



ACQUISITION,
TECHNOLOGY
AND LOGISTICS

THE UNDER SECRETARY OF DEFENSE

3010 DEFENSE PENTAGON
WASHINGTON, DC 20301-3010

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MEMORANDUM FOR CHAIRMAN, DEFENSE SCIENCE BOARD

SUBJECT: Terms of Reference – 2006 Summer Study on 21st Century Strategic Technology Vectors

Many technology thrusts were initiated during the Cold War to support operational needs, but a few strategic capabilities proved enormously successful to enhancing U.S. combat capabilities. Stealth, speed, precision, and tactical ISR were developed to penetrate enemy battlespace with minimal losses and increase combat effectiveness. These capabilities provided the highest operational leverage, especially against State actors who chose massed force on force modes of conflict. Although hindsight easily verifies the importance of these capabilities, their implementation was uneven and problematic.

Today, adversaries (both State and non State) have moved away from massed forces to negate or mitigate U.S. combat capabilities. Denial and deception proved very effective in reducing air power effectiveness in the Kosovo air campaign. Dual use technology bestows strategic capability to small groups for relatively low investments and also allows both State and non State adversaries to economically develop effective countermeasures which lessen U.S. capabilities. The very nature of dual use technology creates significant uncertainty about any group's capabilities. Non state actors exploit seams in the international system by operating within the boundaries of sovereign states and take advantage of legal systems to plan, equip and train their forces. In effect, adversaries created operational safe havens against U.S. military capabilities.

In addition, the Department of Defense (DoD) is increasingly involved in two major mission areas of non combat operations. These include stability operations and domestic civil support missions during catastrophic natural incidents or WMD events. These mission areas stress DoD differently than combat operations and require the identification and development of new DoD capabilities.

The next generation of DoD capabilities must counter or negate safe havens and provide more effective capability in the new mission areas. Potential operational mission characteristics include:



- 1) US and allied freedom to operate in both State and non State's safe havens in order to deny the adversary sanctuary;
- 2) Ability to identify and track at suitable standoff distances, material, transactions, and items of interest across all environments;
- 3) Creation of sufficient situational awareness at all user levels to know when action is required and then act upon it with a high degree of effectiveness.
- 4) Ability to avoid substantial collateral damage and non-combatant casualties in all environments.

The Summer Study should:

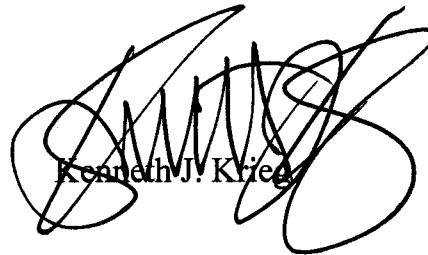
- 1) Review previous attempts (both successful and not) by DoD to identify critical technologies in order to derive lessons that would help illuminate the current challenge;
- 2) Identify the National Security objectives for the 21st century and the operational missions that U.S. military will be called upon to support these objectives;
- 3) Identify new operational capabilities needed for the proposed missions;
- 4) Identify the critical science technology, and other related enablers of the desired capabilities. In addition, the Study should identify the initiatives and developments needed to achieve these enablers including human capital and industrial base issues;
- 5) Assess current S&T investment plans' relevance to the needed operational capabilities and enablers and recommend needed changes to the plans;
- 6) Identify mechanisms to accelerate and assure the transition of technology into U.S. military capabilities.
- 7) Review, and recommend changes as needed, the current processes by which national security objectives and needed operational capabilities are used to develop and prioritize science, technology, and other related enablers, and how those enablers are then developed.

The Study will report its results on an interim basis to me. Its final product should provide an evaluation process by which decisions can be made and a technology roadmap to achieve the desired operational capabilities.

The study will be sponsored by me as the Under Secretary of Defense (Acquisition, Technology and Logistics), and Director, Defense Research and Engineering. Dr. Ted Gold and Dr Bill Graham will serve as the Summer Study Chairmen. Ms. Beth Foster will serve as the Executive Secretary. CDR Cliff Phillips will serve as the Defense Science Board Secretariat representative.

The Task Force will operate in accordance with the provisions of P.L. 92-463, the "Federal Advisory Committee Act," and DOD Directive 5105.4, the "DoD Federal

Advisory Committee Management Program.” It is not anticipated that this Task Force will need to go into any “particular matters” within the meaning of Section 208 of Title 18, U.S. Code, nor will it cause any member to be placed in the position of acting as a procurement official.



Kenneth J. Krieg