniques have proved helpful when "connecting the dots" was not possible or not enough—because telltale dots sometimes weren't on the screen and those that were visible were irrelevant or misleading.

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[7] The Intelligence Reform and Terrorism Prevention Act of 2004, Section 1017a, http://www.nctc.gov/docs/irtpa.pdf

[8] The WMD Commission Report, Chapter 8, Recommendation 7, p. 405, http://www.fas.org/irp/offdocs/wmd_chapter8.pdf

What Are Structured Analytic Techniques?

They're several things at once, all suited for homeland security challenges:

- A *collection of methods* designed to reduce chances for surprise and add insight by surfacing and challenging assumptions, structuring uncertainties, and airing alternative interpretations and futures.

- A *platform for collaboration* among people and groups with diverse viewpoints. One intelligence analysis expert called them "the process by which effective collaboration occurs."[9] Used effectively, they can make meetings more productive by depersonalizing issues and keeping participants on task. In the long run, they can save time.

- A *philosophy of analysis* that emphasizes analytic rigor and transparency—as well as open-mindedness, creativity, curiosity, skepticism, and humility. Some practitioners say that employing such methods helps free them from their long-held views. Some even find using them fun.

What Do They Look Like?

Structured techniques have been codified but continue to evolve and are applied differently by different practitioners.

- Most are self-contained. You can apply one to a specific problem following specific steps. But many methods are overlapping and can be used in conjunction with other techniques, flowing one to another.

- Some (e.g., devil's advocacy) can be used by individuals at their desks to address their analytic problems. Most take wing when used by a group to address problems of analysis and/or collaboration.

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[9] Richards Heuer, *Presentation to the National Academy of Science, National Research Council Committee on Behavioral and Social Science Research to Improve Intelligence Analysis for National Security, Washington, DC, December 8, 2009.* http://www7.nationalacademies.org/bbcss/DNI_Heuer_Text.pdf

Let's look at a few techniques used in intelligence analysis that have value for homeland security. Guides to using them can be found, among other places, in the U.S. government tradecraft primer posted on the CIA web site[10] and the book *The Thinker's Toolkit*.[11] Some techniques, like brainstorming, are even available as commercial software.

Generating multiple ideas is but one stage of brainstorming.

Brainstorming. Most people think of brainstorming as an intellectual free-for-all, but that is at best just part of the story. Brainstorming (or "divergent/convergent thinking") works best when structured and progressing through several stages. The first stage is to carefully define the problem. The second is to generate as many ideas as possible, unfettered and uncensored. This stage is best done individually and silently, with each participant independently writing down his or her ideas. *Tip:* write them on sticky notes, one idea per note, and then post them on a common board. The third stage is to clump these notes together to form categories. A fourth is to triage the categories—determining which are worth further exploration. And a final one can be to decide what next steps to take based on those ideas. Brainstorming is useful to open up thinking before narrowing down ideas. It is a helpful step in most of the below techniques.

- *Homeland security example:* When I led an Analytic Red Cell at the Department of Homeland Security (DHS), we used brainstorming as part of many of our exercises to explore the range of both potential threats and mitigation measures. Each of the four homeland security officials mentioned at

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[10] *A Tradecraft Primer: Structured Analytic Techniques for Improving Intelligence Analysis*, March 2009, https://www.cia.gov/library/center-for-the-study-of-intelligence/csi-publications/books-and-monographs/Tradecraft%20Primer-apr09.pdf
[11] Morgan D. Jones, *The Thinker's Toolkit*, Three Rivers Press, New York, 1995

the start of this article might consider using brainstorming, in conjunction with other techniques noted below, to get a handle on his or her issue.

Red Teaming. Analytic red teaming is valuable when you have spotty information about an adversary but want to anticipate its actions to avert surprise. In red teaming, you step into the shoes of the adversary and anticipate how it might act. A red team should include people knowledgeable about the adversary—its capabilities, intent, tactics, techniques, and procedures—as well as the environment into which it is playing. Once formed, a red team may use brainstorming to generate and triage ideas and then spell out more likely or dangerous courses for adversary action. The findings, though written from the adversary perspective, may include recommendations for "blue team" security or mitigation measures.

- *Homeland security example:* At DHS, we used red teaming to think like the terrorist and explore attack vectors terrorists might take against high-profile events and critical infrastructure sectors. The police chief mentioned at the start of this article who is planning security for a political convention might commission an analytic red team to prioritize potential targets in his city. After such an analytic exercise, the chief might test the findings in the field through operational or cyber red teaming.

Indicators. Indicators (sometimes called "signposts") constitute a helpful method when individuals or organizations differ over the likelihood of a development. This method focuses them instead on the steps that would occur for such an event to take place, regardless of whether they believe it will. An indicators exercise should start with first defining the future outcome, the "what if?" Then you identify all the events—observable or not—that would likely first happen for this outcome to come about. You can then track these indicators over time to determine if the event is likely to occur.

- *Homeland security example:* We used indicators at DHS when exploring what steps might lead to certain terrorist events. The fusion center chief mentioned above might develop a list of indicators to watch for if radicalized individuals were to turn to terrorism—as did, apparently, the White House in releasing its December 2011 report on radicalization.

Scenario Generation. Sometimes called "alternative futures analysis," scenario generation helps envision several plausible but different futures. Like indicators, this

method is useful when developments are hard to predict or where players differ over what will happen next. A brainstorming exercise may first be used to scope out key drivers that generate a range of potential futures. Then you can narrow the futures down to a handful to explore in more depth. This exploration could include indicators (above) leading up to each scenario, implications of each scenario, and mitigation measures.

- *Homeland security example:* We used scenarios at DHS to anticipate different homeland futures, each with different threat pictures. The FEMA official cited at the start of the article who was planning for future contingencies might focus on a group of such longer-term homeland scenarios against which to allocate resources. So too, for instance, might a New York City bank security chief worried that anti-Wall Street protesters might turn violent.

Team A/Team B. Such an exercise is similar to scenario generation but focuses on just two contrasting viewpoints or scenarios. Two teams are formed, each to develop the strongest possible case for its respective point of view. Each team should marshal evidence and, if appropriate, lay out implications and mitigation strategies. This exercise helps when two strong views already exist and when two groups have trouble reconciling them—or a third party has trouble choosing between them. It has added benefit when participants are assigned to argue the *opposite* point of view. A "jury" might assess which team makes the strongest arguments.

- *Homeland security example:* During a debate within the homeland security community over the likelihood of a certain homeland threat, we used a Team A/Team B exercise—with participants arguing against their real viewpoint—to shed greater light on both sides. Some participants left the room saying they better appreciated the other viewpoint. The public health official facing controversy over whether or not to vaccinate the public might try a Team A/Team B exercise to weigh the merit of those two options. That official probably should first at least brainstorm a wider range of options (e.g., vaccinating just first responders, holding vaccine in reserve) before determining that vaccinating the public or not are the two options worth considering.

Devil's Advocacy. This method can help an organization when one point of view is prevailing and leaders or employees fear the unit may be lapsing into groupthink. As in the Vatican, this technique gives voice to a contrarian viewpoint, whether or not the advocate actually believes it. To do so, participants acknowledge the mainline view

and then marshal evidence to make the case for the contrarian position. They can also describe the implications of its taking place and measures to help manage it.

- *Homeland security example:* At a time when much of the intelligence and homeland security community had a view about the seriousness of a certain terrorist threat to the homeland, we published a devil's advocacy report arguing the opposite case. In several of the initially mentioned homeland scenarios, the officials in charge, or their staffs, might try devil's advocacy—and clearly label it as such—if they were concerned that the organization was heading down a path without sufficiently looking around.

What's Holding Us Back?

Wider use of structured analytic techniques around the homeland security community—in law enforcement, the public health sector, the military, emergency management, among first responders, etc.—faces obstacles:

- *Unfamiliarity.* Many organizations have little experience using such techniques, their personnel are untrained in them, and they have few resident experts to call on to lead and facilitate the techniques.

- *Counter-cultural.* Law enforcement and some other homeland security cultures tend to be driven by facts and by cases requiring prosecution. Analysis going beyond connecting dots may cause discomfort. Even in parts of the Intelligence Community, despite the mandate of law and commissions, speculative analysis can still raise eyebrows.

- *Tyranny of expertise.* More experienced analysts and managers may see these techniques as threatening their concept of analysis and their monopoly on ground truth.

- *Concern over misunderstanding.* Managers may worry that disseminating speculative analysis will cause unwanted concerns, prompt over-reactions, and leak to the press. In the homeland security context, some senior officials told me they were concerned that state and local officials and private industry might

misconstrue our more speculative analysis as the official U.S. government position.

- *Cost in time and resources.* Though they can save time in the long run, the down payment may seem steep. Conducting some exercises can involve up to several dozen people, a day or more of their time, travel expenses, logistical hassles, and payment to facilitators and guest subject matter experts. The run-up to some of our events took weeks.

What to Do to Start Up?

Applying structured analytic techniques can be simple and straightforward. Individuals can use some of them at their desks with one of the guidebooks referenced above. Using them in groups—the preferred method with the best chances for success—requires only a clearly defined problem, an appropriate structured analytic technique, an expert but diverse mix of people to work it, and if possible a neutral and knowledgeable facilitator. Many can be done quickly and efficiently in an hour or so.

Defined Problem **+** Structured Analytic Technique **+** Mix of participants **+** Facilitator **=** Results

Basic components for applying structured analytic techniques.

For more robust and sustained use by homeland institutions, several conditions are helpful:

- *Leadership support.* Top-level backing is usually needed to create the climate of openness, experimentation, and trust essential to using these methods. It is especially needed for techniques like devil's advocacy and Team A/Team B that challenge existing thinking. Leaders should embrace such tradecraft, support it with words and resources, and reward its effective use. They should persuade mid-level managers and rank and file that using this tradecraft can save time, avoid surprise, better manage resources, and promote mission success.

- *Training.* Tied to the above, leaders should promote training of their personnel in using these techniques as well offer familiarization for managers.

- *Expert cells.* Building within the organization small units of analysts who can serve as methodologists, facilitators, and skilled tradecraft practitioners can also spur use. Such analysts can coach others, organize and lead projects, and even take on their own projects to provide alternative viewpoints. Many of us can do simple home repairs but need to call in experts to remodel our kitchens. Short of having an in-house analytic cell, managers need to look to outside assistance—to paid consultants or to partner organizations with more experience practicing such techniques.

- *Diverse participation.* Even robust programs—with trained analysts and facilitators—can fall short and risk groupthink if they do not reach out to bring in fresh ideas. At DHS we were blessed with being able to invite to our sessions military, intelligence, law enforcement, scientific, academic, industry, and other personnel. We leavened the mix by inviting about one generalist for every three or four experts. They included novelists, psychologists, and students. These "trained brains" were positive, participatory, energetic, and motivated. The experts sometimes looked askance at their presence, but these guests surfaced insightful alternatives.

- *Customer engagement.* Focusing on key priorities for stakeholders and bringing them into the process can increase buy-in. Infrastructure owners and operators taking part in some of our exercises said they would immediately go back and implement what they learned.

- *Sharing best practices.* Homeland security community members who already engage in some form of this analytic tradecraft can help their counterparts by publicizing their best practices and lessons learned, as we are attempting to do here.

Conclusions

The homeland security community in the next few years is likely to face evolving threats, shrinking resources, and low public tolerance for failure. Its members must tap

every opportunity to use resources smartly, stay ahead of the adversary, and maintain the public trust. Broadening use of analytic tradecraft techniques is no cure-all. But it is a savvy and cost-effective way to continue keeping our homeland secure.

Jon Nowick *is an HSPI Senior Fellow and employee of Science Applications International Corporation (SAIC). He instructs intelligence analysts in counter-terrorism and collaboration, including the value of using structured analytic techniques. From 2003-2005, he led the DHS Analytic Red Cell that applied these methods to produce more than 40 reports on homeland threats and mitigation strategies for federal, state and local, and private sector consumers.*

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