



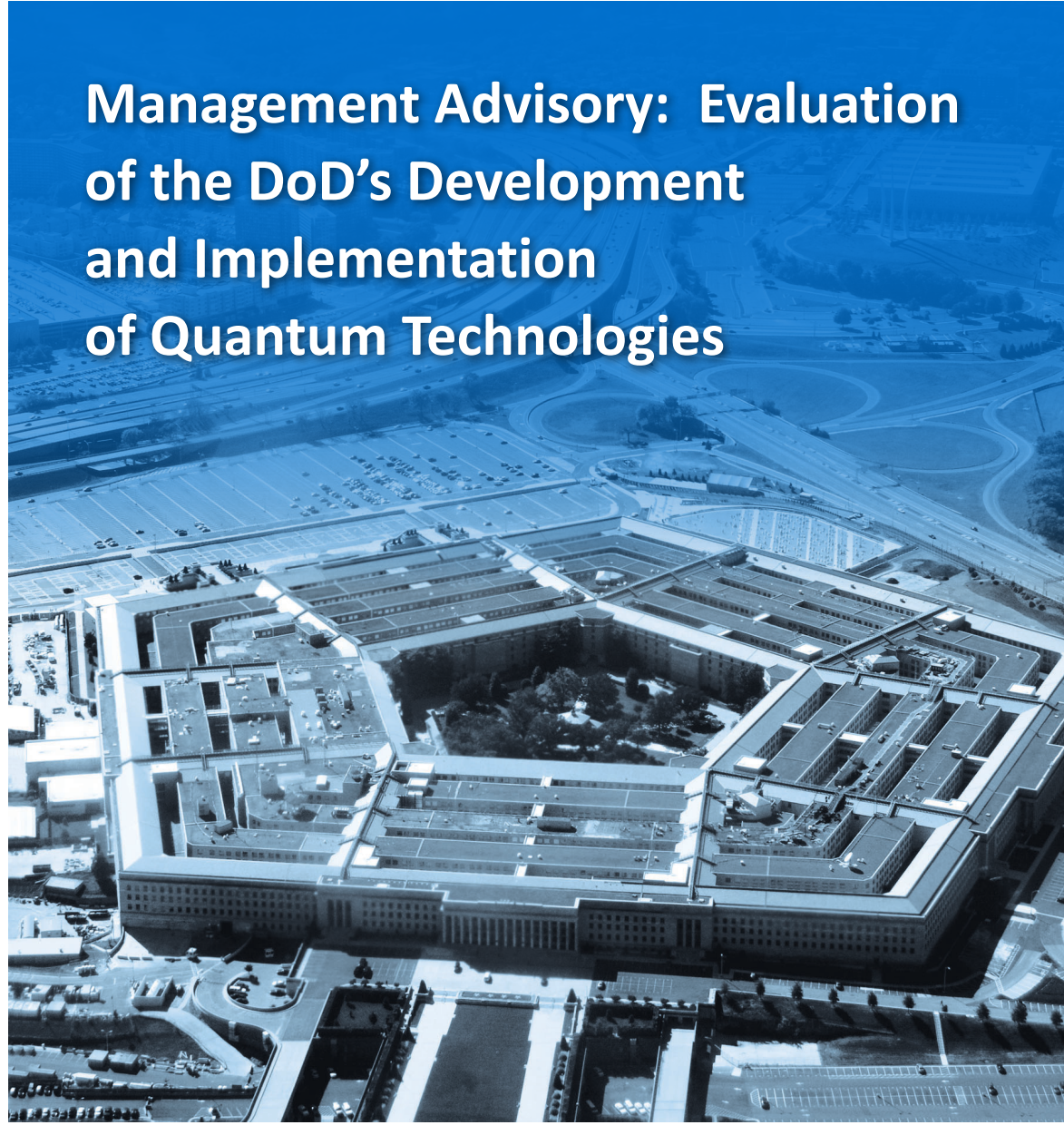
INSPECTOR GENERAL

U.S. Department of Defense

SEPTEMBER 25, 2025



Management Advisory: Evaluation of the DoD's Development and Implementation of Quantum Technologies



INDEPENDENCE ★ INTEGRITY ★ EXCELLENCE ★ TRANSPARENCY





OFFICE OF INSPECTOR GENERAL
DEPARTMENT OF DEFENSE
4800 MARK CENTER DRIVE
ALEXANDRIA, VIRGINIA 22350-1500

September 25, 2025

MEMORANDUM FOR UNDER SECRETARY OF DEFENSE FOR RESEARCH AND ENGINEERING

SUBJECT: Management Advisory: Evaluation of the DoD's Development and Implementation of Quantum Technologies (Report No. DODIG-2025-172)

This management advisory identifies concerns found during the DoD Office of Inspector General's "Evaluation of the DoD's Development and Implementation of Quantum Technologies" (Project No. D2025-DEV0SI-0100.001). We previously provided copies of the draft management advisory and requested written comments on the recommendations. We considered management's comments on the draft management advisory when preparing the final advisory. These comments are included in the advisory. The Under Secretary of Defense for Research and Engineering agreed with the recommendation with comments for parts (c) and (d). Based on the comments presented in this advisory, we consider three of the four parts of our recommendation open and resolved with one part unresolved. We will close the recommendations when management officials provide us documentation showing that all agreed-on actions to implement the recommendations are complete. Send your response to either [REDACTED] if unclassified or [REDACTED] if classified SECRET.

During our evaluation, we identified concerns related to the DoD's implementation of the FY 2019 National Defense Authorization Act (NDAA) requirement that directed the Secretary of Defense to carry out a quantum information science and technology research and development program (the DoD Quantum Information Science Program).¹ Specifically, section 234 of the NDAA required the Secretary of Defense to act through the Under Secretary of Defense for Research and Engineering to carry out and supervise the planning, management, and coordination of the DoD Quantum Information Science Program.² To determine whether the Office of the Under Secretary of Defense for Research and Engineering (OUSD[R&E]) complied with section 234 requirements, we interviewed OUSD(R&E) personnel from the Quantum Science Office and analyzed documentary evidence provided by stakeholders. We found that the OUSD(R&E) did not: (1) formalize the DoD Quantum Information Science Program, (2) supervise stakeholders' efforts, or (3) coordinate a plan for meeting the program's challenges, milestones, and technical goals, as required by section 234 of the NDAA.

¹ National Defense Authorization Act for Fiscal Year 2019, Pub. L. No. 115-232.

² The purposes of the DoD Quantum Information Science Program include ensuring coordinated research and development efforts in the DoD, collecting and disseminating critical information, accelerating the transition and deployment of technologies derived from quantum information research into the Armed Forces, and ensuring the global superiority of the United States in quantum information science for meeting national security requirements.

The OUSD(R&E) took initial actions to establish the DoD Quantum Information Science Program. Specifically, OUSD(R&E) personnel knew that section 234 required them to establish, supervise, manage, and coordinate the program. In 2020, the OUSD(R&E) formed a working group to establish formal and informal coordination mechanisms, maintain records of program implementation and status, prescribe long-term challenges and technical goals for the program, and develop a congressionally mandated report.

However, we found no evidence of program implementation beyond the initial effort in 2020. Although the OUSD(R&E) produced the mandated report, it did not formalize the program structure or coordinate a plan to meet prescribed challenges, milestones, or technical goals. Furthermore, OUSD(R&E) personnel could not provide evidence that the program was carried out after the report's completion. OUSD(R&E) personnel stated that they did not have a formal system to disseminate critical information, measure progress toward challenges and goals, or coordinate between stakeholders, as required by section 234. According to OUSD(R&E) personnel, the OUSD(R&E) did not formalize the DoD Quantum Information Science Program because of a lack of funding and instead held informal meetings and updated annual roadmaps based on stakeholder data calls.

As a result of the DoD not meeting the congressional mandate in section 234 of the FY 2019 NDAA to establish a defense quantum information science and technology research and development program, the DoD lacks assurance that it is coordinating quantum information science research and development efforts. These efforts are critical for providing interagency cooperation, collecting and disseminating critical information, and accelerating the transition and deployment of quantum technologies into the Military Services. Therefore, the absence of a robust DoD Quantum Information Science Program, as required by the FY 2019 NDAA, could impact the United States' ability to maintain superiority over near-peer adversaries in advancing quantum information science for national security.

Recommendations, Management Comments, and Our Response

Recommendation 1

We recommend that the Under Secretary of Defense for Research and Engineering establish the Defense Quantum Information Science and Technology Research and Development Program by issuing an official policy directive that:

- a. Establishes the roles and responsibilities of the Under Secretary of Defense for Research and Engineering, Director of Quantum Science, and Deputy Director of Quantum Science for planning, managing, and coordinating the Defense Quantum Information Science and Technology Research and Development Program.**

Under Secretary of Defense for Research and Engineering Comments

The Acting Assistant Secretary of Defense for Science and Technology, responding for the Under Secretary of Defense for Research and Engineering (USD[R&E]), agreed and will distribute an official memorandum to the relevant stakeholders to establish and reinforce the roles and responsibilities outlined in section 234 of the FY 2019 NDAA, as amended by section 220 of the FY 2020 NDAA, concerning the DoD's Quantum Information Science program. The USD(R&E) will direct each of the relevant agencies to identify a point of contact to ensure effective execution of these requirements throughout the DoD. These points of contact will be responsible for ensuring their respective agencies fulfill the requirements mandated by section 234 of the FY 2019 NDAA. The projected completion date for these actions is October 2025.

Our Response

Comments from the Acting Assistant Secretary addressed the specifics of the recommendation; therefore, it is resolved and open. We will close the recommendation when we verify that the USD(R&E) distributed an official memorandum to relevant stakeholders that establishes and reinforces the roles and responsibilities outlined in section 234 of the FY 2019 NDAA.

- b. Develops a coordinated plan to meet near-, mid-, and long-term challenges and technical goals, as required by section 234 of the FY 2019 National Defense Authorization Act, including definitive milestones and standards for measuring progress, that the Office of the Under Secretary of Defense for Research and Engineering can use to manage quantum information science and technology research and development across the DoD.**

Under Secretary of Defense for Research and Engineering Comments

The Acting Assistant Secretary of Defense for Science and Technology, responding for the USD(R&E), agreed and stated that the Principal Director of Quantum Science will broaden the existing working group of Defense executives to the Defense activity field agencies to ensure coordinated implementation of the requirements in section 234 of the FY 2019 NDAA. The projected completion date for these actions is December 2025.

Our Response

Comments from the Acting Assistant Secretary addressed the specifics of the recommendation; therefore, it is resolved and open. We will close the recommendation when we receive confirmation that the Principal Director of Quantum Science expanded the working group of Defense executives to the Defense activity field agencies and verify evidence of ongoing efforts toward addressing the requirements from section 234 of the FY 2019 NDAA.

- c. **Establishes and implements reporting requirements for the quantum information science research centers of the Military Departments and other relevant stakeholders to inform the Office of the Under Secretary of Defense for Research and Engineering of progress toward accomplishing prescribed long-term goals and technical challenges using established milestones and standards.**

Under Secretary of Defense for Research and Engineering Comments

The Acting Assistant Secretary of Defense for Science and Technology, responding for the USD(R&E), agreed and stated that the USD(R&E) will formalize reporting requirements for relevant stakeholders when all working group members understand and agree to the goals and responsibilities outlined in section 234 of the FY 2019 NDAA. These requirements will be requested in the Correspondence and Task Management System for increased visibility and accountability. The Acting Assistant Secretary requested that we change “relevant stakeholders” to “DoD stakeholders” and add Defense agencies and DoD field activities in accordance with previous conversations with the DoD Office of Inspector General (DoD OIG). The Acting Assistant Secretary also stated that the DoD OIG should add that the subject stakeholders will “inform” the Quantum Science Office in addition to the USD(R&E). The projected completion date for these actions is January through March 2026.

Our Response

Comments from the Acting Assistant Secretary of Defense for Science and Technology addressed the specifics of the recommendation; therefore, it is resolved and open. We will close the recommendation when we receive confirmation that the USD(R&E) formalized the reporting requirements for relevant stakeholders and provided appropriate documentation to satisfy the recommendation.

In addition, the Acting Assistant Secretary of Defense for Science and Technology requested that we change “relevant stakeholders” to “DoD stakeholders.” Section 234 of the FY 2019 NDAA assigns management of the Defense Quantum Information Science and Technology Research and Development Program to the Secretary of Defense through the Under Secretary of Defense for Research and Engineering. The DoD OIG cannot designate specific stakeholders on behalf of the OUSD(R&E). The OUSD(R&E) should use the existing Defense executives working group discussed in response to Recommendation 1.b to identify relevant stakeholders.

- d. **Implements records management processes to collect, synthesize, and disseminate critical information on quantum information science research and development in the DoD and support interagency cooperation and collaboration with relevant stakeholders, as defined by the program’s purpose in Section 234.**

Under Secretary of Defense for Research and Engineering Comments

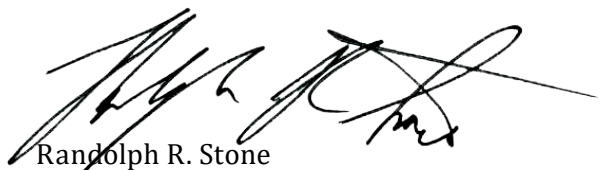
The Acting Assistant Secretary of Defense for Science and Technology, responding for the USD(R&E), agreed and stated that key personnel will be responsible for formulating, maintaining, and disseminating critical data to support interagency cooperation and collaboration. The Acting Assistant Secretary also stated that the DoD OIG should change “relevant stakeholders” to “DoD stakeholders” and add Defense agencies and DoD field activities in accordance with previous conversations with the DoD OIG. The USD(R&E) did not provide a projected completion date and stated that these efforts are ongoing.

Our Response

Comments from the Acting Assistant Secretary of Defense for Science and Technology, responding for the USD(R&E), did not address the specifics of the recommendation; therefore, it is unresolved. The intent of our recommendation was to create a records management system that will collect, synthesize, and disseminate critical information related to quantum information science research and development. While key personnel are essential to the proper functioning of any records management system, the comments from the Acting Assistant Secretary did not propose a course of action to implement a records management system for the Defense Quantum Information Science and Technology Research and Development program. We request that the Acting Assistant Secretary provide additional comments to describe the specific actions they will take to implement processes to collect, synthesize, and disseminate critical information on quantum information science research and development.

In addition, although the Acting Assistant Secretary of Defense for Science and Technology requested that we reword to “DoD stakeholders,” section 234 of the FY 2019 NDAA assigns management of the Defense Quantum Information Science and Technology Research and Development Program to the Secretary of Defense through the Under Secretary of Defense for Research and Engineering. The DoD OIG cannot designate specific stakeholders on behalf of the OUSD(R&E). The OUSD(R&E) should use the existing Defense executives working group discussed in response to Recommendation 1.b to identify relevant stakeholders.

If you have any questions, please contact [REDACTED]
[REDACTED]



Randolph R. Stone
Assistant Inspector General for Evaluations
Space, Intelligence, Engineering, and Oversight

Management Comments

Under Secretary of Defense for Research and Engineering



RESEARCH
AND ENGINEERING

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WASHINGTON, DC 20301-3030

MEMORANDUM FOR ASSISTANT INSPECTOR GENERAL FOR EVALUATIONS

I am responding on behalf of the Under Secretary of Defense for Research and Engineering (USD(R&E)) regarding the draft Department of Defense Office of the Inspector General report, "Management Advisory: Evaluation of the DoD's Development and Implementation of Quantum Technologies (Project No. D2025-DEV0SI-0100.001)," dated July 30, 2025. Please find the USD(R&E) response enclosed.

HOLTHE.MICHAEL JOHN
Digitally signed by
HOLTHE.MICHAEL.JOHN
Date: 2025.09.04 19:39:55 -04'00'

Michael J. Holthe
Performing the Duties of the
Assistant Secretary of Defense
for Science and Technology

Enclosure:
As stated

Under Secretary of Defense for Research and Engineering (cont'd)

Under Secretary of Defense for Research and Engineering (USD(R&E)) Response to Department of Defense Office of Inspector General, “Management Advisory: Evaluation of the DoD’s Development and Implementation of Quantum Technologies “Project No. D2025-DEV0SI-0100.001.

Responses to one recommendation with four parts below.

Recommendation 1

The Department of Defense (DoD) Office of Inspector General (OIG) recommends that the USD(R&E) establish the Defense Quantum Information Science and Technology Research and Development Program by issuing an official policy directive that:

- a. Establishes the roles and responsibilities of the Under Secretary of Defense for Research and Engineering, Director of Quantum Science, and Deputy Director of Quantum Science for planning, managing, and coordinating the Defense Quantum Information Science and Technology Research and Development Program.

USD(R&E) Response: The USD(R&E) concurs with recommendation 1.a.

The USD of Research and Engineering will send out an official memorandum to the relevant stakeholders to establish and reinforce the roles and responsibilities outlined in Section 234 of the National Defense Authorization Act (NDAA) for Fiscal Year (FY) 2019, as amended by Section 220 of the NDAA for FY2020, concerning the Department's Quantum Information Science (QIS) program. To ensure effective execution of these requirements Department-wide, each of the following agencies is directed to identify a point of contact: These points of contact will be responsible for ensuring their respective agencies are fulfilling the requirements as mandated by the subject legislation.

Projected Completion Date: October 2025

- b. Develops a coordinated plan to meet near-, mid-, and long-term challenges and technical goals, as required by Section 234 of the FY 2019 National Defense Authorization Act, including definitive milestones and standards for measuring progress, that the Office of the Under Secretary of Defense for Research and Engineering can use to manage quantum information science and technology research and development across the DoD.

USD(R&E) Response: The USD(R&E) concurs with Recommendation 1.b: To ensure coordinated implementation of FY19 NDAA Section 234, the Principal Director of Quantum Science will broaden the existing working group of Defense Executives to the DAFAs.

Projected Completion Date: December 2025

Under Secretary of Defense for Research and Engineering (cont'd)

- c. Establishes and implements reporting requirements for the quantum information science research centers of the Military Departments and other relevant stakeholders, to inform the Office of the Under Secretary of Defense for Research and Engineering and Quantum Science office of progress toward accomplishing prescribed long-term goals and technical challenges using established milestones and standards.

USD(R&E) Response: The USD(R&E) concurs with comments. Once the goal and responsibilities outlined in the legislation are understood and agreed upon by all working group members, we will formalize reporting requirements for relevant stakeholders. These requirements will be requested in CATMS for increased visibility and accountability. We would like to comment that the DoD OIG needs to specify “relevant” stakeholders” to “DoD” stakeholders and add Defense Agencies and DoD Field Activities (DAFAs) per previous conversations with DoD OIG. In addition, the DoD OIG needs to add that the subject stakeholders will “inform” the Quantum Science Office, in addition to the USD R&E.

Projected Completion Date: January-March 2026 (1st quarter)

- d. Implements records management processes to collect, synthesize, and disseminate critical information on quantum information science research and development in the DoD and support interagency cooperation and collaboration with stakeholders, as defined by the program's purpose in Section 234.

USD(R&E) Response: The USD(R&E) concurs with comments: To support interagency cooperation and collaboration, key personnel will be responsible for formulating, maintaining, and disseminating critical data. We would like to comment that the DoD OIG needs to specify “relevant” stakeholders and change it to “DoD” stakeholders and add DAFAs per previous conversations with DoD OIG.

Projected Completion Date: Ongoing.

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U.S. DEPARTMENT OF DEFENSE

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**For more information about DoD OIG
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