

118TH CONGRESS
2D SESSION

H. R. 7935

To direct the Secretary of Defense to accelerate the implementation of quantum information science technologies within the Department of Defense, and for other purposes.

IN THE HOUSE OF REPRESENTATIVES

APRIL 10, 2024

Ms. STEFANIK introduced the following bill; which was referred to the Committee on Armed Services

A BILL

To direct the Secretary of Defense to accelerate the implementation of quantum information science technologies within the Department of Defense, and for other purposes.

1 *Be it enacted by the Senate and House of Representa-*
2 *tives of the United States of America in Congress assembled,*

3 **SECTION 1. SHORT TITLE.**

4 This Act may be cited as the “Defense Quantum Ac-
5 celeration Act of 2024”.

1 **SEC. 2. JOINT QUANTUM INFORMATION SCIENCE DEFENSE**
2 **TRANSITION ACTIVITIES.**

3 Chapter 301 of title 10, United States Code, is
4 amended by inserting after section 4001 the following new
5 section:

6 **“§ 4002. Joint quantum information science defense**
7 **transition activities**

8 “(a) ACTIVITIES REQUIRED.—

9 “(1) IN GENERAL.—The Secretary of Defense
10 shall establish a set of activities to accelerate the
11 adoption and implementation quantum information
12 science (hereafter referred to ‘QIS’) technology with-
13 in the Department of Defense.

14 “(2) ELEMENTS.—Pursuant to the activities es-
15 tablished under paragraph (1), the Secretary, acting
16 through the Principal Quantum Advisor designated
17 under subsection (b), shall—

18 “(A) explore and identify QIS technologies
19 that—

20 “(i) have demonstrated value in ad-
21 vancing the priorities and missions of the
22 Department; and

23 “(ii) may be applied to address oper-
24 ational problems;

25 “(B) develop plans to transition such QIS
26 technologies from the research and development

1 phase to operational use within the Depart-
2 ment, including within each of the Armed
3 Forces; and

4 “(C) carry out such transition plans.

5 “(b) DESIGNATION OF PRINCIPAL QUANTUM ADVI-
6 SOR.—

7 “(1) IN GENERAL.—Not later than 180 days
8 after the date of the enactment of this Act, the Sec-
9 retary of Defense shall designate a senior official of
10 the Department of Defense to serve as the Principal
11 Quantum Advisor for the Department.

12 “(2) RESPONSIBILITIES.—The Principal Quan-
13 tum Advisor shall serve as the official within the De-
14 partment of Defense with principal responsibility
15 for—

16 “(A) coordinating activities relating to the
17 accelerated demonstration and transition of
18 QIS technologies for applications specific to
19 operational challenges faced by the Department;

20 “(B) coordinating, overseeing, and man-
21 aging the set of activities established under sub-
22 section (a);

23 “(C) carrying out the activities described
24 in paragraphs (3) through (6); and

1 “(D) carrying out such other duties related
2 to the development and implementation of QIS
3 technologies as the Secretary may direct.

4 “(3) DEFINING AND CODIFYING DEFENSE QIS
5 USE CASES.—

6 “(A) IN GENERAL.—The Principal Quan-
7 tum Advisor shall—

8 “(i) identify operational challenges
9 faced by the Department of Defense that
10 have the potential to be addressed through
11 the use of QIS-technology based solutions,
12 including solutions based on the QIS tech-
13 nology areas described subparagraph (C);

14 “(ii) for each such challenge, deter-
15 mine if the implementation of a QIS tech-
16 nology-based solution has the potential to
17 be significantly more effective at address-
18 ing such challenge compared to a non-QIS
19 technology-based solution, taking into ac-
20 count the technology and manufacturing
21 readiness level of the QIS technology-based
22 solution;

23 “(iii) for each potential QIS tech-
24 nology-based solution identified under
25 clause (ii), evaluate and determine the

1 technology and manufacturing readiness
2 level of the solution taking into account the
3 current readiness level of such solution—

4 “(I) within the Department;

5 “(II) among other departments
6 and agencies of the Federal Govern-
7 ment;

8 “(III) among Five Eyes coun-
9 tries; and

10 “(IV) within academia and indus-
11 try.

12 “(iv) for each QIS technology-based
13 solution determined under clause (iii) to
14 have a technology and manufacturing read-
15 iness level of 5 or higher, begin proto-
16 typing and evaluation activities of such so-
17 lution at scale in operationally relevant en-
18 vironments by not later than the end of fis-
19 cal year 2025; and

20 “(v) for each QIS technology-based
21 solution determined under clause (iii) to
22 have a technology and manufacturing read-
23 iness level of 4 or lower, submit to Con-
24 gress a plan for funding such solution over
25 the period of five fiscal years following the

1 date of the report using research, develop-
2 ment, test, and evaluation funds des-
3 ignated as budget activity 1 (basic re-
4 search), budget activity 2 (applied re-
5 search), budget activity 3 (advanced tech-
6 nology development), or budget activity 4
7 (advanced component development and
8 prototypes) as those budget activity classi-
9 fications are set forth in volume 2B, chap-
10 ter 5 of the Department of Defense Finan-
11 cial Management Regulation (DOD
12 7000.14–R).

13 “(B) COORDINATION.—In carrying out this
14 paragraph, the Principal Quantum Advisor
15 shall coordinate with and seek input from the
16 Armed Forces and unified combatant com-
17 mands—

18 “(i) to identify and better understand
19 the operational requirements of such
20 Armed Forces and commands; and

21 “(ii) to ensure that the timeline for
22 transitioning any QIS technology-based ca-
23 pability to operational use within the
24 Armed Forces and combatant commands
25 aligns with—

1 “(I) the plans of such Forces and
2 commands across the period covered
3 by the future-years defense program;
4 and

5 “(II) the program objective
6 memorandum processes for such
7 Forces and commands.

8 “(C) QIS TECHNOLOGY AREAS DE-
9 SCRIBED.—The QIS technology areas described
10 in this subparagraph are the following:

11 “(i) Quantum sensing, including—

12 “(I) alternative precision naviga-
13 tion and timing;

14 “(II) undersea or underground
15 detection;

16 “(III) advanced intelligence, sur-
17 veillance, and reconnaissance quantum
18 imaging techniques; and

19 “(IV) biomedical and health care.

20 “(ii) Quantum computing, including—

21 “(I) annealing;

22 “(II) quantum-enabled machine
23 learning;

24 “(III) simulation and optimiza-
25 tion; and

1 “(IV) integrating quantum and
2 classical computing.

3 “(iii) Quantum annealing.

4 “(iv) Quantum Communications and
5 networking.

6 “(v) Quantum-enabled modeling and
7 simulation.

8 “(vi) Hybrid quantum computing and
9 the integration of quantum and classical
10 computing components.

11 “(4) ACCELERATION OF DEVELOPMENT AND
12 FIELDING OF QIS TECHNOLOGIES.—The Principal
13 Quantum Advisor shall—

14 “(A) use the flexibility of regulations, per-
15 sonnel, acquisition, partnerships with industry
16 and academia, or other relevant policies of the
17 Department to accelerate the transition and
18 fielding of QIS technologies;

19 “(B) ensure engagement with combatant
20 commands, defense and private industries, re-
21 search universities, and unaffiliated, nonprofit
22 research institutions on matters relating such
23 QIS technologies; and

24 “(C) provide technical advice and support
25 organizations and elements of the Department

1 of Defense, including the Armed Forces, to op-
2 timize the use of QIS technologies to meet mis-
3 sion requirements.

4 “(5) INDUSTRY AND ACADEMIA ENGAGE-
5 MENT.—

6 “(A) INCLUSION IN CONSORTIUM.—The
7 Secretary of Defense, in coordination with the
8 Director of the National Institute of Standards
9 and Technology, shall ensure that the Principal
10 Quantum Advisor is included in the activities of
11 the Quantum Economic Development Consor-
12 tium established under section 201(b) of the
13 National Quantum Initiative Act (Public Law
14 115–368; 15 U.S.C. 8831(b)).

15 “(B) OUTREACH ACTIVITIES.—On a quar-
16 terly basis, the Principal Quantum Advisor
17 shall conduct outreach and engagement with in-
18 dustry and academic leaders—

19 “(i) to educate organizations in the
20 QIS industrial base on national security
21 QIS use cases and operational challenges
22 faced by the Department that have the po-
23 tential to be addressed through the use of
24 QIS technology-based solutions as de-
25 scribed in paragraph (3);

1 “(ii) to the extent determined appro-
2 priate by the Principal Quantum Advisor,
3 provide industry with the opportunity to
4 identify QIS technology-based solutions to
5 operational challenges faced by the Depart-
6 ment;

7 “(iii) educate organizations in the De-
8 fense industrial base on near-term and
9 commercially available QIS technology-
10 based solutions that provide operationally
11 relevant warfighting capabilities;

12 “(iv) advance relevant QIS supply
13 chains and manufacturing capabilities
14 within the United States and among allies
15 and partners of the United States; and

16 “(v) facilitate the commercialization of
17 QIS technology-based solutions developed
18 by the research and engineering organiza-
19 tions of the Department of Defense for
20 purposes of prototyping and transitioning
21 such technologies into operational use.

22 “(6) ALLIED QUANTUM ENHANCEMENT.—

23 “(A) ALIGNMENT WITH AUKUS EF-
24 FORTS.—Based on the QIS use cases identified

1 under paragraph (3)(A)(ii), the Principal Quantum
2 Advisor shall—

3 “(i) identify areas in which the United
4 Kingdom and Australia, pursuant to Pillar
5 II the partnership among Australia, the
6 United Kingdom, and the United States
7 (commonly known as ‘AUKUS’) are pur-
8 suing technology aligned with such use
9 cases; and

10 “(ii) align Department research and
11 development and procurement funding in
12 relation to QIS technologies on accel-
13 erating opportunities where Australia and
14 the United Kingdom are pursuing such
15 technologies.

16 “(B) MULTILATERAL AUKUS AND NATO
17 MEETINGS.—The Principal Quantum Advisor
18 shall organize—

19 “(i) a recurring multilateral meeting
20 of quantum technology experts from the
21 United States, the United Kingdom, and
22 Australia to facilitate information-sharing
23 and planning relevant to QIS technology
24 and defense-specific use cases for such
25 technology; and

1 “(ii) a recurring multilateral meeting
2 of quantum technology experts from mem-
3 ber nations of the North Atlantic Treaty
4 Organization to facilitate such information-
5 sharing and planning.

6 “(c) STRATEGIC PLAN.—

7 “(1) PLAN REQUIRED.—The Secretary of De-
8 fense shall develop strategic plan to guide the devel-
9 opment, assessment, procurement, and implementa-
10 tion of QIS technologies within the Department of
11 Defense over the period of five years following the
12 date of the plan.

13 “(2) ELEMENTS.—The plan required under
14 paragraph (1) shall include the following:

15 “(A) Plans for the continuous evaluation,
16 development, and implementation of QIS tech-
17 nology solutions within the Department.

18 “(B) Plans for the development, review,
19 performance evaluation, and adoption of a
20 fault-tolerant, utility-scale quantum computer
21 and the transition of that capability to appro-
22 priate organizations and elements of the De-
23 partment of Defense, including the Armed
24 Forces, and such other departments and agen-

1 cies of the Federal Government as the Sec-
2 retary determines appropriate.

3 “(C) Plans for allocating the resources of
4 the Department to ensure such resources are
5 focused on QIS technologies with the potential
6 to solve operational challenges.

7 “(D) Identification of QIS technologies
8 that—

9 “(i) have critical defense-specific ap-
10 plications;

11 “(ii) cannot be adapted from commer-
12 cially available QIS technology; and

13 “(iii) are unlikely to be pursued or ac-
14 celerated by industry because of limited
15 commercial value.

16 “(E) Plans for supporting the development
17 of capabilities identified under subparagraph
18 (D).

19 “(F) An assessment of the QIS supply
20 chain, including assessment of—

21 “(i) any associated strengths, weak-
22 nesses, opportunities and threats; and

23 “(ii) critical components, suppliers,
24 and single points of failure.

1 “(3) REPORT TO CONGRESS.—Not later than
2 one year after the date of the enactment of this Act,
3 the Secretary of Defense shall submit to Congress a
4 report that includes the plan developed under para-
5 graph (1).

6 “(d) COMMERCIAL SECURITY STRATEGY.—The Sec-
7 retary of Defense shall adopt a comprehensive security
8 strategy for commercially developed capabilities based on
9 the guide utilized in the Underexplored Systems for Util-
10 ity-Scale Quantum Computing program of the Defense
11 Advanced Research Projects Agency.

12 “(e) NATIONAL SECURITY QIS ADOPTION ACCEL-
13 ERATION TESTBED.—

14 “(1) ESTABLISHMENT.—The Secretary of De-
15 fense, in consultation with the Secretary of Energy,
16 shall establish a national defense quantum informa-
17 tion science joint center of excellence (referred to in
18 this section as the ‘Center’).

19 “(2) ORGANIZATION.—The Center shall be op-
20 erated by the Secretary of Defense and shall include
21 participation from the following organizations:

22 “(A) One or more research laboratories of
23 the Armed Forces.

24 “(B) A Department of Energy national
25 laboratory.

1 “(C) A federally funded research and de-
2 velopment center or a university-affiliated re-
3 search center.

4 “(3) LOCATION.—The Secretary shall establish
5 the Center at a location in the United States that
6 is reasonably accessible to each organization de-
7 scribed in paragraph (2).

8 “(4) ACTIVITIES.—The Center shall carry out
9 the following activities:

10 “(A) Facilitate QIS technology transition
11 and workforce development activities.

12 “(B) Conduct outreach to enhance indus-
13 try and academia’s understanding of national
14 security QIS technology use cases and current
15 operational challenges faced by the Department.

16 “(C) Prototype QIS technologies, with pri-
17 ority given to the prototyping and transition of
18 QIS-enabled position, navigation, and timing ef-
19 forts and quantum sensors at technology readi-
20 ness level six or higher.

21 “(D) Integrate the prototyping activities
22 under subparagraph (C) with the needs of the
23 unified combatant commands.

1 “(E) Accelerate the transition of advanced
2 QIS technology from the research and develop-
3 ment phase into operational use.

4 “(F) Expand the QIS workforce of the
5 United States and the QIS workforces of na-
6 tions that are allies and partners of the United
7 States.

8 “(5) CONTRACT AUTHORITY.—The Secretary
9 may make grants and enter into contracts and other
10 agreements, on a competitive basis, to support the
11 activities of the Center.

12 “(6) AUTHORIZATION OF APPROPRIATIONS.—
13 There are authorized to be appropriated to carry out
14 this subsection \$20,000,000 for each of fiscal years
15 2025 through 2029.

16 “(f) RESEARCH OPPORTUNITIES AND WORKFORCE
17 PLANNING.—

18 “(1) ENHANCEMENT OF RESEARCH OPPORTU-
19 NITIES.—Not later than one year after the date of
20 enactment of this Act, the Secretary of Defense shall
21 seek to increase opportunities for the study of QIS
22 within—

23 “(A) the military service academies.

24 “(B) the Reserve Officers’ Training Corps;

25 and

1 “(C) other institutions and programs of
2 the Department of Defense and the Armed
3 Forces that provide postsecondary and graduate
4 level education.

5 “(2) STANDARD OPERATING PROCEDURES.—
6 The Secretary of Defense shall direct the chief of
7 each Armed Force, in consultation with the heads of
8 the research laboratories under the jurisdiction of
9 such Armed Force—

10 “(A) to adopt internal standard operating
11 procedures for QIS workforce development to
12 monitor and evaluate progress toward human
13 capital goals and human capital programmatic
14 results; and

15 “(B) to involve top management, employ-
16 ees, and other stakeholders in QIS workforce
17 planning by—

18 “(i) developing and implementing an
19 enterprise-wide strategic quantum work-
20 force plan; and

21 “(ii) communicating quantum work-
22 force goals, initiatives, and metrics for
23 evaluating success throughout each labora-
24 tory.

25 “(g) BUDGET REVIEW.—

1 “(1) IN GENERAL.—The Secretary of Defense,
2 acting through the Under Secretary of Defense
3 (Comptroller), shall require the Secretaries of the
4 military departments and the heads of the Defense
5 Agencies with responsibilities associated with any
6 QIS activity to transmit the proposed budget for
7 such activities for a fiscal year and for the period
8 covered by the future-years defense program sub-
9 mitted to Congress under section 221 of title 10,
10 United States Code, for that fiscal year to the Prin-
11 cipal Quantum Advisor for review before submitting
12 the proposed budget to the Under Secretary of De-
13 fense (Comptroller).

14 “(2) REPORT TO SECRETARY.—The Principal
15 Quantum Advisor shall review each proposed budget
16 transmitted, and, not later than January 31 of the
17 year preceding the fiscal year for which the budget
18 is proposed, shall submit to the Secretary of Defense
19 a report containing the comments of the Principal
20 Quantum Advisor with respect to all such proposed
21 budgets, together with the certification of the Prin-
22 cipal Quantum Advisor regarding whether each pro-
23 posed budget is adequate.

24 “(3) REPORT TO CONGRESS.—Not later than
25 March 31 of each year, the Secretary of Defense

1 shall submit to Congress a report specifying each
2 proposed budget that the Principal Quantum Advi-
3 sor did not certify to be adequate. The report of the
4 Secretary shall include the following matters:

5 “(A) A discussion of the actions that the
6 Secretary proposes to take, together with any
7 recommended legislation that the Secretary con-
8 siders appropriate, to address the inadequacy of
9 the proposed budgets specified in the report.

10 “(B) Any additional comments that the
11 Secretary considers appropriate regarding the
12 inadequacy of the proposed budgets.

13 “(h) DEFINITIONS.—In this section:

14 “(1) The term ‘Five Eyes countries’ means the
15 following:

16 “(A) Australia.

17 “(B) Canada.

18 “(C) New Zealand.

19 “(D) The United Kingdom.

20 “(E) The United States.

21 “(2) The term ‘quantum information science’ or
22 ‘QIS’ means the use of the laws of quantum physics
23 for the storage, transmission, manipulation, com-
24 puting, or measurement of information.”.

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