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Potential measures for the pre-detection of terrorism

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ABSTRACT

Events worldwide make clear that the threat of terrorism is growing, and would-be terrorists may be developing new strategies and new tools that will enable them to develop massively destructive weapons. Yet, at the same time, new measures are becoming available that could improve chances for early identification of planned terrorist acts. A previous study conducted by the authors of this paper suggested that pre-detection is feasible and in many cases, likely to be effective. These hints led to the present study and a subsequent NATO workshop [3] intended to evaluate and extend a list of possible pre-detection measures and their downside risks. The present paper presents and assesses results of a Real-Time Delphi (RTD) study that was conducted to collect judgments from an expert panel on the potential effectiveness, likelihood of use and other attributes of 19 pre-detection measures derived from the literature and most importantly, their possible societal consequences. The results show that pre-detection is possible especially if some pre-detection measures are applied in parallel. While many attacks can be avoided, it is unlikely that 100% protection will ever be achieved; thus, intelligence gathering remains important and essential and resiliency and preparedness will always be necessary. The study further sheds light on possible collateral damage that could result from the inappropriate application of pre-detection measures, principally compromise or loss of civil rights. Unless we are careful in implementing these and other such measures, we could lose what we are trying to protect.

1. Introduction

Previous studies of the authors and others have analyzed various aspects of the emerging terror threat and especially addressed the prospects for Lone Wolf terrorism (Gordon et al., 2015). While definitions vary, in the framework of our present study we define terrorists as those people who aim to hurt innocent people, kill or injure them, or inflict significant damage on essential infrastructure at a single instant or over time, or plan to do so, in order to bring about political, religious or ideological aims. A Lone Wolf terrorist, contrary to a terrorist group, is an individual acting essentially alone with no help of a group or organization. The study found that the threat for violent attacks was growing as new tools for mayhem became available to terrorists and that the level of violence had a high chance of escalating. The chances for escalation have been addressed in other studies as well (Lappin, 2016; NATO Advanced Research Workshop, 2016). The weapons found most frightening were those classed as biological–particularly airborne vectors carrying diseases that could become epidemic, worldwide. Conventional weapons, bombs and automatic weapons, might kill and injure hundreds or even thousands of people, but future bio or nuclear weapons in the hands of terrorists might raise the toll of victims of even a single attack into the millions. The idea of creating a modified virus and implanting it with intent to kill a large number of people already seems to be a meme. At the sign of an emerging epidemic, a question that comes easily to mind is: "Is it natural or man-made?" When the 2014 outbreak of Ebola was reported in the media, conspiracy theories were rampant in the press and social media.[1] In hearings conducted by the US House subcommittee on emergency preparedness, subcommittee chairman Martha McSally said, "Our nations capacity to prevent, respond to, and mitigate the impact of biological terror incidents is a top national security priority…. ISIL is better resourced, more brutal, and more organized than any terrorist group to date… We know they have an interest in using chemical and biological weapons…".[2]

At the same time, methods for pre-detection of the intent to build and use such weapons and potential terrorists who might use them appear to be improving. In the context of the present study the term "predetection refers to the operational concept of identifying a terrorist or a person with malicious intention before he or she can accomplish their plan." Currently, the

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[1] Ebola: who created this terrible virus and why? http://www.pambazuka.org/food-health/ebola-who-created-terrible-virus-and-why. (2015)

[2] Subcommittee hearing: strategic perspectives of a bio terrorism threat; emergency preparedness response and communications sub committee, April 22, https://homeland.house.gov/hearing/subcommittee-hearing-strategic-perspectives-bioterrorism-threat/2015 (Retrieved February 25, 2017).

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rate of averting attacks seems to be about 50%, although this is quite uncertain because of lack of data on interdiction.[3] The most successful techniques of identification of potential attacks seem to be well-established police modes such as stings and informants.

How could security forces identify the terrorists of the future—particularly those that we call SIMAD (Single Individual Massively Destructive)? Which are the measures available to identify potential terrorists and adversary planning? If implemented what would be the expected rate of averted terror events?

It seems important to find out now, before terrorists have a chance to act. And perhaps as important, if such persons were identified, how could society deal with them without falling into the "Orwell Trap?" While these research questions were partially addressed in our previous work, the focus of the present study was on assessing various potential pre-detection measures and their collateral consequences in order to help shape policies to cope with the evolving terrorism threats.

Section 2 of this paper outlines the principal method used in this study: Real Time Delphi (RTD), an empirical process for eliciting and combining judgments and opinions from groups of experts. Because sample sizes are generally small, studies of this sort produce results that are not (nor are they intended to be) representative of larger populations. RTD's depict the opinions of the particular participating panel and therefore choice of participants is very important. Section 3 presents details on the study design, Section 4 shows the panel's demographics, Section 5 highlights some of the key findings, and Section 6 presents our conclusions.

2. The RTD approach

Since the Delphi approach to the collection and synthesis of expert judgments is widely known and practiced, little will be said here about the method; several good texts are available for those who want to review the background.[4] Olaf Helmer, Nicholas Rescher, Norman Dalkey, Bernice Brown, and others at the think tank RAND, in the 1950s and 1960s, developed the Delphi method, a systematic approach to the collection of opinions of experts on a topic under study. Most applications of "classical" Delphi involve a series of sequential rounds in which questions are posed to a group of carefully selected experts. The answers given to the questions in one round form the basis for the questions of the next round. Participants are generally asked to provide reasons for extreme positions and in most cases movement toward a consensus is obtained.

The evolution from the original Delphi version that used sequential questionnaires to the real time method employed here has been described in more detail elsewhere by the authors (Gordon et al., 2015) and others (Aengenheyster et al., 2017). Briefly, the use of computer-aided communications can be traced from a 1978 paper by Hiltz and Turoff that explored the future of computer-mediated communications (Hiltz and Turoff, 1978). Turoff also experimented with an on-line social decision support system that offered the possibility of participation by large numbers of people (thousands) who could interact and vote dynamically on social issues (Turoff et al., 2002). By1996, researchers in Finland developed the eDelfoi system that has been applied to topics such as the future of education and identification of weak signals.[5] In 2005, Articulate Software Inc. won a small grant in 2005 from the US Defense Advanced Research Projects Agency (DARPA) to apply Delphi principles to tactical decision making to improve speed and efficiency (Gordon and Pease, 2006). The open source code that came out of this work was first listed on SourceForge (as Delphi Blue)[6] and was further developed by Gordon at The Millennium Project for use in its studies such as the State of the Future Index, moral and ethical dilemmas of the future, future gender stereotypes, and others.[7] Gordon, Sharan, and Florescu also used it in studies of Lone Wolf Terrorism. A further development of the Real Time Delphi process has been accomplished at The Millennium Project by incorporating it in its Global Futures Intelligence System (GFIS) Several other researchers have developed their own Real-Time Delphi systems, including Sabine Zipfinger at Johannes Kepler University (Zipfinger, 2007), Linz, Austria and Dr. Heiko von der Gracht at the Center for Futures Studies and Knowledge Management, EBS Business School, Germany (von der Gracht et al., 2011).

Placing the questionnaires on-line speeds the process since the respondents can view and answer the questionnaires in real time.

When RTD was first used to collect expert opinions in studies that might otherwise have used conventional Delphi methods, the question naturally arose about whether the results of a Real-Time Delphi are equivalent to the original multi-round process? Gnatzy et al. performed comparative studies and concluded: "The research findings indicate that significant differences between the two Delphi survey formats do not exist and final survey results are not affected by changes in the survey procedure" (Gnatzy et al., 2011).

3. Method

3.1. Concept and process

The study began with an initial scanning of the open literature on detection measures and informal consultation with experts to generate a first list of promising pre-detection measures. The literature scanning process made use of collective information provided by the worldwide experts' network of the Millennium Project that ensured access to updated relevant sources. These experts helped also in evaluating the collected data as well as the questionnaire that was based on it. Scanning also benefitted from the experts' discussions held during the international NATO Advanced Research Workshop On Lone Actors – An Emerging Security Threat, Jerusalem, Israel in November 2014 (Sharan and Richman, 2017). The authors and consultants pared the number of measures to be presented to respondents to 19 based on their judgment of potential effectiveness, practicality, and knowledge of the field. In parallel, a list of possible participants was formed. Careful selection of a panel is an important first step in any Delphi-based study. For our study of pre-detection possibilities, an initial list of about 225 candidate participants was compiled including respondents to our previous RTD on Lone Wolf terrorism, through a review of literature, and "daisy chain" recommendations of people already committed to participate ("Daisy chain" refers to a process in which committed respondents suggest other experts who they think might make significant contributions to the topic at hand. These new people, in turn, are asked for further respondent recommendations, and so on.). Invitations to participate were sent to the nominees individually or extended to them by personal contact or by telephone.

3.2. Questionnaire design

A small pilot group of ten people, chosen because of their participation in the earlier Lone Wolf studies (Gordon et al., 2015) of the authors reviewed the first draft of the questionnaire and offered comments and

[3] There are few authoritative tabulations of foiled attempts; most compilations deal with terrorist incidents that have resulted in deaths or injury, but only occasionally with thwarted attempts. Some that are available include: Carafano, James, Steven Bucci and Jessica Zuckerman, "Fifty Terror Plots Foiled Since 9/11: The Homegrown Threat and the Long War on Terrorism," http://www.heritage.org/research/reports/2012/04/fifty-terror-plots-foiled-since-9-11-the-homegrown-threat-and-the-long-war-on-terrorism Retrieved April 19, 2016; and Gordon, op. cit. The National Consortium for the Study of Terrorism and Responses to Terrorism (START) at the University of Maryland includes over 125,000 cases but with only a few exceptions (e.g. Faisal Shahzad, the foiled Times Square bomber) it does not include thwarted cases. See http://www.start.umd.edu/gtd/; retrieved April 19, 2016.

[4] For example: Linstone Harold and Turroff Murray, (Eds/.),"The Delphi Method; Techniques and Applications," 1975 Addison-Wesley, Reading, Massachusetts, 1975. The entire book is free and downloadable (less the forward) at: http://is.njit.edu/pubs/delphibook/.

[5] More information about eDelfoi is on http://www.edelfoi.fi. (2017)

[6] https://sourceforge.net/projects/delphiblue/.

[7] Can be accessed at https://themp.org/.