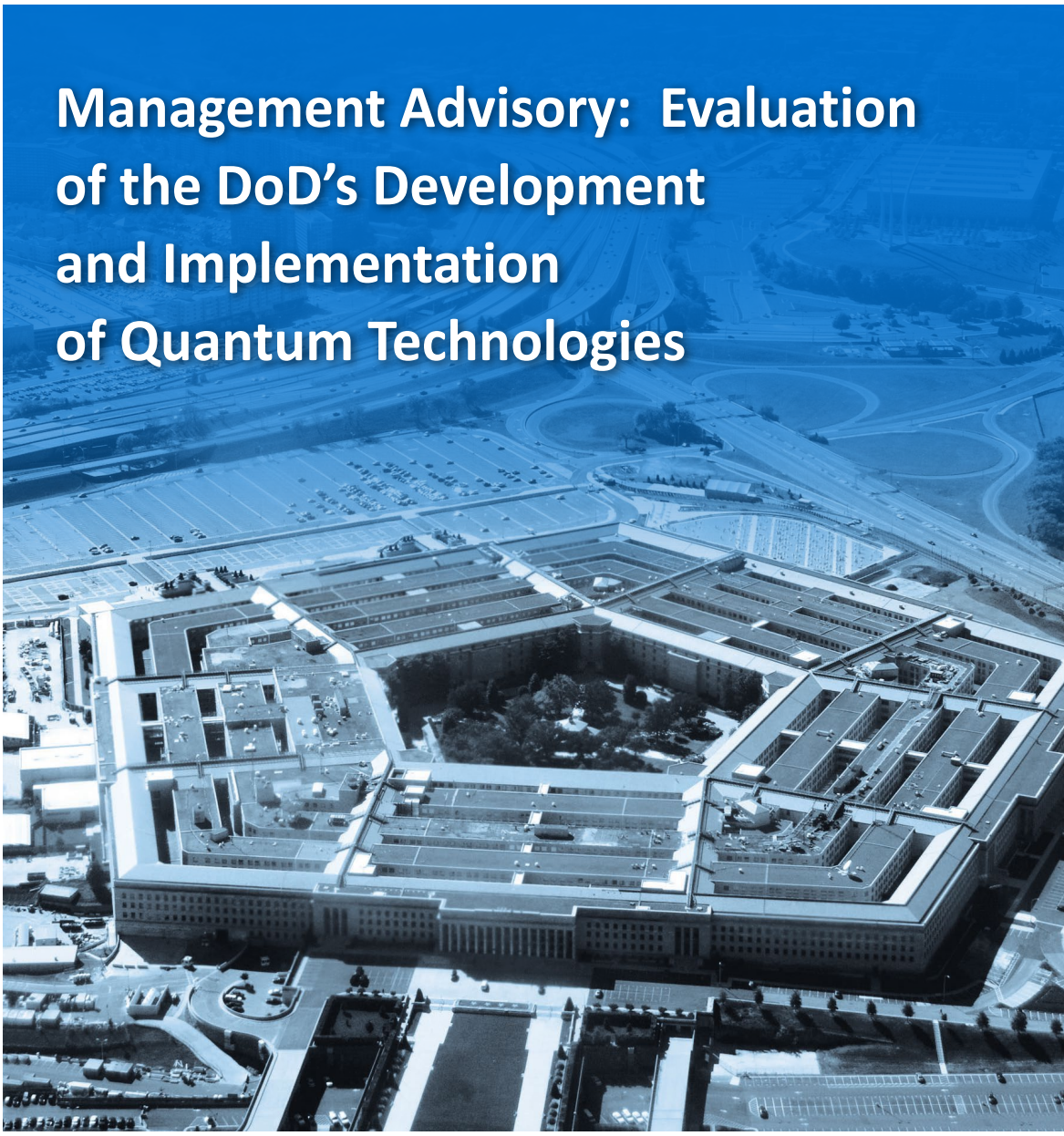
Report No. DODIG-2026-040

INSPECTOR GENERAL

U.S. Department of Defense

JANUARY 7, 2026

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



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January 7, 2026

MEMORANDUM FOR SECRETARY OF THE ARMY
SECRETARY OF THE NAVY
SECRETARY OF THE AIR FORCE
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-2026-040)

This final 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-0100.000. We previously provided copies of the draft management advisory and requested written comments on the recommendation. We considered management's comments on the draft management advisory when preparing the final advisory. These comments are included in the advisory. The Acting Deputy Under Secretary of Defense for Research and Engineering (USD[R&E]) agreed with the recommendation. Therefore, the recommendation is resolved and open. We will close the recommendation when management officials provide us documentation showing that all agreed-on actions to implement the recommendation 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 requirement in section 234 of the FY 2019 National Defense Authorization Act (NDAA) that directed the Secretary of Defense to act through the USD(R&E) to carry out and supervise the planning, management, and coordination of a research and development program for quantum information science and technology (the DoD Quantum Information Science Program).[1] On July 30, 2025, we issued a management advisory related to these concerns that included our findings and recommendations.

Subsequently, we identified additional concerns related to the implementation of section 214 of the FY 2021 NDAA, which amended section 234 of the FY 2019 NDAA. Section 214 required the Secretaries of the Military Departments (MILDEPs) to develop and annually update a list of technical problems and research challenges that are likely to be addressable by quantum computers available for use in the next 1 to 3 years. To determine whether the Secretaries complied with section 214 requirements, we interviewed personnel from the Air Force Research

[1] National Defense Authorization Act for Fiscal Year 2019, Pub. L. No. 115–232, § 234.

Laboratory (AFRL), Army Research Laboratory (ARL), and Naval Research Laboratory (NRL), as well as representatives from the Quantum Science Office in the Office of the Under Secretary of Defense for Research and Engineering (OUSD[R&E]). We also analyzed documentation provided by stakeholders, such as official statements of work, memorandums, and technical analyses.

The OUSD(R&E) led efforts to fulfill the DoD reporting requirements in section 214 of the FY 2021 NDAA. The OUSD(R&E) coordinated with the MILDEP research laboratories to develop an initial list of technical problems and research challenges likely to be addressable by quantum computers in the near term. Specifically, in August 2021, the OUSD(R&E) tasked the Carnegie Mellon University Software Engineering Institute (CMU SEI) with producing an analysis to support the MILDEP reporting requirements identified in the FY 2021 NDAA.[2] In January 2022, the CMU SEI published the results of this analysis, which stated that no known technical problems or research challenges were likely to be addressable by quantum computers in the next 1 to 3 years.[3] However, the OUSD(R&E) did not update the list annually, as required by law. Furthermore, the MILDEPs themselves did not update the annual list, as required by the NDAA, or coordinate with one another to develop the annual lists.

As a result of not meeting the congressional mandate in section 214 of the FY 2021 NDAA to keep an updated list of problems and challenges likely to be addressable by quantum computers, the DoD lacks assurance that it is effectively enhancing the quantum computing capabilities that are most beneficial to the DoD. The DoD identified quantum science as a critical technology area that is vital to maintaining U.S. national security. According to the OUSD(R&E), quantum computing may provide unprecedented computational speeds to help solve the DoD's hardest analytical problems. Without an accurate and regularly updated list of these problems to inform the DoD's quantum computing efforts, the United States is at risk of falling behind its adversaries in quantum computing innovation.

Recommendations, Management Comments, and Our Response

Recommendation 1

We recommend that the Secretaries of the Military Departments, in coordination with the Under Secretary of Defense for Research and Engineering, develop procedures to provide formal, annual updates to the list of technical problems and research challenges likely to be addressable by quantum computers in the next 1 to 3 years, as required by section 214 of the FY 2021 National Defense Authorization Act.

[2] Contract between the CMU SEI and OUDS(R&E), sent to us on August 8, 2025.

[3] CMU SEI, "An Assessment of Near-Term DoD Opportunities for Quantum Computing," January 2022.

Under Secretary of Defense for Research and Engineering Comments

The Acting Deputy USD(R&E), responding for the USD(R&E) and on behalf of the MILDEPs, agreed and will collaborate with the AFRL, ARL, and NRL to develop and maintain an annual list of technical problems and research challenges likely addressable by quantum computers in the next 1 to 3 years.

The Acting Deputy stated that the ARL will comply and emphasizes the need to consider the DoD quantum community's consensus that demonstrable data on quantum capabilities is still 10 to 15 years away. Additionally, they stated that the NRL will comply and create a list of potential Navy-specific quantum computing applications each year. The Acting Deputy also stated that the AFRL will comply and coordinate with the OUSD(R&E) to provide a formal, annual update to the list of technical problems and research challenges likely to be addressable by quantum computers in the next 1 to 3 years. The AFRL will also document and maintain this updated annual list of problems and challenges internally.

To produce a comprehensive annual report on prioritized quantum computing challenges, the Acting Deputy stated that the OUSD(R&E) will issue an official tasking with a standard template and annually request submissions of proposed problems and challenges. The template will require a description, justification, feasibility assessment, data sources, and contact information. According to the Acting Deputy, the OUSD(R&E) will also collect a list of technical problems and research challenges from the MILDEP research laboratories.

The Acting Deputy also stated that the MILDEP research laboratories will organize their teams to define technical problems and challenges, assess criteria, review submissions, and develop a standardized report with prioritized recommendations. They further stated that the MILDEP research laboratories will produce a comprehensive annual report summarizing the prioritized challenges and submit it to the OUSD(R&E) for review and guidance. The MILDEP research laboratories will use and document metrics for near-term progress and monitor foundational research. Lastly, the Acting Deputy stated that the OUSD(R&E) will maintain a records management system that will collect, synthesize, and disseminate critical information.

Our Response

Comments from the Acting Deputy USD(R&E) 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), in collaboration with the AFRL, ARL, and NRL, develops a list of technical problems and research challenges likely to be addressable by quantum computers in the next 1 to 3 years, and implements procedures for the MILDEP research laboratories to provide formal, annual updates to the list, as required by section 214 of the FY 2021 NDAA.

If you have any questions, please contact [redacted]
or [redacted]

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

Management Comments

Under Secretary of Defense for Research and Engineering

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AND ENGINEERING

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DEC 15 2025

MEMORANDUM FOR ASSISTANT INSPECTOR GENERAL FOR EVALUATIONS

I am responding on behalf of the Under Secretary of War for Research and Engineering (USW(R&E)) regarding the draft Department of War (DoW) Office of the Inspector General report, "Management Advisory: Evaluation of the DoD's Development and Implementation of Quantum Technologies (Project No. D2025-DEV0SI-0100.000)," dated September 10, 2025. Please find the full OUSW(R&E) response enclosed.

Joseph P. Morici
Performing the Duties of the
Deputy Under Secretary of War
for Research and Engineering

Enclosure:
As stated

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

Under Secretary of War for Research and Engineering
Response to DoD OIG, "Management Advisory: Draft report, "DoD's Development and Implementation of Quantum Technologies" (D2025-DEV0SI-0100.000)

Recommendation:

We recommend that the Secretaries of the Military Departments, in coordination with the Under Secretary of War for Research and Engineering (USW(R&E)), develop procedures to provide formal, annual updates to the list of technical problems and research challenges likely to be addressable by quantum computers in the next one to three years, as required by section 214 of the National Defense Authorization Act for FY 2021.

Response:

The OUSW(R&E) in coordination with the Air Force Research Laboratory (AFRL), Naval Research Laboratory (NRL), and Army Research Laboratory (ARL) concurs with the recommendation.

In unified support of the memorandum, OUSW(R&E), AFRL, ARL, and NRL will collaboratively contribute to the development and maintenance of an annual list of technical problems and research challenges likely addressable by quantum computers in the next one to three years. Military Department (MILDEP) responses are:

- ARL will comply and emphasizes the need to consider the DoD quantum community's consensus that demonstrable data on quantum capabilities is still 10-15 years away.
- NRL will comply with the direction to create a list of potential Navy-specific quantum computing applications each year.
- AFRL will comply and—in coordination with the Office of the USW(R&E)—will provide a formal, annual update to the list of technical problems and research challenges likely to be addressable by quantum computers in the next one to three years. AFRL will also document and maintain this updated annual list of the problems and challenges internally.

To produce a comprehensive annual report on prioritized quantum computing challenges, the following formal process will be implemented:

- OUSW(R&E) will issue an official tasking with a standard template and annually request submissions of proposed problems and challenges. The template will require a description, justification, feasibility assessment, data sources, and contact information. OUSW(R&E) will also collect a list of technical problems and research challenges from the MILDEPS.
- MILDEPS will organize their team to define technical problems and challenges, assessment criteria, review submissions, and develop a standardized report with prioritized recommendations. MILDEPS will produce a comprehensive annual report summarizing the prioritized challenges and submit it to the OUSW(R&E) for review and guidance.
- MILDEPS will use and document intermediate metrics for near-term progress and monitor foundational research.
- The OUSW(R&E) will maintain a records management system that will collect, synthesize, and disseminate critical information.

Enclosure

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U.S. Department of Defense

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