

**H.R. 4350—FY22 NATIONAL DEFENSE
AUTHORIZATION BILL**

**SUBCOMMITTEE ON CYBER,
INNOVATIVE TECHNOLOGIES, AND
INFORMATION SYSTEMS**

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SUMMARY OF BILL LANGUAGE

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DIVISION A—DEPARTMENT OF DEFENSE AUTHORIZATIONS

TITLE II—RESEARCH, DEVELOPMENT, TEST, AND EVALUATION

LEGISLATIVE PROVISIONS

SUBTITLE B—PROGRAM REQUIREMENTS, RESTRICTIONS, AND LIMITATIONS

Section 211—Duties and Regional Activities of the Defense Innovation Unit

This section would modify section 2358b(c)(2)(B) of title 10, United States Code, to update the Department of Defense's technology strategy documents for which the Joint Reserve Detachment of the Defense Innovation Unit (DIU) is responsible for increasing awareness. Additionally, subject to the availability of appropriations, this section would also authorize the Secretary of Defense to, as appropriate, expand the efforts of the Defense Innovation Unit to engage and collaborate with private-sector industry and communities in various regions of the United States that do not otherwise have a DIU presence.

Section 212—Modification of Mechanisms for Expedited Access to Technical Talent and Expertise at Academic Institutions

This section would modify section 2358 of title 10, United States Code, on mechanisms for expedited access to technical talent and expertise at academic institutions and would add a 31st mission area called "spectrum activities."

Section 215—Development and Implementation of Digital Technologies for Survivability and Lethality Testing

This section would direct the Secretary of Defense to expand survivability testing of covered systems to include testing against non-kinetic threats, and to develop digital technologies to test those systems against threats throughout the system's lifecycle. This section would also direct the Secretary to carry out activities to demonstrate digital technologies for live fire testing, and would require the Director of Operational Test and Evaluation to submit a report to the congressional defense committees not later than March 15, 2023, with an assessment of the Secretary's progress on expanding survivability testing, supporting development of digital technologies for live fire testing, and the demonstration activities.

The committee notes that digital technologies and non-kinetic threats have advanced beyond the efficacy of the language in section 2366 of title 10, United States Code, Major systems and munitions programs: survivability testing and lethality testing required before full-scale production, and modernization is necessary. Survivability and lethality are no longer constrained by simple ballistics and are instead today susceptible to contemporary non-kinetic threats including

cyber; electromagnetic spectrum operations; chemical, biological, radiological, nuclear, high yield explosives; and directed energy weapons. These threats can interact in inventive ways to degrade, disable, deceive, and destroy a force or mission, and they can evolve continually. It is imperative that the Secretary of Defense take a whole of systems and whole of lifecycle approach in the identification of these threats and their effects to assess the full spectrum of survivability and lethality of any system.

Digital technologies, including digital twins and modeling and simulation, have advanced and enable the Department to build high-fidelity models of systems to test and evaluate this full spectrum of threats, perform many more digital tests, and perform continuous vulnerability discovery and mitigation of the most prominent threats throughout the system's lifecycle. Data from physical and digital testing must be collected and fed back into the models to improve their fidelity and value over the system's lifecycle. Additionally, the Department has a legacy fleet with non-kinetic vulnerabilities and should consider model creation when appropriate and necessary. The committee believes the Department will benefit from broadening its view of survivability and lethality testing and evaluation to include non-kinetic threats. The Department should also broaden its view of live fire testing to include digital-live fires through models and simulations, which may augment, or in some cases replace, live-testing, and allow for continuous survivability assessments over time. Taken together, these two modernization improvements should provide the foundation for a full spectrum survivability assessment approach throughout the system's lifecycle.

Section 216—Pilot Program on the Use of Intermediaries to Connect the Department of Defense with Technology Producers

This section would direct the Secretary of Defense to carry out a 5-year pilot program to help foster transition of the Department of Defense's science and technology programs, projects, and activities into full scale implementation. This section would direct the Secretary to seek to enter into agreements with qualified intermediaries to provide technical assistance to technology producers to better participate in the procurement programs and acquisition processes of the Department. This section would require a briefing to the House Committee on Armed Services not later than December 31, 2022, on the Secretary's progress in implementing the program and any related policy issues. This section would also direct the Comptroller General of the United States to submit a report to the Committees on Armed Services of the Senate and the House of Representatives not later than 5 years after the date of the enactment of this Act on the pilot program's effectiveness.

The committee is aware that there are a growing number of access points for innovative technology companies to engage with the Department of Defense, but there is no support team connecting those businesses between each of the innovation entities and to the appropriate customers in the Department, including

program executive offices, program management offices, and science and technology reinvention laboratories. The pilot program would provide support to those technology producers looking to do business with the Department, and guidance on how to navigate unfamiliar processes including those surrounding requirements, budgeting, contracting, and other statutory, regulatory, and cultural hurdles. The committee believes that an entity that specializes in engaging and supporting technology producers is necessary to help the Department become a better buyer and a more attractive customer to innovative commercial companies.

SUBTITLE C—PLANS, REPORTS, AND OTHER MATTERS

Section 231—Modification to Annual Report of the Director of Operational Test and Evaluation

This section would amend section 139(h)(2) of title 10, United States Code, by removing the sunset date for the Director of Operational Test and Evaluation's annual report to Congress.

TITLE VIII—ACQUISITION POLICY, ACQUISITION MANAGEMENT, AND RELATED MATTERS

LEGISLATIVE PROVISIONS

SUBTITLE B—AMENDMENTS TO GENERAL CONTRACTING AUTHORITIES, PROCEDURES, AND LIMITATIONS

Section 814—Modification to the Pilot Program for Streamlining Awards for Innovative Technology Projects

This section would amend section 873 of the National Defense Authorization Act for Fiscal Year 2016 (Public Law 114-92), Pilot Program for Streamlining Awards for Innovative Technology Projects, as amended by section 832 of the William M. (Mac) Thornberry National Defense Authorization Act for Fiscal Year 2021 (Public Law 116-283), to extend the deadline by 2 years to October 1, 2024. This section would also require the Secretary of Defense to submit a recommendation to the congressional defense committees by April 1, 2023, as to whether the pilot should be further extended, and if so include with it the lessons learned from this pilot and usage data.

SUBTITLE C—INDUSTRIAL BASE MATTERS

Section 822—Designating Certain SBIR and STTR Programs as Entrepreneurial Innovation Projects

This section would direct the Secretary of Defense and the Secretaries of the military departments to each carry out a pilot program to more effectively transition Small Business Innovation Research programs and Small Business Technology Transfer programs into Phase III. This section would direct the Secretaries to each designate five completed Phase II programs to include in the next Future Years Defense Program as Entrepreneurial Innovation Projects, and to consider them as part of the Department of Defense's planning, programming, budgeting, and execution process. The Secretary of Defense would be responsible for submitting a report annually to the congressional defense committees on the programs selected for the duration of the 5-year pilot.

TITLE IX—DEPARTMENT OF DEFENSE ORGANIZATION AND MANAGEMENT

LEGISLATIVE PROVISIONS

SUBTITLE A—OFFICE OF THE SECRETARY OF DEFENSE AND RELATED MATTERS

Section 901—Designation of Senior Official for Implementation of Electromagnetic Spectrum Superiority Strategy

This section would require the Department of Defense to designate a sole senior official responsible for implementing any current or future electromagnetic spectrum superiority strategy of the Department. This section would also require the Secretary of Defense to submit a report to the congressional defense committees not later than 270 days after the date of the enactment of this Act on the sufficiency of electromagnetic warfare rules of engagement.

TITLE XI—CIVILIAN PERSONNEL MATTERS

LEGISLATIVE PROVISIONS

Section 1103—DARPA Personnel Management Authority to Attract Science and Engineering Experts

This section would amend section 1599h(b) of title 10, United States Code, by adding the ability for the Defense Advanced Research Projects Agency to pay for travel, transportation, and relocation expenses and services when hiring up to 15 individuals in any fiscal year.

TITLE XV—CYBERSPACE-RELATED MATTERS

LEGISLATIVE PROVISIONS

SUBTITLE B—CYBER SYSTEMS AND OPERATIONS

Section 1511—Legacy Information Technologies and Systems Accountability

This section would mandate that each military service initiate an effort to account for the legacy information technology (IT) systems, applications, and software. Efforts to discover and inventory legacy IT systems, applications, and software ensure that redundant and unnecessary investments can be better aligned to departmental priorities.

DIVISION E—NON-DEPARTMENT OF DEFENSE MATTERS

TITLE L—BARRY GOLDWATER SCHOLARSHIP AND EXCELLENCE IN EDUCATION MODERNIZATION ACT

Section 5001—Short Title

This section would create the short title for the "Barry Goldwater Scholarship and Excellence in Education Modernization Act of 2021". This title would be a modification to the Barry Goldwater Scholarship and Excellence in Education Foundation Authorization included in the National Defense Authorization Act for Fiscal Year 1986 (Public Law 99-145) in honor of Senator Barry Goldwater.

Section 5002—Clarifying Amendments to Definitions

This section would amend section 1403 of the Barry Goldwater Scholarship and Excellence in Education Act (20 U.S.C. 4702) to include the Republic of the Marshall Islands, the Federated States of Micronesia, and the Republic of Palau.

Section 5003—Barry Goldwater Scholarship and Excellence in Education Awards

This section would amend sections 1405(a) and 1405(b) of the Barry Goldwater Scholarship and Excellence in Education Act (20 U.S.C. 4704(a) and 20 U.S.C. 4704(b)) by adding research internships and expanding the fields of study to also include engineering.

Section 5004—Stipends

This section would amend section 1406 of the Barry Goldwater Scholarship and Excellence in Education Act (20 U.S.C. 4705) to include internship stipends.

Section 5005—Scholarship and Research Internship Conditions

This section would amend section 1407 of the Barry Goldwater Scholarship and Excellence in Education Act (20 U.S.C. 4706) to include conditions and reports for research internships.

Section 5006—Sustainable Investments of Funds

This section would amend section 1408 of the Barry Goldwater Scholarship and Excellence in Education Act (20 U.S.C. 4707) to allow under certain conditions for the investment of up to 40 percent of any public or private funds received by the Foundation after the date of enactment of the Barry Goldwater Scholarship and Excellence in Education Modernization Act of 2021 in securities other than public debt securities of the United States.

Section 5007—Administrative Provisions

This section would amend section 1411(a) of the Barry Goldwater Scholarship and Excellence in Education Act (20 U.S.C. 4710(a)) to allow for the appointment of no more than three employees to carry out the provisions of this title, without regard to the provisions in chapter 33 of title 5, United States Code, with certain exceptions.

BILL LANGUAGE

1 **Subtitle B—Program Require-**
2 **ments, Restrictions, and Limita-**
3 **tions**

4 **SEC. 211 [Log 73288]. DUTIES AND REGIONAL ACTIVITIES**
5 **OF THE DEFENSE INNOVATION UNIT.**

6 (a) DUTIES OF DIU JOINT RESERVE DETACH-
7 MENT.—Clause (ii) of section 2358b(c)(2)(B) of title 10,
8 United States Code, is amended to read as follows:

9 “(ii) the technology requirements of
10 the Department of Defense, as identified
11 in the most recent—

12 “(I) National Defense Strategy;

13 “(II) National Defense Science
14 and Technology Strategy as directed
15 under section 218 of the John S.
16 McCain National Defense Authoriza-
17 tion Act for Fiscal Year 2019 (Public
18 Law 115–232; 132 Stat. 1679); and

19 “(III) policy and guidance from
20 the Under Secretary of Defense for
21 Research and Engineering and the
22 Under Secretary of Defense for Acqui-
23 sition and Sustainment; and”.

24 (b) REGIONAL ACTIVITIES.—Subject to the avail-
25 ability of appropriations for such purpose, the Secretary

1 of Defense may expand the efforts of the Defense Innova-
2 tion Unit to engage and collaborate with private-sector in-
3 dustry and communities in various regions of the United
4 States—

5 (1) to accelerate the adoption of commercially
6 developed advanced technology in the areas of manu-
7 facturing, space, energy, materials, autonomy, and
8 such other key technology areas as may be identified
9 by the Secretary; and

10 (2) to expand outreach to communities that do
11 not otherwise have a Defense Innovation Unit pres-
12 ence.

1 **SEC. 212 [Log 73233]. MODIFICATION OF MECHANISMS FOR**
2 **EXPEDITED ACCESS TO TECHNICAL TALENT**
3 **AND EXPERTISE AT ACADEMIC INSTITU-**
4 **TIONS.**

5 Section 217(e) of the National Defense Authorization
6 Act for Fiscal Year 2018 (Public Law 115–91; 10 U.S.C.
7 2358 note) is amended—

8 (1) by redesignating paragraph (31) as para-
9 graph (32); and

10 (2) by inserting after paragraph (30) the fol-
11 lowing new paragraph:

12 “(31) Spectrum activities.”.

1 **SEC. 215 [Log 72959]. DEVELOPMENT AND IMPLEMENTA-**
2 **TION OF DIGITAL TECHNOLOGIES FOR SUR-**
3 **VIVABILITY AND LETHALITY TESTING.**

4 (a) EXPANSION OF SURVIVABILITY AND LETHALITY
5 TESTING.—

6 (1) IN GENERAL.—The Secretary, in coordina-
7 tion with covered officials, shall—

8 (A) expand the survivability and lethality
9 testing of covered systems to include testing
10 against non-kinetic threats; and

11 (B) develop digital technologies to test
12 such systems against such threats throughout
13 the life cycle of each such system.

14 (2) DEVELOPMENT OF DIGITAL TECHNOLOGIES
15 FOR LIVE FIRE TESTING.—

16 (A) IN GENERAL.—The Secretary, in co-
17 ordination with covered officials, shall develop—

18 (i) digital technologies to enable the
19 modeling and simulation of the live fire
20 testing required under section 2366 of title
21 10, United States Code; and

22 (ii) a process to use data from phys-
23 ical live fire testing to inform and refine
24 the digital technologies described in clause
25 (i).

1 (B) OBJECTIVES.—In carrying out sub-
2 paragraph (A), the Secretary shall seek to
3 achieve the following objectives:

4 (i) Enable assessments of full spec-
5 trum survivability and lethality of each
6 covered system with respect to kinetic and
7 non-kinetic threats.

8 (ii) Inform the development and re-
9 finement of digital technology to test and
10 improve covered systems.

11 (iii) Enable survivability and lethality
12 assessments of the warfighting capabilities
13 of a covered system with respect to—

14 (I) communications;

15 (II) firepower;

16 (III) mobility;

17 (IV) catastrophic survivability;

18 and

19 (V) lethality.

20 (C) DEMONSTRATION ACTIVITIES.—

21 (i) IN GENERAL.—The Secretary, act-
22 ing through the Director, shall carry out
23 activities to demonstrate the digital tech-
24 nologies for full spectrum survivability
25 testing developed under subparagraph (A).

1 (ii) PROGRAM SELECTION.—The Sec-
2 retary shall assess and select not fewer
3 than three and not more than ten pro-
4 grams of the Department to participate in
5 the demonstration activities required under
6 clause (i).

7 (iii) ARMED FORCES PROGRAMS.—Of
8 the programs selected pursuant to clause
9 (ii), the Director shall select—

10 (I) at least one such program
11 from the Army;

12 (II) at least one such program
13 from the Navy or the Marine Corps;
14 and

15 (III) at least one such program
16 from the Air Force or the Space
17 Force.

18 (3) REGULAR SURVIVABILITY AND LETHALITY
19 TESTING THROUGHOUT LIFE CYCLE.—

20 (A) IN GENERAL.—The Secretary, in co-
21 ordination with covered officials, shall—

22 (i) develop a process to regularly test
23 through the use of digital technologies the
24 survivability and lethality of each covered
25 system against kinetic and non-kinetic

1 threats throughout the life cycle of such
2 system as threats evolve; and

3 (ii) establish guidance for such test-
4 ing.

5 (B) ELEMENTS.—In carrying out subpara-
6 graph (A), the Secretary shall determine the
7 following:

8 (i) When to deploy digital technologies
9 to provide timely and up-to-date insights
10 with respect to covered systems without
11 unduly delaying fielding of capabilities.

12 (ii) The situations in which it may be
13 necessary to develop and use digital tech-
14 nologies to assess legacy fleet
15 vulnerabilities.

16 (b) REPORTS AND BRIEFING.—

17 (1) ASSESSMENT AND SELECTION OF PRO-
18 GRAMS.—Not later than 180 days after the date of
19 the enactment of this Act, the Secretary shall submit
20 to the congressional defense committees a report
21 that identifies the programs selected to participate
22 in the demonstration activities under subsection
23 (a)(2)(C).

24 (2) MODERNIZATION AND DIGITIZATION RE-
25 PORT.—

1 (A) IN GENERAL.—Not later than March
2 15, 2023, the Director shall submit to the con-
3 gressional defense committees a report that in-
4 cludes—

5 (i) an assessment of the progress of
6 the Secretary in carrying out subsection
7 (a);

8 (ii) an assessment of each of the dem-
9 onstration activities carried out under sub-
10 section (a)(2)(C), including a comparison
11 of—

12 (I) the risks, benefits, and costs
13 of using digital technologies for live
14 fire testing and evaluation; and

15 (II) the risks, benefits, and costs
16 of traditional physical live fire testing
17 approaches that—

18 (aa) are not supported by
19 digital technologies;

20 (bb) do not include testing
21 against non-kinetic threats; and

22 (cc) do not include full spec-
23 trum survivability.

24 (iii) an explanation of—

1 (I) how real-world operational
2 and digital survivability and lethality
3 testing data will be used to inform
4 and enhance digital technology;

5 (II) the contribution of such data
6 to the digital modernization efforts re-
7 quired under section 836 of the Wil-
8 liam M. (Mac) Thornberry National
9 Defense Authorization Act for Fiscal
10 Year 2021 (Public Law 116–283);
11 and

12 (III) the contribution of such
13 data to the decision-support processes
14 for managing and overseeing acquisi-
15 tion programs of the Department;

16 (iv) an assessment of the ability of the
17 Department to perform full spectrum sur-
18 vivability and lethality testing of each cov-
19 ered system with respect to kinetic and
20 non-kinetic threats;

21 (v) an assessment of the processes im-
22 plemented by the Department to manage
23 digital technologies developed pursuant to
24 subsection (a); and

1 (vi) an assessment of the processes
2 implemented by the Department to develop
3 digital technology that can perform full
4 spectrum survivability and lethality testing
5 with respect to kinetic and non-kinetic
6 threats.

7 (B) BRIEFING.—Not later than April 14,
8 2023, the Director shall provide to the congress-
9 sional defense committees a briefing that identi-
10 fies any changes to existing law that may be
11 necessary to implement subsection (a).

12 (c) DEFINITIONS.—In this section:

13 (1) COVERED OFFICIALS.—The term “covered
14 officials” means—

15 (A) the Under Secretary of Defense for
16 Research and Engineering;

17 (B) the Under Secretary of Defense for
18 Acquisition and Sustainment;

19 (C) the Chief Information Officer;

20 (D) the Director;

21 (E) the Director of Cost Assessment and
22 Program Evaluation;

23 (F) the Service Acquisition Executives;

24 (G) the Service testing commands;

1 (H) the Director of the Defense Digital
2 Service; and

3 (I) representatives from—

4 (i) the Department of Defense Test
5 Resource Management Center;

6 (ii) the High Performance Computing
7 Modernization Program Office; and

8 (iii) the Joint Technical Coordination
9 Group for Munitions Effectiveness.

10 (2) COVERED SYSTEM.—The term “covered sys-
11 tem” means any warfighting capability that can de-
12 grade, disable, deceive, or destroy forces or missions.

13 (3) DEPARTMENT.—The term “Department”
14 means the Department of Defense.

15 (4) DIGITAL TECHNOLOGIES.—The term “dig-
16 ital technologies” includes digital models, digital
17 simulations, and digital twin capabilities that may be
18 used to test the survivability and lethality of a cov-
19 ered system.

20 (5) DIRECTOR.—The term “Director” means
21 the Director of Operational Test and Evaluation.

22 (6) FULL SPECTRUM SURVIVABILITY AND
23 LETHALITY TESTING.—The term “full spectrum sur-
24 vivability and lethality testing” means a series of as-
25 sessments of the effects of kinetic and non-kinetic

1 threats on the communications, firepower, mobility,
2 catastrophic survivability, and lethality of a covered
3 system.

4 (7) NON-KINETIC THREATS.—The term “non-
5 kinetic threats” means unconventional threats, in-
6 cluding—

7 (A) cyber attacks;

8 (B) electromagnetic spectrum operations;

9 (C) chemical, biological, radiological, nu-
10 clear effects and high yield explosives; and

11 (D) directed energy weapons.

12 (8) SECRETARY.—The term “Secretary” means
13 the Secretary of Defense.

1 **SEC. 216 [Log 72963]. PILOT PROGRAM ON THE USE OF**
2 **INTERMEDIARIES TO CONNECT THE DEPART-**
3 **MENT OF DEFENSE WITH TECHNOLOGY PRO-**
4 **DUCERS.**

5 (a) IN GENERAL.—The Secretary of Defense shall
6 carry out a pilot program to foster the transition of the
7 science and technology programs, projects, and activities
8 of the Department of Defense from the research, develop-
9 ment, pilot, and prototyping phases to full-scale implemen-
10 tation. Under the pilot program, the Secretary shall seek
11 to enter into agreements with qualified intermediaries pur-
12 suant to which the intermediaries will—

13 (1) match technology producers with programs,
14 projects, and activities of the Department that may
15 have a use for the technology developed by such pro-
16 ducers; and

17 (2) provide technical assistance to such tech-
18 nology producers on participating in the procure-
19 ment programs and acquisition processes of the De-
20 partment.

21 (b) ACTIVITIES.—A qualified intermediary that en-
22 ters into an agreement with the Secretary of Defense
23 under subsection (a) shall, pursuant to such agreement—

24 (1) guide and advise technology producers on
25 participating in the procurement programs and ac-
26 quisition processes of the Department, including—

1 (A) planning, programing, budgeting, and
2 execution processes of the Department.

3 (B) requirements processes;

4 (C) the Federal Acquisition Regulation and
5 the Department of Defense Supplement to the
6 Federal Acquisition Regulation;

7 (D) other procurement programs and au-
8 thorities, including—

9 (i) the Small Business Innovation Re-
10 search Program and the Small Business
11 Technology Transfer Program, as defined
12 in section 9(e) of the Small Business Act
13 (15 U.S.C. 638(e));

14 (ii) other transaction authority under
15 sections 2371 and 2371b of title 10,
16 United States Code;

17 (iii) cooperative agreements;

18 (iv) prizes for advanced technology
19 achievements under section 2374a of title
20 10, United States Code; and

21 (v) grant programs; and

22 (E) new entrant barriers and challenges,
23 including—

24 (i) accessing secure computing and in-
25 formation technology infrastructure; and

1 (ii) securing clearances for personnel
2 and facilities; and

3 (2) match technology producers with programs,
4 projects, and activities of the Department that may
5 have a use for the technology developed by such pro-
6 ducers, including programs, projects, and activities
7 carried out by—

8 (A) program executive officers (as defined
9 in section 1737(a)(4)) of title 10, United States
10 Code);

11 (B) program management offices;

12 (C) combatant commands with a command
13 acquisition executive;

14 (D) Defense Agencies and Department of
15 Defense Field Activities (as such terms are de-
16 fined, respectively, in section 101 of title 10,
17 United States Code); and

18 (E) such other elements of the Department
19 as the Secretary considers appropriate.

20 (c) PRIORITY.—In carrying out the activities de-
21 scribed in subsection (b), a qualified intermediary shall
22 give priority to technology producers that are small busi-
23 ness concerns (as defined under section 3 of the Small
24 Business Act (15 U.S.C. 632)), research institutions (as
25 defined in section 9(e) of such Act), or institutions of high-

1 er education (as defined in section 101 of the Higher Edu-
2 cation Act of 1965 (20 U.S.C 1001)).

3 (d) TERMS OF AGREEMENTS.—

4 (1) IN GENERAL.—The terms of an agreement
5 under subsection (a) shall be determined by the Sec-
6 retary of Defense.

7 (2) METHODS OF SERVICE DELIVERY.—In en-
8 tering into agreements under subsection (a), the
9 Secretary may consider, on a case by case basis,
10 whether the needs of the Department of Defense
11 and technology producers would best be served by a
12 qualified intermediary that provides services in a
13 specific geographic region, serves a particular tech-
14 nology sector, or uses another method of service de-
15 livery.

16 (3) INCENTIVES.—The Secretary of Defense
17 may include terms in an agreement under subsection
18 (a) to incentivize a qualified intermediary to success-
19 fully facilitate the transition of science and tech-
20 nology from the research, development, pilot, and
21 prototyping phases to full-scale implementation with-
22 in the Department of Defense.

23 (4) LIMITATION ON USE OF FUNDS.—The Sec-
24 retary of Defense may not use any amounts required
25 to be expended under section 9(f)(1) of the Small

1 Business Act (15 U.S.C. 638(f)(1)) for any adminis-
2 trative costs incurred by a qualified intermediary as-
3 sociated with the pilot program under this section.

4 (e) PROTECTION OF PROPRIETARY INFORMATION.—

5 The Secretary of Defense shall implement policies and
6 procedures to protect the intellectual property and any
7 other proprietary information of technology producers that
8 participate in the pilot program under this section.

9 (f) DATA COLLECTION.—

10 (1) PLAN REQUIRED BEFORE IMPLEMENTA-
11 TION.—The Secretary of Defense may not enter into
12 an agreement under subsection (a) until the date on
13 which the Secretary—

14 (A) completes a plan to for carrying out
15 the data collection required under paragraph
16 (2); and

17 (B) submits the plan to the appropriate
18 congressional committees.

19 (2) DATA COLLECTION REQUIRED.—The Sec-
20 retary of Defense shall collect and analyze data on
21 the pilot program under this section for the purposes
22 of—

23 (A) developing and sharing best practices
24 for facilitating the transition of science and
25 technology from the research, development,

1 pilot, and prototyping phases to full-scale imple-
2 mentation within the Department of Defense;

3 (B) providing information to the leadership
4 of the Department on the implementation of the
5 pilot program and related policy issues; and

6 (C) providing information to the appro-
7 priate congressional committees as required
8 under subsection (g).

9 (g) BRIEFING.—Not later than December 31, 2022,
10 the Secretary of Defense shall provide to the appropriate
11 congressional committees a briefing on the progress of the
12 Secretary in implementing the pilot program under this
13 section and any related policy issues.

14 (h) CONSULTATION.—In carrying out the pilot pro-
15 gram under this section, the Secretary of Defense shall
16 consult with—

17 (1) service acquisition executives (as defined in
18 section 101 of title 10, United States Code);

19 (2) the heads of appropriate Defense Agencies
20 and Department of Defense Field Activities;

21 (3) procurement technical assistance centers (as
22 described in chapter 142 of title 10, United States
23 Code);

24 (4) the Administrator of Federal Procurement
25 Policy; and

1 (5) such other individuals and organizations as
2 the Secretary determines appropriate.

3 (i) TERMINATION.—The pilot program under this
4 section shall terminate on the date that is five years after
5 the date on which Secretary of Defense enters into the
6 first agreement with a qualified intermediary under sub-
7 section (a).

8 (j) COMPTROLLER GENERAL ASSESSMENT AND RE-
9 PORT.—

10 (1) ASSESSMENT.—The Comptroller General of
11 the United States shall conduct an assessment of the
12 pilot program under this section. The assessment
13 shall include an evaluation of the effectiveness of the
14 pilot program with respect to—

15 (A) facilitating the transition of science
16 and technology from the research, development,
17 pilot, and prototyping phases to full-scale imple-
18 mentation within the Department of Defense;
19 and

20 (B) protecting sensitive information shared
21 among the Department of Defense, qualified
22 intermediaries, and technology producers in the
23 course of the pilot program.

24 (2) REPORT.—Not later than the date specified
25 in paragraph (3), the Comptroller General shall sub-

1 mit to the appropriate congressional committees a
2 report on the results of the assessment conducted
3 under paragraph (1).

4 (3) DATE SPECIFIED.—The date specified in
5 this paragraph is the earlier of—

6 (A) four years after the date on which the
7 Secretary of Defense enters into the first agree-
8 ment with a qualified intermediary under sub-
9 section (a); or

10 (B) five years after the date of the enact-
11 ment of this Act.

12 (k) DEFINITIONS.—In this section:

13 (1) The term “appropriate congressional com-
14 mittees” means—

15 (A) the congressional defense committees;

16 (B) the Committee on Homeland Security
17 and Governmental Affairs of the Senate; and

18 (C) the Committee on Oversight and Re-
19 form of the House of Representatives.

20 (2) The term “qualified intermediary” means a
21 nonprofit, for-profit, or State or local government
22 entity that assists, counsels, advises, evaluates, or
23 otherwise cooperates with technology producers that
24 need or can make demonstrably productive use of

1 the services provided by the intermediary pursuant
2 to the pilot program under this section.

3 (3) The term “technology producer” means an
4 individual or entity engaged in the research, develop-
5 ment, production, or distribution of science or tech-
6 nology that the Secretary of Defense determines
7 may be of use to the Department of Defense.

1 **Subtitle C—Plans, Reports, and**
2 **Other Matters**

3 **SEC. 231 [Log 73290]. MODIFICATION TO ANNUAL REPORT**
4 **OF THE DIRECTOR OF OPERATIONAL TEST**
5 **AND EVALUATION.**

6 Section 139(h)(2) of title 10, United States Code, is
7 amended by striking “, through January 31, 2026”.

1 **SEC. 814. [Log 72966]. MODIFICATION TO THE PILOT PRO-**
2 **GRAM FOR STREAMLINING AWARDS FOR IN-**
3 **NOVATIVE TECHNOLOGY PROJECTS.**

4 (a) EXTENSION.—Section 873(f) of the National De-
5 fense Authorization Act for Fiscal Year 2016 (Public Law
6 114–92; 10 U.S.C. 2306a note) is amended by striking
7 “October 1, 2022” and inserting “October 1, 2024”.

8 (b) RECOMMENDATION ON EXTENSION.—

9 (1) IN GENERAL.—Not later than April 1,
10 2023, the Secretary of Defense shall submit to the
11 congressional defense committees a recommendation
12 regarding the extension of the pilot program for
13 streamlining awards for innovative technology
14 projects established under section 873(f) of the Na-
15 tional Defense Authorization Act for Fiscal Year
16 2016 (Public Law 114–92; 10 U.S.C. 2306a note),
17 and if applicable, the duration of any such extension.

18 (2) DATA ON EXTENSION.—If the Secretary of
19 Defense recommends an extension of the pilot pro-
20 gram under paragraph (1), not later than 60 days
21 after making such recommendation, the Secretary
22 shall submit to the congressional defense committees
23 a report on the outcomes of the pilot program, in-
24 cluding—

25 (A) the number of small business concerns
26 (as defined under section 3 of the Small Busi-

1 ness Act (15 U.S.C. 632)) or nontraditional de-
2 fense contractors (as defined under section
3 2302 of title 10, United States Code) that ben-
4 efitted from the implementation of the pilot
5 program;

6 (B) the number of small business concerns
7 that would not have entered into a contract
8 with the Department of Defense but for the im-
9 plementation of the pilot program; and

10 (C) a description of the goods and services
11 acquired by the Department through the pilot
12 program that otherwise would not have been ac-
13 quired.

1 **SEC. 822. [Log 73285]. DESIGNATING CERTAIN SBIR AND**
2 **STTR PROGRAMS AS ENTREPRENEURIAL IN-**
3 **NOVATION PROJECTS.**

4 (a) ENTREPRENEURIAL INNOVATION PROJECT
5 PILOT PROGRAM.—

6 (1) IN GENERAL.—The Secretary of Defense
7 and the covered Secretaries concerned shall each es-
8 tablish and carry out a pilot program to more effec-
9 tively transition projects that have completed a
10 Phase II SBIR or STTR award and that present the
11 potential to meet operational needs of elements of
12 the Department of Defense to Phase III by desig-
13 nating eligible programs as Entrepreneurial Innova-
14 tion Projects.

15 (2) DESIGNATION.—Not later than one year
16 after the date of the enactment of this section, and
17 annually thereafter, not less than five eligible pro-
18 grams shall be designated as Entrepreneurial Inno-
19 vation Projects by—

20 (A) each covered Secretary concerned, in
21 consultation with each chief of a covered Armed
22 Force under the jurisdiction of the Secretary
23 concerned; and

24 (B) the Secretary of Defense for each cov-
25 ered element of the Department.

26 (b) SELECTION REQUIREMENTS.—

1 (1) FUTURE YEARS DEFENSE PROGRAM INCLU-
2 SION.—The Secretary of Defense shall include the
3 estimated expenditures of each designated program
4 in the first future-years defense program submitted
5 to Congress under section 221 of title 10, United
6 States Code, after such designated program is des-
7 ignated under subsection (a)(2).

8 (2) PPBE COMPONENT.—Each designated pro-
9 gram shall be considered by the designating Sec-
10 retary as an integral part of the planning, pro-
11 gramming, budgeting, and execution process of the
12 Department of Defense.

13 (3) PROGRAMMING PROPOSAL.—Each des-
14 ignated program shall be included by the designating
15 Secretary under a separate heading in any program-
16 ming proposals submitted to the congressional de-
17 fense committees.

18 (4) DESIGNATION CRITERIA.—In making des-
19 ignations required under subsection (a)(2), the cov-
20 ered Secretary concerned or the Secretary of De-
21 fense, as applicable, shall consider—

22 (A) the potential of the eligible program
23 to—

24 (i) advance the national security capa-
25 bilities of the United States;

1 (ii) provide new technologies or proc-
2 esses, or new applications of existing tech-
3 nologies, that will enable new alternatives
4 to existing programs;

5 (iii) provide future cost savings; and

6 (iv) significantly reduce the time to
7 deliver capabilities to members of the cov-
8 ered Armed Forces; and

9 (B) any other criteria that the covered
10 Secretary concerned or Secretary of Defense, as
11 applicable, determines appropriate.

12 (5) MITIGATE CONFLICTS OF INTEREST.—The
13 covered Secretary concerned or the Secretary of De-
14 fense, as applicable, shall establish procedures for
15 the designation of Entrepreneurial Innovation
16 Projects which will mitigate, to the greatest extent
17 practicable, organizational conflicts of interests, in-
18 cluding those from within Governmental organiza-
19 tions or programs that could view the designation
20 and successful completion of an Entrepreneurial In-
21 novation Project as a competing alternative to an ex-
22 isting or proposed program or other activity.

23 (6) APPLICATION.—The Secretary of Defense
24 and each covered Secretary concerned shall establish

1 an application process for eligible programs seeking
2 designation as Entrepreneurial Innovation Projects.

3 (c) REVOCATION OF DESIGNATION.—If the desig-
4 nating Secretary determines that a designated program no
5 longer meets the criteria in subsection (b)(4) or that the
6 technology has become irrelevant, the designating Sec-
7 retary may revoke the Entrepreneurial Innovation Project
8 designation for such designated program.

9 (d) REPORTS TO CONGRESS.—

10 (1) ANNUAL REPORT.—The Secretary of De-
11 fense shall submit to congressional defense commit-
12 tees, the Committee on Small Business and Entre-
13 preneurship of the Senate, and the Committee on
14 Small Business of the House of Representatives,
15 concurrently with the President’s annual budget re-
16 quest, an annual report that includes for each des-
17 ignated program—

18 (A) a description of the designated pro-
19 gram;

20 (B) a summary of the potential of the des-
21 ignated program as considered under subsection
22 (b)(4)(A);

23 (C) the progress made towards inclusion in
24 the future-years defense program;

1 (D) the progress made towards delivering
2 on the potential of the designated program; and

3 (E) such other information that the Sec-
4 retary determines appropriate to inform the
5 congressional defense committees about the sta-
6 tus of the pilot programs established under this
7 section.

8 (2) FINAL REPORT.—In the last report sub-
9 mitted under paragraph (1) prior to December 31,
10 2027, the Secretary of Defense shall include a rec-
11 ommendation on whether to extend the pilot pro-
12 grams established under this section and the appro-
13 priate duration of such extension, if any.

14 (e) EFFECTIVE DATE.—This section shall take effect
15 on January 1, 2022.

16 (f) TERMINATION DATE.—The pilot programs estab-
17 lished under this section shall terminate on December 31,
18 2027.

19 (g) DEFINITIONS.—In this section:

20 (1) COVERED ARMED FORCES.—The term “cov-
21 ered Armed Forces” means—

22 (A) the Army;

23 (B) the Navy;

24 (C) the Air Force;

25 (D) the Marine Corps; and

1 (E) the Space Force.

2 (2) COVERED ELEMENT OF THE DEPART-
3 MENT.—The term “covered element of the Depart-
4 ment” means any element of the Department of De-
5 fense, other than an element referred to in para-
6 graph (3), that is associated with the Small Busi-
7 ness Innovation Research or Small Business Tech-
8 nology Transfer programs.

9 (3) COVERED SECRETARY CONCERNED.—The
10 term “covered Secretary concerned” means—

11 (A) the Secretary of the Army, with re-
12 spect to matters concerning the Department of
13 the Army;

14 (B) the Secretary of the Navy, with re-
15 spect to matters concerning the Department of
16 the Navy (other than matters concerning the
17 Coast Guard); and

18 (C) the Secretary of the Air Force, with
19 respect to matters concerning the Department
20 of the Air Force.

21 (4) ELIGIBLE PROGRAM.—The term “eligible
22 program” means a project that has completed a
23 Phase II SBIR or STTR award.

24 (5) DESIGNATED PROGRAM.—The term “des-
25 ignated program” means an eligible program that

1 has been designated as an Entrepreneurial Innova-
2 tion Project under this section and for which such
3 designation has not been revoked under subsection
4 (c).

5 (6) DESIGNATING SECRETARY.—The term
6 “designating Secretary” means—

7 (A) with respect to a designated program
8 designated as an Entrepreneurial Innovation
9 Project under this section by a covered Sec-
10 retary concerned, such covered Secretary con-
11 cerned; and

12 (B) with respect to all other designated
13 programs, the Secretary of Defense.

14 (7) PHASE II; PHASE III; SBIR; STTR.—The
15 terms “Phase II”, “Phase III”, “SBIR”, and
16 “STTR” have the meanings given such terms in sec-
17 tion 9(e) of the Small Business Act (15 U.S.C.
18 638(e)).

1 **Subtitle A—Office of the Secretary**
2 **of Defense and Related Matters**

3 **SEC. 901 [Log 72975]. DESIGNATION OF SENIOR OFFICIAL**
4 **FOR IMPLEMENTATION OF ELECTRO-**
5 **MAGNETIC SPECTRUM SUPERIORITY STRAT-**
6 **EGY.**

7 (a) DESIGNATION.—Not later than 60 days after the
8 date of the enactment of this Act, the Secretary of Defense
9 shall designate a senior official of the Department of De-
10 fense to be responsible for, and accountable to the Sec-
11 retary with respect to, the implementation of the electro-
12 magnetic spectrum superiority strategy. The Secretary
13 shall designate the senior official from among individuals
14 who are appointed to a position in the Department by the
15 President, by and with the advice and consent of the Sen-
16 ate.

17 (b) RESPONSIBILITIES.—The senior official des-
18 ignated under subsection (a) shall be responsible for the
19 following:

20 (1) Oversight of policy, strategy, planning, re-
21 source management, operational considerations, per-
22 sonnel, and technology development necessary to im-
23 plement the electromagnetic spectrum superiority
24 strategy.

1 (2) Evaluating whether the amount that the
2 Department of Defense expends on electromagnetic
3 warfare and electromagnetic spectrum operations ca-
4 pabilities is properly aligned.

5 (3) Evaluating whether the Department is ef-
6 fectively incorporating electromagnetic spectrum op-
7 erations capabilities and considerations into current
8 and future operational plans and concepts.

9 (4) Such other matters relating to electro-
10 magnetic spectrum operations as the Secretary
11 specifies for purposes of this subsection.

12 (c) REPORT.—Not later than 270 days after the date
13 of the enactment of this Act, the Secretary shall submit
14 to the congressional defense committees a report that in-
15 cludes the following:

16 (1) A review of the sufficiency of the rules of
17 engagement of the Department of Defense relating
18 to electromagnetic spectrum operations, in particular
19 with respect to operating below the level of armed
20 conflict and to protect the Department from elec-
21 tronic attack and disruption.

22 (2) Any other matters the Secretary determines
23 relevant.

24 (d) ELECTROMAGNETIC SPECTRUM SUPERIORITY
25 STRATEGY DEFINED.—In this section, the term “electro-

1 magnetic spectrum superiority strategy” means the Elec-
2 tromagnetic Spectrum Superiority Strategy of the Depart-
3 ment of Defense published in October 2020, and any such
4 successor strategy.

1 **SEC. 1103. [LOG 72967] DARPA PERSONNEL MANAGEMENT**
2 **AUTHORITY TO ATTRACT SCIENCE AND ENGI-**
3 **NEERING EXPERTS.**

4 Section 1599h(b) of title 10, United States Code, is
5 amended—

6 (1) in paragraph (2)(B), by striking “and” at
7 the end;

8 (2) in paragraph (3), by striking the period and
9 inserting “; and”; and

10 (3) by adding at the end the following:

11 “(4) during any fiscal year, pay up to 15 indi-
12 viduals newly appointed pursuant to paragraph
13 (1)(B) the travel, transportation, and relocation ex-
14 penses and services described under sections 5724,
15 5724a, and 5724c of title 5.”.

1 **Subtitle B—Cyber Systems and**
2 **Operations**

3 **SEC. 1511.[Log 72942] LEGACY INFORMATION TECH-**
4 **NOLOGIES AND SYSTEMS ACCOUNTABILITY.**

5 (a) IN GENERAL.—Not later than 270 days after the
6 date of the enactment of this Act, the Secretaries of the
7 Army, Navy, and Air Force shall each initiate efforts to
8 identify legacy applications, software, and information
9 technology within their respective Departments.

10 (b) SPECIFICATIONS.—To carry out subsection (a),
11 that Secretaries of the Army, Navy, and Air Force shall
12 each document the following:

13 (1) An identification of the applications, soft-
14 ware, and information technologies that are consid-
15 ered active or operational, but which are judged to
16 no longer be required by the respective Department.

17 (2) Information relating to the sources of fund-
18 ing for the applications, software, and information
19 technologies identified under paragraph (1).

20 (3) An identification of the senior official re-
21 sponsible for each application, software, and infor-
22 mation technology identified under paragraph (1).

23 (4) A plan to discontinue use and funding for
24 each item application, software, and information
25 technology identified under paragraph (1).

1 (c) EXEMPTION.—Any effort substantially similar to
2 that described in subsection (a) that is being carried out
3 by the Secretary of the Army, Navy, or Air Force as of
4 the date of the enactment of this Act and completed not
5 later 180 days after such date shall be treated as satis-
6 fying the requirement under such subsection.

7 (d) REPORT.—Not later than 270 days after the date
8 of the enactment of this Act, the Secretaries of the Army,
9 Navy, and Air Force shall each submit to the congres-
10 sional defense committees the documentation required
11 under subsection (b).

1 **SEC. 5001 [Log 73291]. SHORT TITLE.**

2 This title may be cited as the “Barry Goldwater
3 Scholarship and Excellence in Education Modernization
4 Act of 2021”.

1 **SEC. 5002 [Log 73540]. CLARIFYING AMENDMENTS TO DEFINI-**
2 **TIONS.**

3 Section 1403 of the Barry Goldwater Scholarship and
4 Excellence in Education Act (20 U.S.C. 4702) is amend-
5 ed—

6 (1) by striking paragraph (5) and inserting the
7 following:

8 “(5) The term ‘State’ means each of the 50
9 States, the District of Columbia, the Commonwealth
10 of Puerto Rico, Guam, the United States Virgin Is-
11 lands, American Samoa, the Commonwealth of the
12 Northern Mariana Islands, the Republic of the Mar-
13 shall Islands, the Federated States of Micronesia,
14 and the Republic of Palau.”; and

15 (2) in paragraph (6), by inserting “, a resident
16 of a State,” after “national of the United States”.

1 **SEC. 5003 [Log 73541]. BARRY GOLDWATER SCHOLARSHIP**
2 **AND EXCELLENCE IN EDUCATION AWARDS.**

3 (a) AWARD OF SCHOLARSHIPS, FELLOWSHIPS, AND
4 RESEARCH INTERNSHIPS.—Section 1405(a) of the Barry
5 Goldwater Scholarship and Excellence in Education Act
6 (20 U.S.C. 4704(a)) is amended—

7 (1) in the subsection heading, by striking
8 “AWARD OF SCHOLARSHIPS AND FELLOWSHIPS”
9 and inserting “AWARD OF SCHOLARSHIPS, FELLOW-
10 SHIPS, AND RESEARCH INTERNSHIPS”;

11 (2) in paragraph (1)—

12 (A) by striking “scholarships and fellow-
13 ships” and inserting “scholarships, fellowships,
14 and research internships”; and

15 (B) by striking “science and mathematics”
16 and inserting “the natural sciences, engineer-
17 ing, and mathematics”;

18 (3) in paragraph (2), by striking “mathematics
19 and the natural sciences” and inserting “the natural
20 sciences, engineering, and mathematics”;

21 (4) in paragraph (3), by striking “mathematics
22 and the natural sciences” and inserting “the natural
23 sciences, engineering, and mathematics”;

24 (5) by redesignating paragraph (4) as para-
25 graph (5);

1 (6) in paragraph (5), as so redesignated, by
2 striking “scholarships and fellowships” and inserting
3 “scholarships, fellowships, and research intern-
4 ships”; and

5 (7) by inserting after paragraph (3) the fol-
6 lowing:

7 “(4) Research internships shall be awarded to
8 outstanding undergraduate students who intend to
9 pursue careers in the natural sciences, engineering,
10 and mathematics, which shall be prioritized for stu-
11 dents attending community colleges.”.

12 (b) BARRY GOLDWATER SCHOLARS AND RESEARCH
13 INTERNS.—Section 1405(b) of the Barry Goldwater
14 Scholarship and Excellence in Education Act (20 U.S.C.
15 4704(b)) is amended—

16 (1) in the subsection heading, by adding “AND
17 RESEARCH INTERNS” after “SCHOLARS”; and

18 (2) by adding at the end the following: “Recipi-
19 ents of research internships under this title shall be
20 known as ‘Barry Goldwater Interns’.”.

1 **SEC. 5004 [Log 73542]. STIPENDS.**

2 Section 1406 of the Barry Goldwater Scholarship and
3 Excellence in Education Act (20 U.S.C. 4705) is amended
4 by adding at the end the following: “Each person awarded
5 a research internship under this title shall receive a sti-
6 pend as may be prescribed by the Board, which shall not
7 exceed the maximum stipend amount awarded for a schol-
8 arship or fellowship.”.

1 **SEC. 5005 [Log 73543]. SCHOLARSHIP AND RESEARCH IN-**
2 **TERNSHIP CONDITIONS.**

3 Section 1407 of the Barry Goldwater Scholarship and
4 Excellence in Education Act (20 U.S.C. 4706) is amend-
5 ed—

6 (1) in the section heading, by inserting “**AND**
7 **RESEARCH INTERNSHIP**” after “**SCHOLARSHIP**”;

8 (2) in subsection (a), by striking the subsection
9 heading and inserting “SCHOLARSHIP CONDITIONS”;

10 (3) in subsection (b), by striking the subsection
11 heading and inserting “REPORTS ON SCHOLAR-
12 SHIPS”; and

13 (4) by adding at the end the following:

14 “(c) RESEARCH INTERNSHIP CONDITIONS.—A per-
15 son awarded a research internship under this title may
16 receive payments authorized under this title only during
17 such periods as the Foundation finds that the person is
18 maintaining satisfactory proficiency and is not engaging
19 in gainful employment other than employment approved
20 by the Foundation pursuant to regulations of the Board.

21 “(d) REPORTS ON RESEARCH INTERNSHIPS.—The
22 Foundation may require reports containing such informa-
23 tion in such form and to be filed at such times as the
24 Foundation determines to be necessary from any person
25 awarded a research internship under this title. Such re-
26 ports may be accompanied by a certificate from an appro-

1 priate official at the institution of higher education or in-
2 ternship employer, approved by the Foundation, stating
3 that such person is maintaining satisfactory progress in
4 the internship, and is not engaged in gainful employment,
5 except as otherwise provided in subsection (e).”.

1 **SEC. 5006 [Log 73544]. SUSTAINABLE INVESTMENTS OF**
2 **FUNDS.**

3 Section 1408 of the Barry Goldwater Scholarship and
4 Excellence in Education Act (20 U.S.C. 4707) is amend-
5 ed—

6 (1) by redesignating subsections (c) and (d) as
7 subsections (d) and (e), respectively; and

8 (2) by inserting after subsection (b) the fol-
9 lowing:

10 “(c) INVESTMENT IN SECURITIES.—Notwithstanding
11 subsection (b), the Secretary of the Treasury may invest
12 up to 40 percent of any public or private funds received
13 by the Foundation after the date of enactment of the
14 Barry Goldwater Scholarship and Excellence in Education
15 Modernization Act of 2021 in securities other than public
16 debt securities of the United States, if—

17 “(1) the Secretary receives a determination
18 from the Board that such investments are necessary
19 to enable the Foundation to carry out the purposes
20 of this title; and

21 “(2) the securities in which such funds are in-
22 vested are traded in established United States mar-
23 kets.

24 “(d) CONSTRUCTION.—Nothing in this section shall
25 be construed to limit the authority of the Board to in-
26 crease the number of scholarships provided under section

1 4704, or to increase the amount of the stipend authorized
2 by section 4705, as the Board considers appropriate and
3 is otherwise consistent with the requirements of this
4 title.”.

1 **SEC. 5007 [Log 73545]. ADMINISTRATIVE PROVISIONS.**

2 Section 1411(a) of the Barry Goldwater Scholarship
3 and Excellence in Education Act (20 U.S.C. 4710(a)) is
4 amended—

5 (1) by striking paragraph (1) and inserting the
6 following:

7 “(1) appoint and fix the rates of basic pay of
8 not more than three employees (in addition to the
9 Executive Secretary appointed under section 4709)
10 to carry out the provisions of this title, without re-
11 gard to the provisions in chapter 33 of title 5,
12 United States Code, governing appointment in the
13 competitive service or the provisions of chapter 51
14 and subchapter III of chapter 53 of such title, ex-
15 cept that—

16 “(A) a rate of basic pay set under this
17 paragraph may not exceed the maximum rate
18 provided for employees in grade GS–15 of the
19 General Schedule under section 5332 of title 5,
20 United States Code; and

21 “(B) the employee shall be entitled to the
22 applicable locality-based comparability payment
23 under section 5304 of title 5, United States
24 Code, subject to the applicable limitation estab-
25 lished under subsection (g) of such section;”;

1 (2) in paragraph (2), by striking “grade GS–18
2 under section 5332 of such title” and inserting
3 “level IV of the Executive Schedule”;

4 (3) in paragraph (7), by striking “and” at the
5 end;

6 (4) by redesignating paragraph (8) as para-
7 graph (10); and

8 (5) by inserting after paragraph (7) the fol-
9 lowing:

10 “(8) expend not more than 5 percent of the
11 Foundation’s annual operating budget on programs
12 that, in addition to or in conjunction with the Foun-
13 dation’s scholarship financial awards, support the
14 development of Goldwater Scholars throughout their
15 professional careers;

16 “(9) expend not more than 5 percent of the
17 Foundation’s annual operating budget to pay the
18 costs associated with fundraising activities, including
19 public and private gatherings; and”.

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TITLE II—RESEARCH, DEVELOPMENT, TEST, AND EVALUATION

RESEARCH, DEVELOPMENT, TEST, AND EVALUATION, ARMY

Items of Special Interest

Autonomous robotic targets for small arms live fire training ranges

The committee is aware of Department of Defense interest in autonomous robotic targets (ART) to improve soldier lethality, team performance, and marksmanship. The committee understands that this technology could provide the Army with an unpredictable and dynamic live fire training adversary, improve warfighter readiness, and enhance soldier and squad performance evaluation tools while expanding the useful life of existing small arms ranges.

The committee is aware of the Army's efforts to improve targets as part of the Future Army System of Integrated Targets Program, and understands the Army is currently working to test trackless moving target efforts, but that these differ from ARTs. The committee understands that ARTs may require some range modifications or accommodations to facilitate complex individual and squad training exercises, but that based in part on the favorable technology review by the Asymmetric Warfare Group in 2013 and the Army Research Institute in 2017, select units in the U.S. Army, Marine Corps, and Special Operations Forces have fielded ARTs in limited capacity, providing outstanding results. Going forward, the committee understands that the Department's Close Combat Lethality Task Force (CCLTF) considers ARTs to be one of the most important training enhancement tools to significantly increase close combat lethality today.

The committee believes ARTs as a range enhancement and training tool significantly contribute to the ongoing CCLTF objectives and therefore supports broader rapid adoption of this commercial-off-the-shelf capability. The committee directs the Secretary of the Army to submit a report to the congressional defense committees not later than April 30, 2022, on how the Army can field this capability in fiscal year 2023, and what assistance the Army may need to accelerate its fielding.

RESEARCH, DEVELOPMENT, TEST, AND EVALUATION, AIR FORCE

Items of Special Interest

Report on the Agility Prime program of the U.S. Air Force

The committee recognizes that the U.S. Air Force's Agility Prime program is working towards its goal of ensuring a robust domestic market for electric vertical

takeoff and landing (eVTOL) aircraft, as well as introducing the Department of Defense to zero emissions aviation. eVTOL aircraft can provide the Department with many unique use cases since they are electric, have significantly lower noise levels compared to today's aircraft, lower maintenance and operating costs, and reduced heat signatures. The committee commends the Air Force for prioritizing the Agility Prime program and believes that continued investment in this technology will help to maintain the country's global leadership in the eVTOL market.

Therefore, the committee directs the Secretary of the Air Force to submit a report to the congressional defense committees not later than March 30, 2022, on the research, development, testing, and acquisition strategy for the Agility Prime program. The required report shall address the following matters:

- (1) a description and justification for the focus areas of the program.
- (2) projected dates for key milestones within the strategy.
- (3) cost estimates and a projected budget for a 5-year investment plan.
- (4) a description of how the strategy will improve collaboration with the private sector and military exploration of these key areas of innovation.
- (5) a description of how the strategy will encourage competition and reward innovation for addressing system performance requirements.
- (6) policies that could be pursued by the Department to ensure global leadership in the sector.
- (7) a projected timeline for acquisition of electric aircraft.

Space Force higher education strategy

The committee appreciates the Space Force's establishment of a Chief Scientist, a Chief Technology and Innovation Officer, and a University Partnership Program as part of its efforts to improve its science and technology strategic vision and execution as well as its access to the talent, research expertise, and technological capabilities resident in universities. The committee directs the Chief of Space Operations to provide a briefing to the House Committee on Armed Services not later than January 31, 2022, that assess the effectiveness of the Space Force's higher education strategy in creating long-term, strategic relationships; in developing talent; and in providing access to expertise and engineering, research, and development capability. The briefing should outline the Space Force's strategy to engage higher education, to include minority institutions, in foundational research in disciplines that the Chief determines to be critical to the mission of the Space Force, and what role the University Partnership Program plays in that strategy.

RESEARCH, DEVELOPMENT, TEST, AND EVALUATION, DEFENSE-WIDE

Items of Special Interest

Advancing Gaming, Exercising, Modeling, and Simulation capabilities

The committee is aware of the Defense Science Board's final report on Gaming, Exercising, Modeling, and Simulation (GEMS), which concluded that the Department of Defense must significantly advance its capabilities to keep pace with competitors and effectively counter threats, both today and in the future. Therefore, the committee directs the Under Secretary of Defense for Research and Engineering to provide a briefing to the House Committee on Armed Services by January 15, 2022, on current and contemplated efforts to invest in and improve Gaming, Exercising, Modeling, and Simulation innovation across the analytical community within the Department of Defense. The briefing should include planned or ongoing efforts, assessments and evaluation, and investments in:

- (1) digital engineering to support an enterprise-level GEMS strategy that would promote effective adoption of improved tools.
- (2) training and experimentation augmented and facilitated by tools to help inform better implementation of modeling and simulation to discover new tactics and concepts and improve warfighter performance and readiness in the face of emerging threats from peer competitors.
- (3) better strategic data collection and use and improved modeling and simulation to enable the evaluation and testing of high-level geopolitical strategies with long time horizons.
- (4) integrating the use of technology-based enablers such as game engines and synthetic environments for a wide variety of Department of Defense missions.
- (5) promoting effective GEMS governance to enable the proper coordination of activities and uses across the Department and the wider national security enterprise.

Defense Innovation Unit assessment

The committee is concerned that the Defense Innovation Unit (DIU) does not have an adequate size and composition of personnel to accomplish its mission. Therefore, the committee directs the Under Secretary of Defense for Research and Engineering to submit a report to the congressional defense committees not later than March 31, 2022, on the DIU that includes:

- (1) a determination of the appropriate size and composition of personnel to accomplish the organization's mission;
- (2) an assessment of whether existing structures, offices, and personnel are appropriately resourced to accomplish the organization's mission;
- (3) an assessment of any additional authorities that would assist the organization and its affiliated entities in better accomplishing its mission; and
- (4) an assessment of the structure, personnel, resources, and field offices that would be sufficient in fulfilling the organization's responsibilities and requirements.

The report shall be submitted in unclassified form that can be made available to the public.

Digital twin assessment and agile verification processes

Implementation of the Software Acquisition Pathway directed in section 800 of the National Defense Authorization Act for Fiscal Year 2020 (Public Law 116-92) and the digital engineering capability to automate testing and evaluation effort directed in section 231 of Public Law 116-92 have made it clear that digital twins are a critical enabler to extending the efficacy and efficiency of continuous integration/continuous delivery (CI/CD) approaches beyond simple information technology systems. This extension includes systems that have joint and systems-of-systems warfighting requirements, as well as those in which battlefield complexities become a more prominent factor in survivability and effectiveness. The committee is concerned that many acquisition programs do not develop digital twins at all, or they develop twins that are not adequate for test and evaluation purposes.

The determination of a digital twin's adequacy is a lengthy process often appended to the development of a model later, and at a time when most resources have already been exhausted. When the digital twin evolves from an engineering baseline as the program develops, the adequacy of that twin can evolve in a more iterative and incremental way that builds a body of evidence over time.

The committee believes the use of digital twins must be a more prevalent practice in the Department of Defense. To that end, the committee directs the Secretary of Defense, in consultation with the Under Secretary of Defense for Research and Engineering and Director of Operational Test and Evaluation (DOT&E), to submit a report to the congressional defense committees not later than March 1, 2022, that assesses:

(1) the state of digital twin practices in the Department. This assessment should include how many programs on the Software Acquisition Pathway or under DOT&E oversight are applying CI/CD methodologies and have built or are planning to build digital twins. It should also include information on the extent to which these twins are adequate to support test and evaluation as part of a CI/CD process, and where gaps continue to exist.

(2) the existing verification, validation, and accreditation body of work, and provide recommendations on how adequacy can be developed and determined in a more agile process as the digital twin evolves, instead of through a waterfall process enacted at the end of the digital twin development.

Report on flexible funding for transitioning science and technology

The committee is concerned that the Department of Defense struggles to transition and scale critical innovative technologies from development projects to acquisition programs in a time period that meets the needs of the warfighter and ensures technology providers are able to survive. Despite Congress providing significant new acquisition authorities and flexibilities, too often successful prototypes and pilot efforts are unable to transition to successful programs due to a lack of agile funding. Therefore, the committee directs the Deputy Secretary of Defense to submit a report to the congressional defense committees by July 1, 2022, with an evaluation of the barriers preventing the Department from quickly and

successfully scaling innovative technologies to support the warfighter and the Department's critical operational needs. This report shall include:

- (1) a description of the systemic challenges associated with scaling innovation, including requirements, acquisition, programming, and culture; and
- (2) a discussion of whether flexible funding could help bridge critical innovative technologies into programs of record.

The committee further directs the Deputy Secretary of Defense to include a framework for how the Department would execute any flexible funding for transitioning science and technology, including:

- (1) a list of critical operational needs to be addressed;
- (2) a recommendation of the level of funding required and appropriate award size;
- (3) the government entity best suited to execute and oversee the funding until the program is included in the Fiscal Year Defense Plan (FYDP);
- (4) the metrics by which a project will be selected for funding and the success or failure of the transition assessed;
- (5) how to prioritize innovative performers with clearly demonstrated and successful past performance;
- (6) a plan of action and milestones for selected projects from time of identification to time of funding;
- (7) how to ensure such projects are successfully integrated into the FYDP and transitioned to service program executive offices; and
- (8) the frequency and substance of congressional reporting recommended to ensure transparency throughout the selection and transition process.

The Deputy Secretary may consider in this report any additional recommendations that would support successful transition of technology pilot and prototype programs to scale to address defined mission requirements, critical operational needs, or emerging threats.

TITLE X—GENERAL PROVISIONS

ITEMS OF SPECIAL INTEREST

Optimizing AMBIT Adjustments

The committee is aware of the upcoming auction of the 3450-3550 MHz band of mid-band spectrum currently under exclusive license to the Department of Defense. Enabling commercial access to this band will, when combined with existing commercial spectrum, make significant contributions to the effectiveness and efficiency of U.S. 5G and 5G-enabled technologies, benefitting Americans while also bolstering our economic competitiveness.

However, the sale will also require major adjustments to a number of Department of Defense spectrum-dependent systems. Through the Spectrum Relocation Fund (SRF), proceeds from the upcoming auction will help to defray the

costs associated with those adjustments. However, SRF funding may only be used for costs associated with achieving “comparable capability” to that lost by the affected systems.

At the same time, there is broad recognition that such “comparable capability” is no longer sufficient to deliver U.S. advantage in a spectrum environment that is increasingly constrained, congested, and contested. That recognition has driven the creation of the Electromagnetic Spectrum (EMS) Superiority Strategy and associated Implementation Plan, though funding to support the scope and scale of necessary advances to support that plan remains scarce.

As the mid-band-dependent systems affected by the upcoming auction make the required adjustments, this presents the Department with an opportunity to achieve leap-ahead advances toward more agile spectrum use. Capitalizing on this opportunity will require deliberate, careful alignment of SRF and appropriated funding to ensure both funding sources are used appropriately, but to maximum combined effect.

To ensure this alignment, the committee directs the Senior Designated Official for EMS, supported by the Office of the Secretary of Defense Chief Information Office, the Under Secretary of Defense for Acquisition and Sustainment, the Under Secretary of Defense for Research and Engineering, and the Under Secretary of Defense, Comptroller, to provide a briefing to the House Committee on Armed Services not later than January 15, 2022. The briefing shall describe the Department's plan to align adjustments to the affected mid-band-dependent systems with the goals of the EMS Superiority Strategy, the expected uses of various funding sources in support of that plan, and the oversight mechanisms to ensure appropriate adherence to the plan.

TITLE XV—CYBERSPACE-RELATED MATTERS

ITEMS OF SPECIAL INTEREST

Briefing on the Joint Artificial Intelligence Center's Data Efforts

The committee supports the Joint Artificial Intelligence Center’s creation of the Department of Defense Artificial Intelligence (AI) Enterprise Infrastructure and Cybersecurity Committee and encourages the Department to invest in the necessary machine learning data infrastructure to support Department-wide artificial intelligence efforts. This effort should incorporate foundational data readiness required for ongoing and future AI algorithm development into all programs of record, as appropriate. The committee directs the Director of the Joint Artificial Intelligence Center to provide a briefing to the House Committee on Armed Services not later than January 15, 2022, on the activities and priorities, including data infrastructure development, of the Department of Defense AI Enterprise Infrastructure and Cybersecurity Committee.

Comptroller General Review of Department of Defense Training to Prepare for Leadership and Operations in a Contested Information Environment

The committee notes the importance of maintaining U.S. dominance in the information environment and ensuring proper training so that leaders can function effectively in a contested information environment.

Accordingly, the committee directs the Comptroller General of the United States to submit a report to the Committees on Armed Services of the Senate and the House of Representatives not later than July 2, 2022, reviewing Department of Defense decision-making policy and training for service members and commanders operating in a contested information environment. The review should assess policy, training and exercises where service members develop and maintain decision-making skills in an information environment where information may be inaccurate, incomplete, or manipulated. The review should also assess the extent to which regulations and tactics, techniques, and procedure allow commanders to apply critical thinking skills and flexible decision making in a contested information environment.

Department of Defense Data Strategy

The committee commends the Department of Defense for developing the 2020 Department of Defense Data Strategy, understanding that data is an important resource that must be managed and secured in order for it to be used for operational effects. Ensuring the trustworthiness and security of this data should be at the foundation of implementation efforts across the Department. The strategy notes that the Department must protect its own data while at rest, in motion, and in use. It also lays out several approaches to data protection, including attribute-based access control. However, it is unclear to the committee how the Department plans to implement this strategy. The committee directs the Chief Information Officer of the Department of Defense, in coordination with the Director of the Defense Information Systems Agency, to provide a briefing to the House Committee on Armed Services not later than February 1, 2022, on efforts to build cohesive data standards, monitoring for compliance and adherence to common frameworks, and planned efforts over the Future Years Defense Program.

Department of Defense Website and Forms Modernization Program

The 21st Century Integrated Digital Experience Act (Public Law 115-336), enacted in December 2018, required that the Department of Defense make all websites and forms related to serving the public available in a secure, consistent, accessible, fully usable and mobile friendly format by December 2020. To ensure that the Department of Defense continues its path towards compliance, the committee directs the Department of Defense Chief Information Officer to provide a briefing to the House Committee on Armed Services not later than February 15, 2022, on its current trajectory toward form modernization.

Effectiveness Metrics for Information Operations

The committee directs the Comptroller General of the United States to submit a report to the Committees on Armed Services of the Senate and the House of Representatives on the effectiveness and sufficiency of the Department of Defense's assessment capability for defining and measuring the impact of Department information operations. The report will be due not later than 180 days after the Department of Defense designates a Department entity and develops, applies, and refines an assessment capability for defining and measuring the impact of information operations in compliance with section 1749 of the William M. (Mac) Thornberry National Defense Authorization Act for Fiscal Year 2021 (Public Law 116-283).

Enterprise Network Endpoint Monitoring

The committee commends actions taken to date by the Department of Defense to increase and improve the visibility across the network of its assets to include endpoints. Nevertheless, the committee remains concerned by the inability of the Department, the Chief Information Officer, and Joint Forces Headquarters-Department of Defense Information Networks (JFHQ-DODIN) to compel components under directive authority for cyberspace operations (DACO) authorities to be configured for and provide live data to JFHQ-DODIN. A key aspect of the Department's vulnerabilities lay in its numerous endpoint devices, with each service and component possibly taking unique approaches toward endpoint monitoring. To address these concerns, the committee directs the Department of Defense Chief Information Officer, in coordination with the JFHQ-DODIN, to provide a briefing to the House Committee on Armed Services not later than April 1, 2022, on the efforts of the Department to increase and ensure compliance at the component level of network endpoint monitoring. Additionally, the briefing should address barriers which prevent or hinder the ability of components under JFHQ-DODIN's authority to provide live data.