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Oct 13, 2023

Department of Defense  
OFFICE OF PREPUBLICATION AND SECURITY REVIEW

5 OCT 2023



RESEARCH  
AND ENGINEERING

UNDER SECRETARY OF DEFENSE  
3030 DEFENSE PENTAGON  
WASHINGTON, DC 20301-3000

## MEMORANDUM FOR CHAIR, DEFENSE SCIENCE BOARD

SUBJECT: Terms of Reference – Defense Science Board Permanent Subcommittee on Strategic Options

Dramatic and continuing changes in geopolitics and technology have shaped both the challenges the U.S. military has sought to address, and the vulnerabilities strategic competitors and potential adversarial countries seek to exploit to undermine U.S. national security. Competing nations continue to develop operational doctrines that take advantage of perceived vulnerabilities in U.S. capabilities and leverage new technologies to threaten strategic deterrence and stability on a global scale. To meet growing threats to U.S. national security and ensure future military successes by building enduring advantages, the Department of Defense (DoD) must evaluate to what extent it can anticipate, respond to, and proactively prevent these threats from ever developing, or to dynamically respond to and mitigate their impacts. This includes deterring unprecedented actions and technologies, understanding new threats and susceptibilities, and developing new strategic capabilities.

Through this Terms of Reference (ToR), I am terminating the Defense Science Board (DSB) Task Force on Strategic Options (“the Task Force”). The Task Force should cease fact-finding activities and provide a consolidated product of findings, observations, and recommendations to the full DSB for its thorough, open discussion and deliberation at a properly noticed and public meeting, unless it must be closed pursuant to one or more of the exemptions found in subsection 552b(c) of title 5, United States Code (U.S.C.). The DSB will provide its findings and recommendations to the Under Secretary of Defense for Research and Engineering (USD(R&E)) as the Sponsor of the DSB.

I am also establishing the Defense Science Board Permanent Subcommittee on Strategic Options (“the Permanent Subcommittee”) in order to support the ongoing need of the DoD to address strategic challenges. The DSB, working through the Permanent Subcommittee, will identify concepts, capabilities, strategies, and courses of action in the scientific and technical enterprises that inform decision-making and serve to rebalance intervention cost and benefit to ensure U.S. operational dominance. Under the DSB, the Permanent Subcommittee areas of consideration will include (but not be limited to at the discretion of the USD(R&E)):

- New and novel uses of space assets,
- Employment of cyber systems,
- Development of new methodologies and countermeasures for electronic warfare,
- Rapid collection and use of strategic counterintelligence,
- Logistics resiliency both within the United States and abroad,

- Region- and circumstance-specific integrated deterrence,
- Existing and potential norms of behavior and escalation thresholds,
- Advanced undersea assets and operational concepts,
- Effective deterrence of adversarial coercive and malign activities in the gray zone,
- Additional considerations should include the adversary's attempts and operations to undermine U.S. dominance in the air, space, sea, and cyber domains.

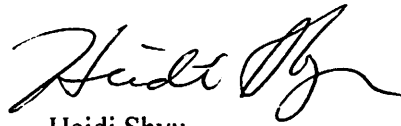
The DoD and the U.S. Government face a significant national security challenge in adversarial use of low-cost mass assets that can create swarms of capabilities which could result in multilayered and unmanageable threats. Although DoD strategy includes some ways to counter the threat of enemy mass assets, it must fully confront the challenges posed by future armed low-cost mass asset swarms. As such, I am initially tasking the DSB, through the Permanent Subcommittee, to explore ways the DoD can create low-cost mass assets across the air, sea, and land domains in the “multiple thousands” within the next few years, as well as identify ways to counter adversarial assets that would present similar capabilities. The Permanent Subcommittee's findings, observations, and recommendations will be presented to the full DSB for its thorough, open discussion and deliberation at a properly noticed and public meeting, unless it must be closed pursuant to one or more of the exemptions found in subsection 552b(c) of title 5, U.S.C. The DSB will provide its findings and recommendations to the USD(R&E) as the Sponsor of the DSB. The nominal start date of the study period for this initial task of the Permanent Subcommittee will be after the termination of the Task Force and within 30 days of the appointment of DSB Permanent Subcommittee members. In no event will the duration of this particular task exceed 12 months from the start date. Additional taskings of the DSB, through the Permanent Subcommittee, will occur as needed.

In support of this ToR and the work conducted in response to it, the DSB and the Permanent Subcommittee have my full support to meet with Department leaders. The DSB staff, on behalf of the DSB and the Permanent Subcommittee, may request the Office of the Secretary of Defense and DoD Component Heads to timely furnish any requested information, assistance, or access to personnel to the DSB or the Permanent Subcommittee. All requests shall be consistent with applicable laws; applicable security classifications; DoD Instruction 5105.04, “Department of Defense Federal Advisory Committee Management Program”; and this ToR. As special government employee members of a DoD federal advisory committee, the DSB and the Permanent Subcommittee members will not be given any access to DoD networks, to include DoD email systems.

Once material is provided to the DSB and the Permanent Subcommittee, it becomes a permanent part of the DSB's records. All data/information provided is subject to public inspection unless the originating Component office properly marks the data/information with the appropriate classification and Freedom of Information Act exemption categories before the data/information is released to the DSB and the Permanent Subcommittee.

The DSB and the Permanent Subcommittee will operate in conformity with and pursuant to the DSB charter; chapter 10 of title 5, U.S.C.; subsection 552b(c) of title 5, U.S.C.; and other

applicable federal statutes, regulations, and policy. Individual DSB and Permanent Subcommittee members and the Permanent Subcommittee as a whole do not have the authority to make decisions or provide recommendations on behalf of the DSB nor report directly to any Federal representative. The members of the Permanent Subcommittee and the DSB are subject to certain Federal ethics laws, including section 208 of title 18, U.S.C., governing conflicts of interest, and the Standards of Ethical Conduct regulations in 5 Code of Federal Regulations, Part 2635.

A handwritten signature in black ink, appearing to read "Heidi Shyu", with a stylized flourish at the end.

Heidi Shyu