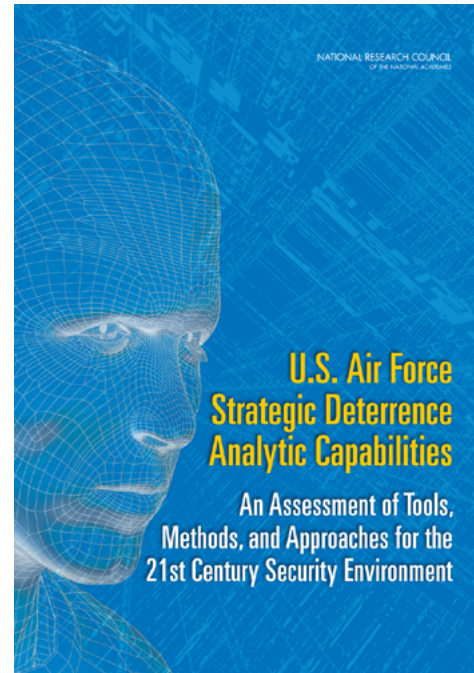


U.S. Air Force Strategic Deterrence Analytic Capabilities: An Assessment of Tools, Methods, and Approaches for the 21st Century Security Environment

Air Force Studies Board · Division on Engineering & Physical Sciences · November 2014

While there is consensus in the United States today on the need to maintain an effective nuclear deterrent, there is no consensus on precisely what that requires, especially in a changing geopolitical environment and with continued reductions in nuclear arms. This places a premium on having the best possible analytic tools, methods, and approaches for understanding how nuclear deterrence and assurance work, how they might fail, and how failure might be averted by U.S. nuclear forces. *U.S. Air Force Strategic Deterrence Analytic Capabilities* identifies the broad issues and factors to be considered in seeking nuclear deterrence and assurance in the 21st century. The report evaluates tools, methods, and approaches for understanding nuclear deterrence in a new security environment. The report also issues several individual recommendations, which are aspects of an overarching theme—the need for the Air Force to refocus and sustain its intellectual capital in the areas of deterrence and assurance in general and political understanding of nuclear issues in particular.



Study Approach and Caveats

During this study, it became apparent that no single tool, method, or approach could address the array of deterrence and assurance challenges the nation will face in the coming years. It also became evident that there is a critical deficit in the Air Force capacity to sustain high-quality analysis in support of its newly broadened nuclear deterrence and assurance responsibilities. Regardless of the analytic tools it possesses, the Air Force has too few people with the personal experience and rigorous analytic training required to generate the analyses necessary to determine the nuclear force structures and postures most likely to be effective deterrents.

Much of Cold War era deterrence theory emphasized the development of tools, methods, and approaches for estimating the physical effects of weapons, rather than understanding the human perceptual aspects of deterrence and assurance. As a consequence, this report focuses on tools, methods, and approaches for understanding human behavior and does not address assessments of physical effects and capabilities.

However, it would be neither reasonable nor useful to conduct a comprehensive review of the scores of analytic tools, methods, and approaches for understanding deterrence. Instead, the report committee leveraged the substantial expertise of its members, previous reviews, and

numerous briefings and discussions to identify a set of appropriate tools, methods, and approaches and assess their general applicability to deterrence and assurance issues. The report does not suggest either a single or a set of silver bullets for addressing the range of issues confronting the Air Force.

Finally, the report is not limited to nuclear deterrence or assurance. Some argue that attempting to consider nuclear deterrence in isolation from other deterrence considerations is increasingly difficult and likely to be shortsighted in the current security environment.

The recommendations discussed in the following sections are organized as they relate to the five items in the study's terms of reference, which compose the five section headings.

Key Issues

Extensive committee debate and input from subject matter experts identified the broad analytic issues and factors that must be considered in seeking nuclear deterrence and assurance. These analytic issues and factors appear in Chapter 2 of the report, which suggests and discusses three broad categories into which recommended themes fall: understanding deterrence and influence in modern contexts, planning and analysis, and attending to basics. Chapter 2 also lays out "stressful questions" associated with peer, near-peer, regional, and non-state challenges, as well as important deterrence and assurance issues like nuclear command and control, force modernization, air and missile defense, and geostrategic and technological changes not directly addressed in this report.

Tools, Methods, and Approaches

A summary of reviewed methods and tools appears in Chapter 3 of the report. Understanding the psychological mechanisms that govern what deters and what assures are preconditions for an assessment of the attributes of various nuclear systems, technological capabilities, postures, and concepts of operation. Consequently, it is necessary to improve the Air Force's capacity to account for and use the types of actor- and decision-unit-specific information needed to tailor deterrence and assurance messages and activities.

The Air Force needs to plan now to contribute the capabilities required to deter and assure decades into the future. Further, the Air Force would be the obvious advocate for a U.S.-government-wide program to develop systematic, multidisciplinary generalized leadership and decision-making constructs and models to improve the robustness of that planning by anticipating the range of potential behaviors, consequences, and situations that may be faced.

Framework

A high-level deterrence and assurance task framework is presented in Chapter 4 of the report. Awareness of the web of complexities involved in managing the multitude of overlapping deterrence and assurance issues led the formulation of Recommendation 1.

Recommendation 1 — In support of senior Air Force leadership guidance, including the Flight Plan for the Air Force Nuclear Enterprise, the Air Force should develop and maintain a comprehensive strategic deterrence analysis plan to identify the tasks that produce information required to organize, equip, and train Air Force nuclear deterrence and assurance forces and support combatant commanders.

Such a deterrence and assurance analysis plan would benefit the Air Force directly by providing a guide for developing the types of robust analyses currently lacking, but necessary to underpin and defend Air Force capabilities. Recommendations 2, 3, and 4 refer to some of the attributes that such a program should have.

Recommendation 2 — The Air Force should focus analytic enhancements in support of deterrence and assurance assessment on the human and human organizational factors at the heart of deterrence and assurance.

Recommendation 3 — The Air Force, working with its Service partners and the Department of Defense more generally, should pursue research on deterrence and assurance with a coherent approach that involves content analysis, leadership profiling, abstract modeling, and gaming and simulations as a suite of methods. It should organize its investments in analytic and other activities accordingly.

Recommendation 4 — The Air Force analytic community should pursue methods of understanding and incorporating the concept of deep uncertainty.

Like carpenter's tools, analytic methods have appropriate and inappropriate uses according to the nature of the task to which they are put. The approach to deterrence and assurance analysis adopted by the Air Force would ideally include as a specific goal the careful integration of analytic techniques.

Evaluation

Rather than propose a static set of deterrence and assurance tools, the report identifies factors that might be used to guide a multiyear, multi-method research and training agenda. Moreover, the task of providing a framework for "validating" tools became both less relevant and exponentially more complex with the report's focus on tools, methods, and approaches tied to better understanding of the impact of perceptual factors as opposed to capability factors on deterrence and assurance. The means of validity testing, or validation, vary according to the specific tool, method, or approach used. Thus, while no general framework for validation is suggested in the report, where appropriate, these issues are treated in the reviews of methods presented in Chapter 3.

Tools

The choice of the appropriate analytic method or approach is fully dependent on the type of analytic question posed; the data and time available for analysis; and the quality of results desired. Beyond what was presented in *Concepts and Analysis of Nuclear Strategy Framework Report*, there is no way to correctly recommend specific approaches or tools without these details.

Recommendation 5 — Air Force analysis supporting nuclear deterrence and assurance issues should draw from a suite of appropriate methods, including hybrid methods that combine and integrate different methods.

The relative lack of exposure of many of today's analysts to nuclear-related issues may make it premature for the Air Force to consider significant investment in classes of tools, methods, and approaches and certainly, in

particular, in tools needed to conduct deterrence analyses now and into the future. Instead, the Air Force would do well to focus on its people first.

Recommendation 6 — The Air Force should maintain its cadre of career analytic professionals (both civilian and military) with expertise in nuclear deterrence and assurance strategy to improve Air Force support to Combatant Commanders' planning and operations, since methods can inform, but never replace, the judgment of expert analysts. This could be facilitated by specific treatment of analysts in Vector 5 of the *Flight Plan for the Air Force Nuclear Enterprise*.

The complexity of planning and analysis for nuclear deterrence and assurance that will confront current and subsequent generations is likely to continue to increase exponentially. Paradoxically, rapid advances in communications technologies means that conveying deterrence and assurance messages will become increasingly difficult to control as counter-communications are easier to issue and perceived U.S. intentions become subject to literally global interpretation.

Committee on U.S. Air Force Strategic Deterrence Military Capabilities in the 21st Century Security Environment: **Gerald F. Perryman, Jr.**, Independent Consultant, U.S. Air Force (retired), *co-chair*; **Allison Astorino-Courtois**, National Security Innovations, Inc., *co-chair*; **John F. Ahearne**, Sigma Xi, The Scientific Research Society; **Gerald G. Brown**, Naval Postgraduate School; **Albert Carnesale**, University of California, Los Angeles; **W. Peter Cherry**, Independent Consultant; **Paul K. Davis**, The Rand Corporation and Pardee Rand Graduate School; **Stephen Downes-Martin**, U.S. Naval War College; **Kathleen L. Kiernan**, Kiernan Group Holdings, Inc.; **Ronald F. Lehman II**, Lawrence Livermore National Laboratory; **John A. Montgomery**, U.S. Naval Research Laboratory; **Jerrold M. Post**, The George Washington University; **Barry Schneider**, Air War College; **Stephen G. Walker**, Arizona State University; **Michael O. Wheeler**, Institute for Defense Analyses

Staff: **Carter W. Ford**, *Study Director*; **Joan Fuller**, Director, Air Force Studies Board; **Marguerite E. Schneider**, Administrative Coordinator; **Dionna C. Ali**, Research Assistant

This study was supported by a contract between the National Academy of Sciences and the U.S. Air Force. Any opinions, findings, conclusions, or recommendations expressed in this publication are those of the author(s) and do not necessarily reflect the views of the organizations or agencies that provided support for the project, or the National Research Council.

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