Date: Tue, 05 Jan 2010 13:29:30 -0500
To: "Dr. Baruch Fischhoff - Chair, National Academy of Sciences Study on Social & Behavioral Science and Improving Intelligence for National Security" <baruch@cmu.edu>
From: Lloyd Etheredge <lloyd.etheredge@policyscience.net>

Subject: The Auditing Computer Systems chapter

Dear Dr. Fischhoff and Colleagues:

My early instinct was that it would be unnecessary, and an insult, for the National Academy of Sciences to recommend state-of-the-art methods for evaluating DNI computer systems: developing test material and observing how the system performs and self-monitoring is standard for professional business accounting, electronic health records, sigma six management, etc.

However the Detroit case suggests that $75 billion/year has been spent for years and there still are problems. A chapter on standards and methods for auditing software and computer systems may be in the national interest and save lives.

- I suggest that the National Academy recommendations be addressed to the President's Intelligence Advisory Board and the President's Intelligence Oversight Board (a standing committee of the PIAB). The logic - like hiring independent audit firms to work for a Board of Directors - is to establish an audit function independent of the DNI system itself. You want auditors who are *not* going to be sympathetic about information overload, etc. when they audit system reliability.

Re statistical methods: Yes, statistically, there are problems of having N = 35 (or whatever) observations per cell and enough cases of attempted airplane bombing to compute probabilities - Nigerian + young + male + past travel of Yemen. Even within an N = 500,000 global Watch List database, without previous airplane bombers of this sub-type, the DNI software and these estimating equations may not reach a threshold of confidence to sound an alarm.

But here is another software option - M.O. matching - and by this analysis the problem should have been solved/caught by software, independent of human beings: Mr. Umar Farouk Abdulmutallab, with explosives in his underwear, was

male, reportedly paid $2,831 in cash for a one-way ticket, checked no bags, flew from an airport in a UDC with a significant Islamic populations, through a busy European airport to the US. As has been discussed in the media (e.g., The Daily Show) eight years earlier Richard Reid, with explosives in his shoe, was male, also paid cash for a one-way ticket, checked no bags, and flew from a busy European airport.

What technical advice can the National Academy of Sciences give? Fundamentally, this could be a serious software design problem, inherited from Bush Era contractors/designers, outside the expertise of the (Harvard Law graduate) Director of the National Counterterrorism Center. There is a sufficient pattern match for well-designed M.O. matching software to have triggered an alert for a careful screen/interview - and automatic database search for additional information - independent of already knowing the available (somewhere) information about visits to Yemen, the warning from his father (a respected banker) in a personal visit to an American Embassy in Nigeria, knowing that he was single, that there was a Yemeni intercept about "the Nigerian," etc.

Yes - to anticipate an objection - it is possible that a smart and cunning al-Qaeda opponent will change an M.O, - for example, by coaching a suicide bomber to check a bag, pay the extra money to buy a roundtrip ticket, etc. But we might be seeing a trickier phenomenon - a low risk al-Qaeda strategy to use bomber assets that they consider otherwise unreliable. Mr. Reid may have been unstable - and serious terrorist groups do not like these kinds of people. The Detroit bomber may have been seen as a possible double-agent - privileged, outsider, spent time in England, a recent convert, creating impressions that he could be experimenting with an identity and might never be fully committed/trustworthy. [The senior leadership of al-Qaeda may not be friends with these people - an important point that might affect an emotional consensus that supports recruitment.] There may be categories of unwanted core members/future bombers who will do dumb, unprofessional and amateurish things.

Lloyd Etheredge

Dr. Lloyd S. Etheredge - Fellow, World Academy of Art & Science
Policy Sciences Center Inc.
127 Wall St., Room 322 - Box 208215
New Haven, CT 06520-8215

URL: www.policyscience.net
301-365-5241 (v); lloyd.etheredge@policyscience.net (email)