



RESEARCH
AND ENGINEERING

DEPUTY UNDER SECRETARY OF DEFENSE

3030 DEFENSE PENTAGON
WASHINGTON, DC 20301-3030

October 17, 2024

MEMORANDUM FOR THE DEFENSE INNOVATION BOARD

SUBJECT: Terms of Reference: A Pathway to Scaling Unmanned Weapon Systems

The emergence of drone or uncrewed system (UxS) technology has revolutionized modern warfare by offering asymmetric advantage in reconnaissance and combat capabilities at relatively low cost. Current conflicts in Ukraine and the Middle East demonstrate the effectiveness of a wide range of UxS platforms and the opportunities they present to alter the nature of warfare. While these systems have historically been used as substitutes for traditional manned platforms, future developments may see new types of weapons and employment scenarios that will expand today's combat operations. The increasing range of UxS platforms that are now in development will affect every combat domain and may be capable of true multidomain autonomous combat operations in the future.

New technological advances in fields microelectronics, manufacturing technologies, material science, and artificial intelligence will enable new and previously unforeseen UxS combat capabilities. While UxS platforms already support many traditional military functions such as intelligence, surveillance, reconnaissance; communications; and weapons employment, other new and emerging applications may include countering contested logistics, injured personnel recovery, collaborative aerial combat, counter-drone operations, and complex surface and undersea combat and combat-support activities. The development and deployment of large scale coordinated, and coherent UxS swarm operations may also rapidly become a reality. Achieving combat superiority in warfare that is increasingly dominated by multidomain UxS platforms will require the appropriate combination of doctrine, strategy, and tactics to employ these platforms effectively and a U.S. industrial base capable of supplying the Department of Defense through large-scale, protracted conflict.

The DoD must pursue domestic, allied, and partner capabilities in research, development, acquisition, and deployment of autonomous UxS platforms. This technology should reflect the fully integrated, multidomain conditions of current conflict theaters, fill future operational gaps, and exceed adversarial military capabilities. Achieving these goals is critical to maintaining and enhancing U.S., allied, and partner advantages in future conflicts.

Therefore, I hereby task the Defense Innovation Board ("the Board") to conduct a study that should:

- Identify areas that could further foster the design, development, testing and validation, mass production of reliable, cost-effective, and battle-ready American and allied made UxS systems for multidomain U.S. military dominance.

- Identify the current state of the Military Services' acquisition of UxS and methods to accelerate adoption.
- Identify impediments in the UxS industrial base and manufacturing supply chain and identify critical gaps in workforce, materials, and manufacturing processes.
- Identify commercial best practices, and strategies for addressing critical gaps in developing, capitalizing, manufacturing, and scaling of U.S.-made drones.
- Provide recommendations that address manufacturing processes and strategies to speed up mass production of UxS platforms, as well as the robustness of related supply chain processes in current and future conflicts.
- Deliver an analysis of the relevant issues and an actionable implementation plan that supports the scaling of the U.S. autonomy industry.

The Board shall thoroughly consider and deliberate on its independent findings and recommendations at a properly noticed and open meeting unless it must be closed in accordance with one or more of the exemptions found in subsection 552b(c) of title 5, U.S. Code. The Board shall submit its findings and recommendations within 120 days from the date this Terms of Reference (ToR) is signed.

In support of this ToR and the work conducted in response to it, the Board has my full support to meet with Department leaders. The Board staff, on behalf of the Board, 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 Board. All requests shall be consistent with applicable laws; applicable security classifications; DoD Instruction 5105.04, "Department of Defense Federal Advisory Committee Management Program," dated August 6, 2007; and this ToR. As special government employee members of a DoD federal advisory committee, the Board will not be given any access to DoD networks, to include DoD email systems.

Material provided to the Board becomes a permanent part of the Board'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 the exemption categories found at subsection 552(b) of title 5, U.S. Code, before the data/information is released to the Board. The Board has physical storage capability and electronic storage and communications capability on both the unclassified and classified networks to support receipt of material up to the Secret level.

The Board will operate in conformity with and pursuant to the Board's charter; chapter 10 of title 5, U.S. Code; subsection 552b(c) of title 5, U.S. Code; and other applicable Federal statutes, regulations, and policy. Individual Board members do not have the authority to make

decisions or provide recommendations on behalf of the Board nor report directly to any Federal representative. The members of the Board are subject to certain Federal ethics laws, including section 208 of title 18, U.S. Code, governing conflicts of interest, and the Standards of Ethical Conduct regulations in 5 C.F.R., Part 2635.

Thank you in advance for your cooperation and support of this critical undertaking.

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Senior Pentagon Leadership

Directors of Defense Agencies

Directors of DoD Field Activities

Advisory Committee Management Officer for the Department of Defense