

21 **TITLE II—RESEARCH, DEVELOP-**
22 **MENT, TEST, AND EVALUA-**
23 **TION**

Subtitle A—Authorization of Appropriations

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1 **Subtitle A—Authorization of**
2 **Appropriations**

3 **SEC. 201. AUTHORIZATION OF APPROPRIATIONS.**

4 Funds are hereby authorized to be appropriated for
5 fiscal year 2018 for the use of the Department of Defense

1 for research, development, test, and evaluation, as speci-
2 fied in the funding table in section 4201.

3 **Subtitle B—Program Requirements, Restrictions, and Limita-**
4 **ments, Restrictions, and Limita-**
5 **tions**

6 **SEC. 211. COST CONTROLS FOR PRESIDENTIAL AIRCRAFT**
7 **RECAPITALIZATION PROGRAM.**

8 (a) **FIXED CAPABILITY REQUIREMENTS.**—Except as
9 provided in subsection (b), the capability requirements for
10 aircraft procured under the presidential aircraft recapital-
11 ization program of the Air Force (referred to in this sec-
12 tion as the “PAR Program”) shall be the capability re-
13 quirements identified in version 7.0.2 of the system re-
14 quirement document for the PAR Program.

15 (b) **ADJUSTMENTS.**—The Chief of Staff of the Air
16 Force may adjust the capability requirements described in
17 subsection (a) only if the Chief of Staff submits to the
18 congressional defense committees a written determination
19 that such adjustment is necessary—

20 (1) to resolve an ambiguity relating to the capa-
21 bility requirement;

22 (2) to address a problem with the administra-
23 tion of the capability requirement;

24 (3) to lower the development cost or life-cycle
25 cost of the PAR program;

1 (4) to comply with a change in international,
2 Federal, State, or local law or regulation that takes
3 effect after September 30, 2017;

4 (5) to address a safety issue; or

5 (6) subject to subsection (c), to address an
6 emerging threat or vulnerability.

7 (c) LIMITATION ON ADJUSTMENT FOR EMERGING
8 THREAT OR VULNERABILITY.—The Chief of Staff of the
9 Air Force may use the authority under paragraph (6) of
10 subsection (b) to adjust the requirements described in sub-
11 section (a) only if the Secretary and the Chief of Staff
12 of the Air Force, on a nondelegable basis—

13 (1) jointly determine that such adjustment is
14 necessary and in the interests of the national secu-
15 rity of the United States; and

16 (2) submit to the congressional defense commit-
17 tees notice of such joint determination.

18 (d) ANALYSIS FOR FIXED-PRICE TYPE CON-
19 TRACTS.—The Secretary of the Air Force shall work with
20 the contractor and conduct an analysis of risk and explore
21 opportunities to enter into additional fixed price type con-
22 tracts for engineering and manufacturing development be-
23 yond the procurement of the unmodified commercial air-
24 craft as described in paragraph (1).

25 (e) QUARTERLY BRIEFINGS.—

1 (1) IN GENERAL.—Beginning not later than
2 October 1, 2017, and on a quarterly basis thereafter
3 through October 1, 2022, the Secretary of the Air
4 Force shall provide to the congressional defense
5 committees a briefing on the efforts of the Secretary
6 to control costs under the PAR Program.

7 (2) ELEMENTS.—Each briefing under para-
8 graph (1) shall include, with respect to the PAR
9 Program, the following:

10 (A) An overview of the program schedule.

11 (B) A description of each contract awarded
12 under the program, including a description of
13 the type of contract and the status of the con-
14 tract.

15 (C) An assessment of the status of the
16 program with respect to—

17 (i) modification;

18 (ii) testing;

19 (iii) delivery; and

20 (iv) sustainment.

21 (f) SERVICE ACQUISITION EXECUTIVE DEFINED.—

22 In this section, the term “service acquisition executive”
23 has the meaning given that term in section 101(a)(10) of
24 title 10, United States Code.

1 **SEC. 212. CAPITAL INVESTMENT AUTHORITY.**

2 Section 2208(k)(2) of title 10, United States Code,
3 is amended by striking “\$250,000” and inserting
4 “\$500,000 for procurements by a major range and test
5 facility installation or a science and technology reinvention
6 laboratory and not less than \$250,000 for procurements
7 at all other facilities”.

8 **SEC. 213. PRIZES FOR ADVANCED TECHNOLOGY ACHIEVE-**
9 **MENTS.**

10 Section 2374a of title 10, United States Code, is
11 amended—

12 (1) in subsection (a), by striking “in recognition
13 of” and inserting “and other types of prizes that the
14 Secretary determines are appropriate to recognize”;

15 (2) in subsection (c)—

16 (A) in paragraph (1), by striking “cash
17 prize of” and inserting “prize with a fair mar-
18 ket value of”;

19 (B) in paragraph (2), by striking “Under
20 Secretary of Defense for Acquisition, Tech-
21 nology, and Logistics” and inserting “Under
22 Secretary of Defense for Research and Engi-
23 neering”; and

24 (C) by adding at the end the following new
25 paragraph:

1 “(3) No prize competition may result in the award
2 of a solely nonmonetary prize with a fair market value
3 of more than \$10,000 without the approval of the Under
4 Secretary of Defense for Research and Engineering.”;

5 (3) in subsection (e)—

6 (A) by inserting “or nonmonetary items”
7 after “accept funds”;

8 (B) by striking “and from State and local
9 governments” and inserting “, from State and
10 local governments, and from the private sec-
11 tor”;

12 (C) by adding at the end the following:
13 “The Secretary may not give any special con-
14 sideration to any private sector entity in return
15 for a donation.”; and

16 (4) by amending subsection (f) to read as fol-
17 lows:

18 “(f) USE OF PRIZE AUTHORITY.—Use of prize au-
19 thority under this section shall be considered the use of
20 competitive procedures for the purposes of section 2304
21 of this title.”.

22 **SEC. 214. JOINT HYPERSONICS TRANSITION OFFICE.**

23 (a) REDESIGNATION.—The joint technology office on
24 hypersonics in the Office of the Secretary of Defense is
25 redesignated as the “Joint Hypersonics Transition Of-

1 fice”. Any reference in a law (other than this section),
2 map, regulation, document, paper, or other record of the
3 United States to the joint technology office on hypersonics
4 shall be deemed to be a reference to the Joint Hypersonics
5 Transition Office.

6 (b) HYPERSONICS DEVELOPMENT.—Section 218 of
7 the John Warner National Defense Authorization Act for
8 Fiscal Year 2007 (Public Law 109–364; 10 U.S.C. 2358
9 note), as amended by section 1079(f) of the National De-
10 fense Authorization Act for Fiscal Year 2016 (Public Law
11 114–92; 129 Stat. 999), is amended—

12 (1) in the heading of subsection (a), by striking
13 “JOINT TECHNOLOGY OFFICE ON HYPERSONICS”
14 and inserting “JOINT HYPERSONICS TRANSITION
15 OFFICE”;

16 (2) in subsection (a)—

17 (A) in the first sentence, by striking “joint
18 technology office on hypersonics” and inserting
19 “Joint Hypersonics Transition Office (in this
20 section referred to as the ‘Office’)”; and

21 (B) in the second sentence, by striking “of-
22 fice” and inserting “Office”;

23 (3) in subsection (b), by striking “joint tech-
24 nology office established under subsection (a)” and
25 inserting “Office”; and

1 (4) by amending subsection (c) to read as fol-
2 lows:

3 “(c) RESPONSIBILITIES.—In carrying out the pro-
4 gram required by subsection (b), the Office shall do the
5 following:

6 “(1) Expedite testing, evaluation, and acquisi-
7 tion of hypersonic weapon systems to meet the stat-
8 ed needs of the warfighter, including flight testing,
9 ground-based-testing, and underwater launch test-
10 ing.

11 “(2) Coordinate and integrate current and fu-
12 ture research, development, test, and evaluation pro-
13 grams and system demonstration programs of the
14 Department of Defense on hypersonics.

15 “(3) Undertake appropriate actions to ensure—

16 “(A) close and continuous integration of
17 the programs on hypersonics of the military de-
18 partments and the Defense Agencies with the
19 programs on hypersonics across the Federal
20 Government and with appropriate private sector
21 and foreign organizations; and

22 “(B) that both foundational research and
23 developmental and operational testing resources
24 are adequate and well funded, and that facili-
25 ties are made available in a timely manner to

1 support hypersonics research, demonstration
2 programs, and system development.

3 “(4) Approve prototyping demonstration pro-
4 grams on hypersonic systems to speed the matura-
5 tion and deployment of the systems to the
6 warfighter,.

7 “(5) Ensure that any demonstration program
8 on hypersonic systems that is carried out in any
9 year after its approval under paragraph (3) is car-
10 ried out only if certified under subsection (e) as
11 being consistent with the roadmap under subsection
12 (d).

13 “(6) Develop strategies and roadmaps for
14 hypersonic technologies to transition to operational
15 capabilities for the warfighter.

16 “(7) Coordinate with relevant stakeholders and
17 agencies to support United States technological ad-
18 vantage in developing hypersonics.”;

19 (5) in subsection (d)(1), by striking “joint tech-
20 nology office established under subsection (a)” and
21 inserting “Office”; and

22 (6) in subsection (e)—

23 (A) in paragraph (1), by striking “joint
24 technology office established under subsection
25 (a)” and inserting “Office”; and

1 (B) in paragraph (2), by striking “joint
2 technology office” and inserting “Office”.

3 **SEC. 215. DEPARTMENT OF DEFENSE DIRECTED ENERGY**
4 **WEAPON SYSTEM PROTOTYPING AND DEM-**
5 **ONSTRATION PROGRAM.**

6 (a) DESIGNATION OF UNDER SECRETARY OF DE-
7 FENSE FOR RESEARCH AND ENGINEERING AS THE OFFI-
8 CIAL WITH PRINCIPAL RESPONSIBILITY FOR DEVELOP-
9 MENT AND DEMONSTRATION OF DIRECTED ENERGY
10 WEAPONS.—Subsection (a)(1) of section 219 of the Na-
11 tional Defense Authorization Act for Fiscal Year 2017
12 (Public Law 114–328; 10 U.S.C. 2431 note) is amended
13 by striking “Not later” and all that follows through “De-
14 partment of Defense” and inserting “The Under Secretary
15 of Defense for Research and Engineering shall serve”.

16 (b) PROTOTYPING AND DEMONSTRATION PRO-
17 GRAM.—Such section is further amended by adding at the
18 end the following new subsection:

19 “(c) PROTOTYPING AND DEMONSTRATION PRO-
20 GRAM.—

21 “(1) ESTABLISHMENT.—The Secretary of De-
22 fense, acting through the Under Secretary, shall es-
23 tablish a program on the prototyping and dem-
24 onstration of directed energy weapon systems to

1 build and maintain the military superiority of the
2 United States by—

3 “(A) accelerating, when feasible, the field-
4 ing of directed energy weapon prototypes that
5 would help counter technological advantages of
6 potential adversaries of the United States; and

7 “(B) supporting the military departments,
8 the combatant commanders, and other relevant
9 defense agencies and entities in developing pro-
10 totypes and demonstrating operational utility of
11 high energy lasers and high powered microwave
12 weapon systems.

13 “(2) GUIDELINES.—(A) Not later than 180
14 days after the date of the enactment of the National
15 Defense Authorization Act for Fiscal Year 2018, the
16 Under Secretary shall issue guidelines for the oper-
17 ation of the program established under paragraph
18 (1), including the following:

19 “(i) Criteria required for an application for
20 funding by a military department, defense agen-
21 cy or entity, or a combatant command.

22 “(ii) The priorities, based on validated re-
23 quirements or capability gaps, for fielding pro-
24 totype directed energy weapon system tech-

1 nologies developed by research funding of the
2 Department or industry.

3 “(iii) Criteria for evaluation of an applica-
4 tion for funding or changes to policies or acqui-
5 sition and business practices by such a depart-
6 ment, agency, or command for purposes of im-
7 proving the effectiveness and efficiency of the
8 program.

9 “(B) Funding for a military department, de-
10 fense agency, or combatant command under the pro-
11 gram established under paragraph (1) may only be
12 available for advanced technology development,
13 prototyping, and demonstrations in which the De-
14 partment of Defense maintains management of the
15 technical baseline and a primary emphasis on tech-
16 nology transition and evaluating military utility to
17 enhance the likelihood that the particular directed
18 energy weapon system will meet the Department end
19 user’s need.

20 “(3) APPLICATIONS FOR FUNDING.—(A) Not
21 less frequently than once each year, the Under Sec-
22 retary shall solicit from the heads of the military de-
23 partments, the defense agencies, and the combatant
24 commands applications for funding under the pro-
25 gram established under paragraph (1) to be used to

1 enter into contracts, cooperative agreements, or
2 other transaction agreements entered into pursuant
3 to section 2371b of title 10, United States Code,
4 with appropriate entities for the prototyping or com-
5 mercialization of technologies.

6 “(B) Nothing in this section shall be construed
7 to require any official of the Department of Defense
8 to provide funding under the program to any con-
9 gressional earmark as defined pursuant to clause 9
10 of rule XXI of the Rules of the House of Represent-
11 atives or any congressionally directed spending item
12 as defined pursuant to paragraph 5 of rule XLIV of
13 the Standing Rules of the Senate.

14 “(4) FUNDING.—(A) Except as provided in sub-
15 paragraph (B) and subject to the availability of ap-
16 propriations for such purpose, of the funds author-
17 ized to be appropriated by the National Defense Au-
18 thorization Act for Fiscal Year 2018 or otherwise
19 made available for fiscal year 2018 for research, de-
20 velopment, test, and evaluation, defense-wide, up to
21 \$100,000,000 may be available to the Under Sec-
22 retary to allocate to the military departments, the
23 defense agencies, and the combatant commands to
24 carry out the program established under paragraph
25 (1).

1 “(B) Not more than half of the amounts made
2 available under subparagraph (A) may be allocated
3 as described in such paragraph until the Under Sec-
4 retary—

5 “(i) develops the strategic plan required by
6 subsection (a)(2)(A); and

7 “(ii) submits such strategic plan to the
8 congressional defense committees.

9 “(5) UNDER SECRETARY DEFINED.—In this
10 subsection, the term ‘Under Secretary’ means the
11 Under Secretary of Defense for Research and Engi-
12 neering in the Under Secretary’s capacity as the of-
13 ficial with principal responsibility for the develop-
14 ment and demonstration of directed energy weapons
15 pursuant to subsection (a)(1).”.

16 **SEC. 216. APPROPRIATE USE OF AUTHORITY FOR PROTO-**
17 **TYPE PROJECTS.**

18 Section 2371b(d)(1)(A) of title 10, United States
19 Code, is amended by inserting “or nonprofit research in-
20 stitution” after “defense contractor”.

21 **SEC. 217. MECHANISMS FOR EXPEDITED ACCESS TO TECH-**
22 **NICAL TALENT AND EXPERTISE AT ACA-**
23 **DEMIC INSTITUTIONS TO SUPPORT DEPART-**
24 **MENT OF DEFENSE MISSIONS.**

25 (a) ARRANGEMENTS AUTHORIZED.—

1 (1) IN GENERAL.—The Secretary of Defense
2 and each secretary of a military department may es-
3 tablish one or more multi-institution task order con-
4 tracts, consortia, cooperative agreements, or other
5 arrangements to facilitate expedited access to uni-
6 versity technical expertise, including faculty, staff,
7 and students, in support of Department of Defense
8 missions in the areas specified in subsection (e).

9 (2) USE FOR TECHNICAL ANALYSES AND ENGI-
10 NEERING SUPPORT.—The Secretary may use an ar-
11 rangement under paragraph (1) to fund technical
12 analyses and other engineering support as required
13 to address acquisition, management, and operational
14 challenges, including support for classified programs
15 and activities.

16 (b) LIMITATION.—An arrangement established under
17 subsection (a)(1) may not be used to fund research pro-
18 grams that can be executed through other Department of
19 Defense basic research activities.

20 (c) CONSULTATION WITH OTHER DEPARTMENT OF
21 DEFENSE ACTIVITIES.—An arrangement established
22 under subsection (a)(1) shall, to the degree practicable,
23 be made in consultation with other Department of Defense
24 activities, including federally funded research and develop-
25 ment centers (FFRDCs), university affiliated research

1 centers (UARCs), and Defense laboratories and test cen-
2 ters, for purposes of providing technical expertise and re-
3 ducing costs and duplicative efforts.

4 (d) POLICIES AND PROCEDURES.—If the Secretary
5 of Defense or a secretary of a military department estab-
6 lishes one or more arrangements under subsection (a)(1),
7 the Secretary of Defense shall establish and implement
8 policies and procedures to govern—

9 (1) selection of participants in the arrangement
10 or arrangements;

11 (2) the awarding of task orders under the ar-
12 rangement or arrangements;

13 (3) maximum award size for tasks under the
14 arrangement or arrangements;

15 (4) the appropriate use of competitive awards
16 and sole source awards under the arrangement or
17 arrangements; and

18 (5) technical areas under the arrangement or
19 arrangements.

20 (e) MISSION AREAS.—The areas specified in this sub-
21 section are as follows:

22 (1) Cybersecurity.

23 (2) Air and ground vehicles.

24 (3) Shipbuilding.

25 (4) Explosives detection and defeat.

- 1 (5) Undersea warfare.
- 2 (6) Trusted electronics.
- 3 (7) Unmanned systems.
- 4 (8) Directed energy.
- 5 (9) Energy, power, and propulsion.
- 6 (10) Management science and operations re-
- 7 search.
- 8 (11) Artificial intelligence.
- 9 (12) Data analytics.
- 10 (13) Business systems.
- 11 (14) Technology transfer and transition.
- 12 (15) Biological engineering and genetic en-
- 13 hancement.
- 14 (16) High performance computing.
- 15 (17) Materials science and engineering.
- 16 (18) Quantum information sciences.
- 17 (19) Special operations activities.
- 18 (20) Modeling and simulation.
- 19 (21) Autonomous systems.
- 20 (22) Model based engineering.
- 21 (23) Such other areas as the Secretary con-
- 22 siders appropriate.
- 23 (f) SUNSET.—No new arrangements may be entered
- 24 into under subsection (a)(1) after September 30, 2020.

1 (g) ARRANGEMENTS ESTABLISHED UNDER SUB-
2 SECTION (A)(1) DEFINED.—In this section, the term “ar-
3 rangement established under subsection (a)(1)” means a
4 multi-institution task order contract, consortia, coopera-
5 tive agreement, or other arrangement established under
6 subsection (a)(1).

7 **SEC. 218. MODIFICATION OF LABORATORY QUALITY EN-**
8 **HANCEMENT PROGRAM.**

9 (a) IN GENERAL.—Section 211 of the National De-
10 fense Authorization Act for Fiscal Year 2017 (Public Law
11 114–328) is amended—

12 (1) in subsection (a)(1)—

13 (A) in subparagraph (A), by striking “;
14 and” and inserting a semicolon;

15 (B) in subparagraph (B), by striking the
16 semicolon and inserting “; and”; and

17 (C) by adding at the end the following new
18 subparagraph:

19 “(C) new interpretations of existing stat-
20 utes and regulations that would enhance the
21 ability of a director of a science and technology
22 reinvention laboratory to manage the facility
23 and discharge the mission of the laboratory;”;

24 (2) in subsection (d), by adding at the end the
25 following new paragraph:

1 “(3)(A) Each panel described in paragraph (1), (2),
2 or (3) of subsection (b) shall submit to the panel described
3 in paragraph (4) of such subsection (relating to govern-
4 ance and oversight processes) the following:

5 “(i) The findings of the panel with respect to
6 the review conducted by the panel under subsection
7 (a)(1)(C).

8 “(ii) The recommendations made by the panel
9 under such subsection.

10 “(iii) Such comments, findings, and rec-
11 ommendations as the panel may have received by a
12 science and technology reinvention laboratory with
13 respect to—

14 “(I) the review conducted by the panel
15 under such subsection; or

16 “(II) recommendations made by the panel
17 under such subsection.

18 “(B)(i) The panel described in subsection (b)(4) shall
19 review and refashion such recommendations as the panel
20 may receive under subparagraph (A).

21 “(ii) In reviewing and refashioning recommendations
22 under clause (i), the panel may, as the panel considers
23 appropriate, consult with the science and technology exec-
24 utive of the affected service.

1 “(C) The panel described in subsection (b)(4) shall
2 submit to the Under Secretary of Defense for Research
3 and Engineering the recommendations made by the panel
4 under subsection (a)(1)(C) and the recommendations re-
5 fashioned by the panel under subparagraph (B) of this
6 paragraph.”;

7 (3) by redesignating subsections (e) and (f) as
8 subsection (f) and (g), respectively; and

9 (4) by inserting after subsection (d) the fol-
10 lowing new subsection (e):

11 “(e) INTERPRETATION OF PROVISIONS OF LAW.—(1)
12 The Under Secretary of Defense for Research and Engi-
13 neering, acting under the guidance of the Secretary, shall
14 issue regulations regarding the meaning, scope, implemen-
15 tation, and applicability of any provision of a statute relat-
16 ing to a science and technology reinvention laboratory.

17 “(2) In interpreting or defining under paragraph (1),
18 the Under Secretary shall, to the degree practicable, em-
19 phasize providing the maximum operational flexibility to
20 the directors of the science and technology reinvention lab-
21 oratories to discharge the missions of their laboratories.

22 “(3) In interpreting or defining under paragraph (1),
23 the Under Secretary shall, to the extent practicable, con-
24 sult and coordinate with the secretaries of the military de-
25 partments and such other agencies or entities as the

1 Under Secretary considers relevant, on any proposed revi-
2 sion to regulations under paragraph (1).

3 “(4) In interpreting or defining under paragraph (1),
4 the Under Secretary shall seek recommendations from the
5 panel described in subsection (b)(4).”.

6 (b) TECHNICAL CORRECTIONS.—(1) Subsections (a),
7 (c)(1)(C), and (d)(2) of such section are amended by strik-
8 ing “Assistant Secretary” each place it appears and in-
9 serting “Under Secretary”.

10 (2) Subparagraph (C) of section 342(b)(3) of the Na-
11 tional Defense Authorization Act for Fiscal Year 1995
12 (Public Law 103–337), as amended by section 211(f) of
13 the National Defense Authorization Act for Fiscal Year
14 2017 (Public Law 114–328), as redesignated by sub-
15 section (a)(3) of this section, is amended by striking “As-
16 sistant Secretary” and inserting “Under Secretary”.

17 **SEC. 219. REAUTHORIZATION OF DEPARTMENT OF DE-**
18 **FENSE ESTABLISHED PROGRAM TO STIMU-**
19 **LATE COMPETITIVE RESEARCH.**

20 (a) MODIFICATION OF PROGRAM OBJECTIVES.—Sub-
21 section (b) of section 257 of the National Defense Author-
22 ization Act for Fiscal Year 1995 (Public Law 103–337;
23 10 U.S.C. 2358 note) is amended—

24 (1) by redesignating paragraphs (1) and (2) as
25 paragraphs (2) and (3), respectively;

1 (2) by inserting before paragraph (2), as redesi-
2 gnated by paragraph (1), the following new para-
3 graph (1):

4 “(1) To increase the number of university re-
5 searchers in eligible States capable of performing
6 science and engineering research responsive to the
7 needs of the Department of Defense.”; and

8 (3) in paragraph (2), as redesignated by para-
9 graph (1), by inserting “relevant to the mission of
10 the Department of Defense and” after “that is”.

11 (b) MODIFICATION OF PROGRAM ACTIVITIES.—Sub-
12 section (c) of such section is amended—

13 (1) by redesignating paragraph (3) as para-
14 graph (4); and

15 (2) by inserting after paragraph (2) the fol-
16 lowing new paragraph (3):

17 “(3) To provide assistance to science and engi-
18 neering researchers at institutions of higher edu-
19 cation in eligible States through collaboration be-
20 tween Department of Defense laboratories and such
21 researchers.”.

22 (c) MODIFICATION OF ELIGIBILITY CRITERIA FOR
23 STATE PARTICIPATION.—Subsection (d) of such section is
24 amended—

1 (1) in paragraph (2)(B), by inserting “in areas
2 relevant to the mission of the Department of De-
3 fense” after “programs”; and

4 (2) by adding at the end the following new
5 paragraph:

6 “(3) The Under Secretary shall not remove a des-
7 ignation of a State under paragraph (2) because the State
8 exceeds the funding levels specified under subparagraph
9 (A) of such paragraph unless the State has exceeded such
10 funding levels for at least two consecutive years.”.

11 (d) MODIFICATION OF COORDINATION REQUIRE-
12 MENT.—Subsection (e) of such section is amended—

13 (1) in paragraph (1), by striking “shall” each
14 place it appears and inserting “may”; and

15 (2) in paragraph (3), by inserting “relevant to
16 the mission of the Department of Defense and”
17 after “Research are”.

18 (e) MODIFICATION OF NAME.—

19 (1) IN GENERAL.—Such section is amended—

20 (A) in subsections (a) and (e) by striking
21 “Experimental” each place it appears and in-
22 serting “Established”; and

23 (B) in the section heading, by striking
24 “**EXPERIMENTAL**” and inserting “**ESTAB-**
25 **LISHED**”.

1 (2) CLERICAL AMENDMENT.—Such Act is
2 amended, in the table of contents in section 2(b), by
3 striking the item relating to section 257 and insert-
4 ing the following new item:

“Sec. 257. Defense established program to stimulate competitive research.”.

5 (3) CONFORMING AMENDMENT.—Section 307
6 of the 1997 Emergency Supplemental Appropria-
7 tions Act for Recovery from Natural Disasters, and
8 for Overseas Peacekeeping Efforts, Including Those
9 in Bosnia (Public Law 105–18) is amended by strik-
10 ing “Experimental” and inserting “Established”.

11 **SEC. 220. CODIFICATION AND ENHANCEMENT OF AUTHORI-**
12 **TIES TO PROVIDE FUNDS FOR DEFENSE LAB-**
13 **ORATORIES FOR RESEARCH AND DEVELOP-**
14 **MENT OF TECHNOLOGIES FOR MILITARY MIS-**
15 **SIONS.**

16 (a) IN GENERAL.—Chapter 139 of title 10, United
17 States Code, is amended by inserting after section 2362
18 the following new section:

19 **“§ 2363. Mechanisms to provide funds for defense lab-**
20 **oratories for research and development**
21 **of technologies for military missions**

22 “(a) MECHANISMS TO PROVIDE FUNDS.—(1) The
23 Secretary of Defense, in consultation with the Secretaries
24 of the military departments, shall establish mechanisms
25 under which the director of a defense laboratory may use

1 an amount of funds equal to not less than two percent
2 and not more than four percent of all funds available to
3 the defense laboratory for the following purposes:

4 “(A) To fund innovative basic and applied re-
5 search that is conducted at the defense laboratory
6 and supports military missions.

7 “(B) To fund development programs that sup-
8 port the transition of technologies developed by the
9 defense laboratory into operational use.

10 “(C) To fund workforce development activities
11 that improve the capacity of the defense laboratory
12 to recruit and retain personnel with necessary sci-
13 entific and engineering expertise that support mili-
14 tary missions.

15 “(D) To fund the repair or minor military con-
16 struction of the laboratory infrastructure and equip-
17 ment, in accordance with subsection (b).

18 “(2) The mechanisms established under paragraph
19 (1) shall provide that funding shall be used under para-
20 graph (1) at the discretion of the director of a defense
21 laboratory in consultation with the science and technology
22 executive of the military department concerned.

23 “(3) The science and technology executive of a mili-
24 tary department may develop policies and guidance to le-
25 verage funding and promote cross-laboratory collabora-

1 tion, including with laboratories of other military depart-
2 ments.

3 “(4) After consultation with the science and tech-
4 nology executive of the military department concerned, the
5 director of a defense laboratory may charge customer ac-
6 tivities a fixed percentage fee, in addition to normal costs
7 of performance, in order to obtain funds to carry out ac-
8 tivities authorized by this subsection. The fixed fee may
9 not exceed four percent of costs.

10 “(b) AVAILABILITY OF FUNDS FOR INFRASTRUC-
11 TURE PROJECTS.—Funds shall be available in accordance
12 with subsection (a)(1)(D) only if—

13 “(1) the Secretary notifies the congressional de-
14 fense committees of the total cost of the project be-
15 fore the date on which the Secretary uses the mech-
16 anism under such subsection for such project; and

17 “(2) the Secretary ensures that the project
18 complies with the applicable cost limitations in—

19 “(A) section 2805(d) of this title, with re-
20 spect to revitalization and recapitalization
21 projects; and

22 “(B) section 2811 of this title, with respect
23 to repair projects.

24 “(c) ANNUAL REPORT ON USE OF AUTHORITY.—(1)
25 Not later than March 1 of each year until March 1, 2025,

1 the Secretary of Defense shall submit to the congressional
2 defense committees a report on the use of the authority
3 under subsection (a) during the preceding year.

4 “(2) Each report under paragraph (1) shall include,
5 with respect to the year covered by the report, the fol-
6 lowing:

7 “(A) A description of the mechanisms used to
8 provide funding under subsection (a)(1).

9 “(B) A statement of the amount of funding
10 made available to each defense laboratory for re-
11 search described under such subsection.

12 “(C) A description of the investments made by
13 each defense laboratory using funds under such sub-
14 section.

15 “(D) A description and assessment of any im-
16 provements in the performance of the defense lab-
17 oratories as a result of investments under such sub-
18 section.

19 “(E) A description and assessment of the con-
20 tributions to the development of needed military ca-
21 pabilities provided by research using funds under
22 such subsection.

23 “(F) A description of any modification to the
24 mechanisms under subsection (a) that would im-

1 prove the efficiency of the authority under such sub-
2 section to support military missions.”.

3 (b) CLERICAL AMENDMENT.—The table of sections
4 at the beginning of chapter 139 of such title is amended
5 by inserting after the item relating to section 2362 the
6 following new item:

 “2363. Mechanisms to provide funds for defense laboratories for research and
 development of technologies for military missions.”.

7 (c) CONFORMING AMENDMENTS.—(1) Section 219 of
8 the Duncan Hunter National Defense Authorization Act
9 for Fiscal Year 2009 (Public Law 110–417; 10 U.S.C.
10 2358 note), is hereby repealed.

11 (2) Section 2805(d)(1)(B) of title 10, United States
12 Code, is amended by striking “under section 219(a) of the
13 Duncan Hunter National Defense Authorization Act for
14 Fiscal Year 2009 (Public Law 110–417; 10 U.S.C. 2358
15 note)” and inserting “section 2363(a) of this title”.

16 **SEC. 221. EXPANSION OF DEFINITION OF COMPETITIVE**
17 **PROCEDURES TO INCLUDE COMPETITIVE SE-**
18 **LECTION FOR AWARD OF SCIENCE AND**
19 **TECHNOLOGY PROPOSALS.**

20 Section 2302(2)(B) of title 10, United States Code,
21 is amended by striking “basic research” and inserting
22 “science and technology”.

1 **SEC. 222. INCLUSION OF MODELING AND SIMULATION IN**
2 **TEST AND EVALUATION ACTIVITIES FOR PUR-**
3 **POSES OF PLANNING AND BUDGET CERTIFI-**
4 **CATION.**

5 Section 196 of title 10, United States Code, is
6 amended—

7 (1) in subsection (d)(1), in the first sentence,
8 by inserting “, including modeling and simulation
9 capabilities” after “and resources”; and

10 (2) in subsection (e)(1), by inserting “, includ-
11 ing modeling and simulation activities,” after “eval-
12 uation activities”.

13 **SEC. 223. LIMITATION ON AVAILABILITY OF FUNDS FOR F-**
14 **35 JOINT STRIKE FIGHTER FOLLOW-ON MOD-**
15 **ERNIZATION.**

16 (a) **IN GENERAL.**—Not more than 25 percent of the
17 funds authorized to be appropriated by this Act or other-
18 wise made available for fiscal year 2018 or any other fiscal
19 year for the Department of Defense may be obligated for
20 F–35 Joint Strike Fighter Follow-On Modernization until
21 the Secretary of Defense provides the final report required
22 under section 224(b) of the National Defense Authoriza-
23 tion Act for Fiscal Year 2017 (Public Law 114–328).

24 (b) **DUAL CAPABLE AIRCRAFT.**—Neither the limita-
25 tion in subsection (a) nor the limitation in section 224(a)
26 of the National Defense Authorization Act for Fiscal Year

1 2017 shall be construed to limit or otherwise restrict any
2 funding that is required to develop, certify, or deliver F-
3 35A dual capable aircraft.

4 **SEC. 224. IMPROVEMENT OF UPDATE PROCESS FOR**
5 **POPULATING MISSION DATA FILES USED IN**
6 **ADVANCED COMBAT AIRCRAFT.**

7 (a) IMPROVEMENTS TO UPDATE PROCESS.—

8 (1) IN GENERAL.—The Secretary of Defense
9 shall take such actions as may be necessary to im-
10 prove the process used to update the mission data
11 files used in advanced combat aircraft of the United
12 States so that such updates can occur more quickly.

13 (2) REQUIREMENTS.—In improving the process
14 under paragraph (1), the Secretary shall ensure the
15 following:

16 (A) That under such process, updates to
17 the mission data files are developed, operation-
18 ally tested, and loaded onto systems of ad-
19 vanced combat aircraft while in theaters of op-
20 eration in a time-sensitive manner to allow for
21 the distinguishing of threats, including distin-
22 guishing friends from foes, loading and delivery
23 of weapon suites, and coordination with allied
24 and coalition armed forces.

1 (B) When updates are made to the mission
2 data files, all areas of responsibility (AoRs) are
3 included.

4 (C) The process includes best practices re-
5 lating to such mission data files that have been
6 identified by industry and allies of the United
7 States.

8 (D) The process improves the exchange of
9 information between weapons systems of the
10 United States and weapon systems of allies and
11 partners of the United States, with respect to
12 such mission data files.

13 (b) CONSULTATION AND PILOT PROGRAMS.—In car-
14 rying out subsection (a), the Secretary shall consult the
15 innovation organizations resident in the Department of
16 Defense and may consider carrying out a pilot program
17 under another provision of this Act.

18 (c) REPORT.—Not later than March 31, 2018, the
19 Secretary shall submit to the congressional defense com-
20 mittees a report on the actions taken by the Secretary
21 under subsection (a)(1) and how the process described in
22 such subsection has been improved.

23 **SEC. 225. SUPPORT FOR NATIONAL SECURITY INNOVATION**
24 **AND ENTREPRENEURIAL EDUCATION.**

25 (a) SUPPORT AUTHORIZED.—

1 (1) IN GENERAL.—The Secretary of Defense
2 may, acting through the Under Secretary of Defense
3 for Research and Engineering, support national se-
4 curity innovation and entrepreneurial education pro-
5 grams.

6 (2) ELEMENTS.—Support under paragraph (1)
7 may include the following:

8 (A) Materials to recruit participants, in-
9 cluding veterans, for programs described in
10 paragraph (1).

11 (B) Model curriculum for such programs.

12 (C) Training materials for such programs.

13 (D) Best practices for the conduct of such
14 programs.

15 (E) Experimental learning opportunities
16 for program participants to interact with oper-
17 ational forces and better understand national
18 security challenges.

19 (F) Exchanges and partnerships with De-
20 partment of Defense science and technology ac-
21 tivities.

22 (G) Activities consistent with the Proof of
23 Concept Commercialization Pilot Program es-
24 tablished under section 1603 of the National

1 Defense Authorization Act for Fiscal Year 2014
2 (Public Law 113–66; 10 U.S.C. 2359 note).

3 (b) CONSULTATION.—In carrying out subsection (a),
4 the Secretary may consult with the heads of such Federal
5 agencies, universities, and public and private entities en-
6 gaged in the development of advanced technologies as the
7 Secretary determines to be appropriate.

8 (c) AUTHORITIES.—The Secretary may—

9 (1) develop and maintain metrics to assess na-
10 tional security innovation and entrepreneurial edu-
11 cation activities to ensure standards for programs
12 supported under subsection (b) are consistent and
13 being met; and

14 (2) ensure that any recipient of an award under
15 the Small Business Technology Transfer program,
16 the Small Business Innovation Research program,
17 and science and technology programs of the Depart-
18 ment of Defense has the option to participate in
19 training under a national security innovation and en-
20 trepreneurial education program supported under
21 subsection (b).

22 (d) PARTICIPATION BY FEDERAL EMPLOYEES AND
23 MEMBERS OF THE ARMED FORCES.—The Secretary may
24 encourage Federal employees and members of the Armed
25 Forces to participate in a national security innovation and

1 entrepreneurial education program supported under sub-
2 section (a) in order to gain exposure to modern innovation
3 and entrepreneurial methodologies.

4 (e) COORDINATION.—In carrying out this section, the
5 Secretary shall consider coordinating and partnering with
6 activities and organizations involved in the following:

7 (1) Hack the Army.

8 (2) Hack the Air Force.

9 (3) Hack the Pentagon.

10 (4) The Army Digital Service.

11 (5) The Defense Digital Service.

12 (6) The Air Force Digital Service.

13 (7) Challenge and prize competitions of the De-
14 fense Advanced Research Projects Agency
15 (DARPA).

16 (8) The Defense Science Study Group.

17 (9) The Small Business Innovation Research
18 Program (SBIR).

19 (10) The Small Business Technology Transfer
20 Program (STTR).

21 (11) War colleges of the military departments.

22 (12) Hacking for Defense.

23 (13) The National Security Science and Engi-
24 neering Faculty Fellowship (NSSEFF) program.

1 (14) The Science, Mathematics and Research
2 for Transformation (SMART) scholarship program.

3 (15) The young faculty award program of the
4 Defense Advanced Research Projects Agency.

5 **SEC. 226. LIMITATION ON CANCELLATION OF DESIGNATION**

6 **EXECUTIVE AGENT FOR A CERTAIN DEFENSE**

7 **PRODUCTION ACT PROGRAM.**

8 (a) **LIMITATION ON CANCELLATION OF DESIGNA-**
9 **TION.**—The Secretary of Defense may not implement the
10 decision, issued on July 1, 2017, to cancel the designation,
11 under Department of Defense Directive 4400.1E, entitled
12 “Defense Production Act Programs” and dated October
13 12, 2001, of the currently assigned Department of De-
14 fense Executive Agent for the program carried out under
15 title III of the Defense Production Act of 1950 (50 U.S.C.
16 4531 et seq.) until the Secretary has—

17 (1) completed the review and assessment re-
18 quired by subsection (b)(1); and

19 (2) carried out the briefing required by sub-
20 section (c).

21 (b) **REVIEW AND ASSESSMENT REQUIRED.**—

22 (1) **IN GENERAL.**—The Secretary of Defense, in
23 consultation with the Secretary of the Air Force,
24 shall conduct a review and assessment of the pro-
25 gram described in subsection (a).

1 (2) ELEMENTS.—The review and assessment
2 required by paragraph (1) shall include the fol-
3 lowing:

4 (A) Assessment of the current manage-
5 ment structure for the program, including anal-
6 ysis of the mechanisms for accountability, as
7 well as cost and management controls currently
8 in place.

9 (B) Analysis of alternatives for proposals
10 to modify that management structure to in-
11 crease accountability, cost and management
12 controls. Such analysis of alternatives should
13 consider the relative merits of centralization
14 and decentralization, roles of other military de-
15 partments in program management and con-
16 tracting, as well as the different roles the Office
17 of the Secretary of Defense might play in man-
18 agement, oversight and execution.

19 (C) Recommendations for improving the
20 assessment and selection of projects in order
21 to—

22 (i) ensure that projects selected are
23 appropriate for use of funds appropriated
24 to carry out title III of the Defense Pro-
25 duction Act of 1950;

1 (ii) ensure that sufficient vetting and
2 management controls are in place to en-
3 sure a reasonable degree of confidence that
4 project ideas or the companies being sup-
5 ported will be viable; and

6 (iii) increase overall successful execu-
7 tion for selected projects.

8 (D) Such other matters as the Secretary
9 considers appropriate.

10 (c) BRIEFING REQUIRED.—The Secretary shall brief
11 the appropriate Committees of Congress on the findings
12 of the Secretary with respect to the review and assessment
13 conducted under subsection (b).

14 (d) NOTIFICATION REQUIRED.—In the event the Sec-
15 retary of Defense decides to cancel the designation, under
16 Department of Defense Directive 4400.1E, entitled “De-
17 fense Production Act Programs” and dated October 12,
18 2001, of the currently assigned Department of Defense
19 Executive Agent for the program described in subsection
20 (a), the Secretary shall submit to the appropriate commit-
21 tees of Congress a written notification of such decision at
22 least 60 days before the decision goes into effect.

23 (e) APPROPRIATE COMMITTEES OF CONGRESS DE-
24 FINED.—In this section, the term “appropriate commit-
25 tees of Congress” means the—

1 (1) the Committee on Armed Services and the
2 Committee on Banking, Housing, and Urban Affairs
3 of the Senate; and

4 (2) the Committee on Armed Services and the
5 Committee on Financial Services of the House of
6 Representatives.

7 **Subtitle C—Reports and Other** 8 **Matters**

9 **SEC. 231. COLUMBIA-CLASS PROGRAM ACCOUNTABILITY** 10 **MATRICES.**

11 (a) **SUBMITTAL OF MATRICES.**—Concurrent with the
12 President’s annual budget request submitted to Congress
13 under section 1105 of title 31, United States Code, for
14 fiscal year 2019, the Secretary of the Navy shall submit
15 to the congressional defense committees and the Comp-
16 troller General of the United States the matrices described
17 in subsection (b) relating to the Columbia-class program.

18 (b) **MATRICES DESCRIBED.**—The matrices described
19 in this subsection are the following:

20 (1) **DESIGN AND CONSTRUCTION GOALS.**—A
21 matrix that identifies, in six-month increments, key
22 milestones, development events, and specific per-
23 formance goals for the design and construction of
24 the Columbia-class program, which shall be sub-
25 divided, at a minimum, according to the following:

1 (A) Technology-readiness levels of major
2 components and key demonstration events.

3 (B) Design maturity.

4 (C) Manufacturing-readiness levels for crit-
5 ical manufacturing operations and key dem-
6 onstration events.

7 (D) Manufacturing operations.

8 (E) Reliability.

9 (2) COST.—A matrix expressing, in annual in-
10 crements, the total cost phased over the entire Co-
11 lumbia-class design and construction period of—

12 (A) the Navy service cost position for the
13 prime contractor's portion of Columbia-class de-
14 sign and construction activities, including the
15 estimated price at completion for each sub-
16 marine and confidence level of this estimate;

17 (B) the program manager's estimate for
18 the prime contractor's portion of Columbia-class
19 design and construction activities, including the
20 estimated price and variance at completion for
21 each submarine; and

22 (C) the prime contractor's estimate for the
23 prime contractor's portion of Columbia-class de-
24 sign and construction activities, including the

1 estimated price and variance at completion for
2 each submarine.

3 (c) UPDATE OF MATRICES.—

4 (1) IN GENERAL.—Not later than 180 days
5 after the date on which the Secretary of the Navy
6 submits the matrices required by subsection (a), and
7 concurrent with the submittal of each annual budget
8 request to Congress under section 1105 of title 31,
9 United States Code, beginning with the fiscal year
10 2020 request, the Secretary of the Navy shall sub-
11 mit to the congressional defense committees and the
12 Comptroller General of the United States updates to
13 the matrices described in subsection (b).

14 (2) ELEMENTS.—Each update submitted under
15 paragraph (1) shall detail progress made toward the
16 goals identified in the matrix described in subsection
17 (b)(1) and provide updated cost data as prescribed
18 in subsection (b)(2).

19 (3) TREATMENT OF INITIAL MATRICES AS
20 BASELINE.—The matrices submitted pursuant to
21 subsection (a) shall be treated as the baseline for the
22 full Columbia-class design and construction period
23 for purposes of the updates submitted pursuant to
24 paragraph (1) of this subsection.

1 (4) REPORT TERMINATION.—The report re-
2 quired under paragraph (1) shall terminate upon de-
3 livery of the first Columbia-class submarine.

4 (d) ASSESSMENT BY COMPTROLLER GENERAL OF
5 THE UNITED STATES.—Not later than 90 days after the
6 date on which the Comptroller General of the United
7 States receives an update to a matrix under subsection
8 (c)(1), the Comptroller General shall review such matrix
9 and provide to the congressional defense committees an
10 assessment of such matrix in whatever form that the
11 Comptroller General deems appropriate.

12 (e) REPEAL OF REPORT REQUIREMENT.—Section
13 131 of the National Defense Authorization Act for Fiscal
14 Year 2016 (129 Stat. 754; Public Law 114–92) is hereby
15 repealed.

16 (f) MAJOR COMPONENT DEFINED.—In this section,
17 the term “major component” includes, at a minimum, the
18 integrated power system, nuclear reactor, propulsor and
19 related coordinated stern features, stern area system, and
20 common missile compartment.

21 **SEC. 232. REVIEW OF BARRIERS TO INNOVATION IN RE-**
22 **SEARCH AND ENGINEERING ACTIVITIES OF**
23 **THE DEPARTMENT OF DEFENSE.**

24 (a) REVIEW.—The Secretary of Defense, acting
25 through the Under Secretary of Defense for Research and

1 Engineering, shall review directives, rules, regulations,
2 and other policies that adversely affect the ability of the
3 innovation, research, and engineering enterprise of the De-
4 partment of Defense to effectively and efficiently execute
5 its missions, including policies and practices concerning
6 the following:

- 7 (1) Personnel and talent management.
- 8 (2) Financial management and budgeting.
- 9 (3) Infrastructure, installations, and military
10 construction.
- 11 (4) Acquisition.
- 12 (5) Management.
- 13 (6) Such other areas as the Secretary may des-
14 ignate.

15 (b) REPORT.—Not later than one year after the date
16 of the enactment of this Act, the Secretary shall submit
17 to the congressional defense committees a report on—

- 18 (1) the findings of the Secretary with respect to
19 the review conducted under subsection (a);
- 20 (2) proposed changes in directives, rules, regu-
21 lations, and other policies that will enhance the abil-
22 ity of the innovation, research, and engineering en-
23 terprise of the Department to executive its des-
24 ignated missions, including a description of how pro-
25 posed changes have been coordinated with other ap-

1 appropriate Secretaries of the military departments
2 and the appropriate heads of the defense agencies;
3 and

4 (3) processes by which new directives, rules,
5 regulations, and other policies will be reviewed for
6 their potential to adversely affect the ability of the
7 innovation, research, and engineering enterprise of
8 the Department and the lead official designated to
9 execute such review in consultation with other rel-
10 evant and appropriate Secretaries of the military de-
11 partments and heads of defense agencies.

12 **SEC. 233. PILOT PROGRAM TO IMPROVE INCENTIVES FOR**
13 **TECHNOLOGY TRANSFER FROM DEPART-**
14 **MENT OF DEFENSE LABORATORIES.**

15 (a) IN GENERAL.—The Secretary of Defense shall es-
16 tablish a pilot program to assess the feasibility and advis-
17 ability of distributing royalties and other payments as de-
18 scribed in this section. Under the pilot program, except
19 as provided in subsections (b) and (d), any royalties or
20 other payments received by a Federal agency from the li-
21 censing and assignment of inventions under agreements
22 entered into by Department of Defense laboratories, and
23 from the licensing of inventions of Department of Defense
24 laboratories, shall be retained by the laboratory which pro-
25 duced the invention and shall be disposed of as follows:

1 (1)(A) The laboratory director shall pay each
2 year the first \$2,000, and thereafter at least 20 per-
3 cent, of the royalties or other payments, other than
4 payments of patent costs as delineated by a license
5 or assignment agreement, to the inventor or coinven-
6 tors, if the inventor's or coinventor's rights are di-
7 rectly assigned to the United States.

8 (B) A laboratory director may provide appro-
9 priate incentives, from royalties or other payments,
10 to laboratory employees who are not an inventor of
11 such inventions but who substantially increased the
12 technical value of the inventions.

13 (C) The laboratory shall retain the royalties
14 and other payments received from an invention until
15 the laboratory makes payments to employees of a
16 laboratory under subparagraph (A) or (B).

17 (2) The balance of the royalties or other pay-
18 ments shall be transferred by the agency to its lab-
19 oratories, with the majority share of the royalties or
20 other payments from any invention going to the lab-
21 oratory where the invention occurred. The royalties
22 or other payments so transferred to any laboratory
23 may be used or obligated by that laboratory during
24 the fiscal year in which they are received or during
25 the 2 succeeding fiscal years—

1 (A) to reward scientific, engineering, and
2 technical employees of the laboratory, including
3 developers of sensitive or classified technology,
4 regardless of whether the technology has com-
5 mercial applications;

6 (B) to further scientific exchange among
7 the laboratories of the agency;

8 (C) for education and training of employ-
9 ees consistent with the research and develop-
10 ment missions and objectives of the agency or
11 laboratory, and for other activities that increase
12 the potential for transfer of the technology of
13 the laboratories of the agency;

14 (D) for payment of expenses incidental to
15 the administration and licensing of intellectual
16 property by the agency or laboratory with re-
17 spect to inventions made at that laboratory, in-
18 cluding the fees or other costs for the services
19 of other agencies, persons, or organizations for
20 intellectual property management and licensing
21 services; or

22 (E) for scientific research and development
23 consistent with the research and development
24 missions and objectives of the laboratory.

1 (3) All royalties or other payments retained by
2 the laboratory after payments have been made pur-
3 suant to paragraphs (1) and (2) that are unobli-
4 gated and unexpended at the end of the second fiscal
5 year succeeding the fiscal year in which the royalties
6 and other payments were received shall be paid into
7 the Treasury of the United States.

8 (b) TREATMENT OF PAYMENTS TO EMPLOYEES.—

9 (1) IN GENERAL.—Any payment made to an
10 employee under the pilot program shall be in addi-
11 tion to the regular pay of the employee and to any
12 other awards made to the employee, and shall not
13 affect the entitlement of the employee to any regular
14 pay, annuity, or award to which the employee is oth-
15 erwise entitled or for which the employee is other-
16 wise eligible or limit the amount thereof. Any pay-
17 ment made to an inventor as such shall continue
18 after the inventor leaves the laboratory.

19 (2) CUMULATIVE PAYMENTS.—(A) Cumulative
20 payments made under the pilot program while the
21 inventor is still employed at the laboratory shall not
22 exceed \$500,000 per year to any one person, unless
23 the Secretary concerned (as defined in section
24 101(a) of title 10, United States Code) approves a
25 larger award.

1 (B) Cumulative payments made under the pilot
2 program after the inventor leaves the laboratory
3 shall not exceed \$150,000 per year to any one per-
4 son, unless the head of the agency approves a larger
5 award (with the excess over \$150,000 being treated
6 as an agency award to a former employee under sec-
7 tion 4505 of title 5, United States Code).

8 (c) INVENTION MANAGEMENT SERVICES.—Under the
9 pilot program, a laboratory receiving royalties or other
10 payments as a result of invention management services
11 performed for another Federal agency or laboratory under
12 section 207 of title 35, United States Code, may retain
13 such royalties or payments to the extent required to offset
14 payments to inventors under subparagraph (A) of sub-
15 section (a)(1), costs and expenses incurred under subpara-
16 graph (D) of subsection (a)(2), and the cost of foreign
17 patenting and maintenance for any invention of the other
18 agency. All royalties and other payments remaining after
19 offsetting the payments to inventors, costs, and expenses
20 described in the preceding sentence shall be transferred
21 to the agency for which the services were performed, for
22 distribution in accordance with subsection (a)(2).

23 (d) CERTAIN ASSIGNMENTS.—Under the pilot pro-
24 gram, if the invention involved was one assigned to the
25 laboratory—

1 characteristics of the relevant platforms, between existing
2 and planned—

3 (1) fifth-generation combat aircraft;

4 (2) fifth-generation and fourth-generation com-
5 bat aircraft;

6 (3) fifth-generation and fourth-generation com-
7 bat aircraft and appropriate support aircraft and
8 other network nodes for command, control, commu-
9 nications, intelligence, surveillance, and reconnais-
10 sance purposes; and

11 (4) fifth-generation and fourth-generation com-
12 bat aircraft and their associated network-enabled
13 precision weapons.

14 (b) ADDITIONAL PLAN REQUIREMENTS.—The plan
15 required by subsection (a) shall include—

16 (1) nonproprietary and open systems ap-
17 proaches compatible with the Rapid Capabilities Of-
18 fice Open Mission Systems initiative of the Air
19 Force and the Future Airborne Capability Environ-
20 ment initiative of the Navy;

21 (2) a competitive acquisition process, to include
22 comparative flight demonstrations in realistic air-
23 borne environments; and

1 (3) low risk and affordable solutions with mini-
2 mal impact or changes to existing host platforms,
3 and minimal overall integration costs.

4 (c) BRIEFING.—Not later than February 15, 2018,
5 the Under Secretary and the Vice Chairman shall provide
6 to the congressional defense committees a potential acqui-
7 sition strategy and briefing on the plan developed under
8 subsection (a).

9 (d) LIMITATION.—Of the funds authorized to be ap-
10 propriated by this Act or otherwise made available for fis-
11 cal year 2018 for operations and maintenance for the Of-
12 fice of the Secretary of the Air Force and the Office of
13 the Secretary of the Navy, not more than 85 percent may
14 be obligated or expended until a period of 15 days has
15 elapsed following the date on which the Under Secretary
16 and Vice Chairman submits to the congressional defense
17 committees the plan required by subsection (a).

18 **SEC. 235. CLARIFICATION OF SELECTION DATES FOR PILOT**
19 **PROGRAM FOR THE ENHANCEMENT OF THE**
20 **RESEARCH, DEVELOPMENT, TEST, AND EVAL-**
21 **UATION CENTERS OF THE DEPARTMENT OF**
22 **DEFENSE.**

23 Section 233 of the National Defense Authorization
24 Act for Fiscal Year 2017 (Public Law 114–328) is amend-
25 ed—

1 (1) in subsection (b)(2), by striking “the enact-
2 ment of this Act” both places it appears and insert-
3 ing “such submittal”; and

4 (2) in subsection (c)(1), by striking “propose
5 and implement” and inserting “submit to the Assist-
6 ant Secretary concerned a proposal on, and imple-
7 ment,”.

8 **SEC. 236. REQUIREMENT FOR A PLAN TO BUILD A PROTO-**
9 **TYPE FOR A NEW GROUND COMBAT VEHICLE**
10 **FOR THE ARMY.**

11 (a) IN GENERAL.—Not later than February 1, 2018,
12 the Secretary of the Army shall submit to the congres-
13 sional defense committees a plan to build a prototype for
14 a new ground combat vehicle for the Army.

15 (b) CONTENTS.—The plan required by subsection (a)
16 shall include the following:

17 (1) A description of how the Secretary intends
18 to exploit the latest enabling component technologies
19 that have the potential to dramatically change basic
20 combat vehicle design and improve lethality, protec-
21 tion, mobility, range, and sustainment, including an
22 analysis of capabilities of the most advanced foreign
23 ground combat vehicles and whether any have char-
24 acteristics that should inform the development of the
25 Army’s prototype vehicle, including whether any

1 United States allies or partners have advanced capa-
2 bilities that could be directly incorporated in the pro-
3 totype.

4 (2) The schedule, cost, key milestones, and
5 leadership plan to rapidly design and build the pro-
6 totype ground combat vehicle.

7 **SEC. 237. PLAN FOR SUCCESSFULLY FIELDING THE INTE-**
8 **GRATED AIR AND MISSILE DEFENSE BATTLE**
9 **COMMAND SYSTEM.**

10 (a) PLAN REQUIRED.—Not later than February 1,
11 2018, the Secretary of the Army shall submit to the con-
12 gressional defense committees a plan to successfully field
13 a suitable, survivable, and effective Integrated Air and
14 Missile Defense Battle Command System program.

15 (b) LIMITATION.—Not more than 50 percent of the
16 funds authorized to be appropriated by this Act for re-
17 search, development, test, and evaluation may be obligated
18 by the Secretary of the Army for the Army Integrated Air
19 and Missile Defense and the Integrated Air and Missile
20 Defense Battle Command System until the date on which
21 the plan is submitted under subsection (a).

TITLE II—RESEARCH, DEVELOPMENT, TEST, AND EVALUATION

SUBTITLE A—AUTHORIZATION OF APPROPRIATIONS

Authorization of appropriations (sec. 201)

The House bill contained a provision (sec. 201) that would authorize appropriations for research, development, test, and evaluation at the levels identified in section 4201 of division D of this Act.

The Senate amendment contained a similar provision (sec. 201).

The Senate recesses.

SUBTITLE B—PROGRAM REQUIREMENTS, RESTRICTIONS, AND LIMITATIONS

*Cost controls for presidential aircraft recapitalization program
(sec. 211)*

The House bill contained a provision (sec. 211) that would establish cost controls for the Presidential Aircraft Recapitalization program.

The Senate amendment contained no similar provision.

The Senate recesses with an amendment that would change the version of the system requirements document the program requirements are fixed to and give the Chief of Staff of the Air Force the authority to make adjustments to the capability requirements, subject to certain limitations, vice the Secretary of the Air Force.

Capital investment authority (sec. 212)

The House bill contained a provision (sec. 212) that would amend section 2208(k)(2) of title 10, United States Code, to raise the limit on in-house capital purchases using defense working capital funds from \$250,000 to \$500,000.

The Senate amendment contained no similar provision.

The Senate recedes with an amendment that would restrict the limit increase to a major range and test facility installation or a science and technology reinvention laboratory, but maintains the \$250,000 limit for other types of facilities utilizing this authority.

Prizes for advanced technology achievements (sec. 213)

The House bill contained a provision (sec. 213) that would amend section 2374a of title 10, United States Code, to make permanent the Secretary of Defense's authority to award prizes for advanced technology achievements, to allow for the award of non-monetary awards, and to authorize the acceptance of non-monetary items from other parts of the Federal Government, from State government, and from non-governmental sources.

The Senate amendment contained a similar provision (sec. 214) that would amend section 2374a of title 10, United States Code, which authorizes the defense research enterprise to carry out programs to award prizes in recognition of outstanding achievements in basic, advanced, and applied research, technology development, and prototype development that have the potential for application to the performance of the military missions of the Department of Defense (DOD). The provision would also authorize the Department to accept funds from the private sector to help fund prize awards and reduce the overall cost of prize competitions.

The House recedes with technical amendments to clarify several aspects of the new authority for non-monetary awards.

Joint Hypersonics Transition Office (sec. 214)

The House bill contained a provision (sec. 215) that would re-designate the "Joint Technology Office on Hypersonics" as the "Joint Hypersonics Transition Office", with the responsibility to coordinate and integrate programs, ensure coordination of current and future programs of the Department of Defense on hypersonics, and approve demonstrations.

The Senate amendment contained a similar provision (sec. 235) that would express the sense of Congress that the Department of Defense should expedite testing, evaluation, and

acquisition of hypersonic weapon systems to meet the stated needs of the warfighter; that the United States cannot afford to lose its advantage over foreign countries in developing hypersonic weapons; and that the Department of Defense should focus on the next generation of weapon systems such as hypersonics.

The Senate recedes with an amendment that would expand the stated responsibilities of the newly designated office.

Department of Defense directed energy weapon system prototyping and demonstration program (sec. 215)

The Senate amendment contained a provision (sec. 219) that would designate the Under Secretary of Defense for Research and Engineering as the official with principal responsibility for development and demonstration of directed energy weapons, pursuant to section 219(a)(1) of the National Defense Authorization Act for Fiscal Year 2017 (Public Law 114-328). The provision would also authorize funds to be used exclusively for high energy laser and high power microwave prototyping and demonstrations, but withhold 50 percent of those funds until the Under Secretary develops and submits to Congress a strategic plan.

The House bill contained no similar provision.

The House recedes with an amendment that would make technical, clarifying changes to the provision.

Appropriate use of authority for prototype projects (sec. 216)

The House bill contained a provision (sec. 225) that would amend Section 2371b(d)(1)(A) of title 10, United States Code by allowing nonprofit research institutions to enter into transactions with the Department of Defense for prototype projects.

The Senate amendment contained no similar provision.

The Senate recedes.

Mechanisms for expedited access to technical talent and expertise at academic institutions to support Department of Defense missions (sec. 217)

The Senate amendment contained a provision (sec. 211) that would give the Secretary of Defense the authority to establish one or more multi-institution task order contracts, consortia, cooperative agreements, or other arrangements with universities that do not have similar existing constructs to facilitate expedited access to university technical expertise in support of

Department of Defense mission areas, such as cybersecurity, explosives detection, modeling and simulation, microelectronics, unmanned systems, advanced materials, machine learning, and myriad others.

The House bill contained no similar provision.

The House recedes with an amendment that would make technical clarification in the authorities provided in this provision.

Modification of laboratory quality enhancement program (sec. 218)

The Senate amendment contained a provision (sec. 213) that would modify the Laboratory Quality Enhancement Program established in section 211 of the National Defense Authorization Act for Fiscal Year 2017 (Public Law 114-328). The recommended provision would provide the clarifications necessary to proceed with implementation as envisioned in the original statute. The recommended provision would also add some new responsibilities for the panels created in the original statute and establish their relationship to the Under Secretary of Defense for Research and Engineering, established in section 901 of the National Defense Authorization Act for Fiscal Year 2017 (Public Law 114-328).

The House bill contained no similar provision.

The House recedes with an amendment that would specify that the Under Secretary shall consult and coordinate with appropriate departments, agencies, and entities in carrying out certain authorities.

Reauthorization of Department of Defense Established Program to Stimulate Competitive Research (sec. 219)

The Senate amendment contained a provision (sec. 5201) that would amend subsections (b), (c), and (d) of section 257 of the National Defense Authorization Act for Fiscal Year 1995 (Public Law 103-337; 10 U.S.C. 2358 note).

The House bill contained no similar provision.

The House recedes with a technical amendment.

Codification and enhancement of authorities to provide funds for defense laboratories for research and development of technologies for military missions (sec. 220)

The Senate amendment contained a provision (sec. 10203) that would amend Chapter 139 of title 10, United States Code, to codify and enhance the research authorities of the defense

laboratories originally established in section 219 of the Duncan Hunter National Defense Authorization Act for Fiscal Year 2009 (Public Law 110-417).

The House bill contained no similar provision.

The House recesses with a technical, clarifying amendment.

Expansion of definition of competitive procedures to include competitive selection for award of science and technology proposals (sec. 221)

The Senate amendment contained a provision (sec. 215) that would amend section 2302 of title 10, United States Code, to expand the definition of competitive procedures to include research and development proposals.

The House bill contained no similar provision.

The House recesses with an amendment that would clarify and specify the types of proposals eligible for competitive procedures.

The conferees note that the amended language in the final provision is meant to include all activities that comprise budget activities 1 through 4 (i.e. 6.1-6.4).

Inclusion of modeling and simulation in test and evaluation activities for purposes of planning and budget certification (sec. 222)

The Senate amendment contained a provision (sec. 216) that would amend section 196 of title 10, United States Code, to include modeling and simulation activities in the test and evaluation strategic plan and proposed test and evaluation budgets.

The House bill contained no similar provision.

The House recesses.

Limitation on availability of funds for F-35 Joint Strike Fighter Follow-On Modernization (sec. 223)

The Senate amendment contained a provision (sec. 221) that would limit the funds available for the F-35 Joint Strike Fighter Follow-On Modernization (FOM) program until the Secretary of Defense submits the report containing the basic elements of an acquisition program baseline for Block 4 modernization as required by section 224 of the National Defense Authorization Act (NDAA) for Fiscal Year 2017 (Public Law 114-238).

The House bill contained no similar amendment.

The House recedes with an amendment that would reduce the limitation to seventy-five percent of the funds authorized to be appropriated for F-35 FOM and a clarification that the limitations included in this provision and in section 224 of the NDAA for Fiscal Year 2017 shall not be construed to limit or restrict funding necessary to develop, certify, or deliver F-35A dual capable aircraft.

Improvement of update process for populating mission data files used in advanced combat aircraft (sec. 224)

The Senate amendment contained a provision (sec. 222) that would require the Department of Defense to refine the process of updating mission data files used in advanced combat aircraft so that they may be updated more quickly.

The House bill contained no similar provision.

The House recedes.

Support for national security innovation and entrepreneurial education (sec. 225)

The House bill contained a provision (sec. 222) that would authorize the Secretary of Defense to establish a Hacking for Defense program under which the Secretary may obligate or expend up to \$15,000,000 to support university-based entrepreneurial education programs, including: (A) materials to recruit veterans for such programs; (B) model curriculum for such programs; (C) training materials for such programs; and (D) best practices for the conduct of such programs.

The Senate amendment contained a similar provision (sec. 10201) that would authorize the Secretary of Defense to support national security innovation and entrepreneurial education programs. The provision would also authorize the Secretary to develop and maintain metrics to assess these activities and ensure that any recipient of a small business award has the option to participate in training under this program.

The House recedes with an amendment that would clarify the existing Department of Defense activities with which the Secretary of Defense should consider coordinating and partnering in executing the activities of this program.

The conferees recognize that the ability of the Department of Defense to respond to evolving national security challenges would benefit by a workforce that is increasingly exposed to, and has an understanding of, modern problem-solving techniques and innovative methodologies. The conferees also believe that by presenting national security problems to universities and education centers, increasingly diverse stakeholder

participation will aid in the rapid development of solutions to national security challenges and improve Department of Defense recruitment of young technologists and engineers with critical skill sets, including cyber capabilities. These sorts of programs may also be useful in providing a unique pathway for veterans, federal employees, and military personnel to leverage their training, experience, and expertise to solve emerging national security challenges while learning cutting-edge business innovation methodologies.

Limitation on cancellation of designation Executive Agent for a certain Defense Production Act program (sec. 226)

The Senate amendment contained a provision (sec. 14006) that would require that the Secretary of the Air Force to continue serving as the Department of Defense Executive Agent for the Defense Production Act Programs.

The House bill contained no similar provision.

The House recedes with an amendment that would require the Secretary of Defense to complete a review and assessment of the Defense Production Act Title III program and brief the appropriate committees of jurisdiction. The amendment would also establish that the Secretary of Defense shall not change the assigned Department of Defense Executive Agent for the program prior to briefing the appropriate committees of jurisdiction.

SUBTITLE C - REPORTS AND OTHER MATTERS

Columbia-class program accountability matrices (sec. 231)

The House bill contained a provision (sec. 214) that would deem certain *Columbia*-class ballistic missile submarine components as critical technologies.

The Senate amendment contained no similar provision.

The Senate recedes with an amendment that would require submittal and periodic updates of matrices on *Columbia*-class cost, design and construction goals. The Comptroller General of the United States would be required to review and assess each periodic update. The amendment would also repeal section 131 of the National Defense Authorization Act for Fiscal Year 2016 (Public Law 114-92).

Review of barriers to innovation in research and engineering activities of the Department of Defense (sec. 232)

The Senate amendment contained a provision (sec. 220) that would require the establishment of a process under which the Under Secretary of Defense for Research and Engineering would review and modify Department of Defense regulations that would adversely affect the innovative capacity of the DOD.

The House bill contained no similar provision.

The House recesses with an amendment that would require the Secretary of Defense to provide an annual report to the congressional defense committees, developed in coordination with relevant Under Secretaries and Service Secretaries, describing specific impediments to innovation and methods by which to address such impediments. The report shall also articulate the process for review of directives, rules, regulations, and other policies for their potential to adversely affect the ability of the research and engineering enterprise of the Department of Defense to execute its designated missions.

Pilot program to improve incentives for technology transfer from Department of Defense laboratories (sec. 233)

The House bill contained a provision (sec. 223) that would require the Secretary of Defense, in coordination with the Secretary of Energy, to conduct a pilot program among defense laboratories (as defined in section 2199 of title 10, United States Code), national laboratories (as defined in section 188(f) of title 10, United States Code), and private entities to facilitate the licensure, transfer, and commercialization of innovative technologies.

The Senate amendment contained a similar provision (sec. 5202) that would require the Secretary of Defense to establish a pilot program to assess the feasibility and advisability of distributing royalties and other payments to the inventors or co-inventors of technologies whose rights are directly assigned to the United States. The pilot program under this section would terminate five years after the date of the enactment of this Act.

The House recesses.

The conferees are aware that questions have been raised regarding the transfer of some technology developed by the national laboratories when using Department of Defense funding. The conferees therefore direct the Administrator for Nuclear Security and the Secretary of Defense to provide a briefing to the Armed Services Committees of the Senate and House of Representatives no later than January 30, 2018. This briefing should address plans to improve opportunities for technology transfer with regard to defense technology that was developed by the nuclear security laboratories for the Department of Defense

or military services, including a description of which agency owns such technology and opportunities for coordination to facilitate technology transfer, as appropriate.

Competitive acquisition plan for low probability of detection data link networks (sec. 234)

The Senate amendment contained a provision (sec. 231) that would require the Under Secretary of Defense for Acquisition, Technology and Logistics (USD AT&L) (or its successor) and the Vice Chairman of the Joint Chiefs of Staff (VCJCS) to provide a plan for a competitive acquisition process to procure a secure, low probability of detection data link network capability.

The House bill contained no similar provision.

The House recedes with an amendment that would specify that the USD AT&L and VCJCS provide the defense committees potential acquisition strategies and would change the limitation of funds from the offices of the Secretary of Defense and Chairman of the Joint Chiefs of Staff to the offices of the Secretary of the Air Force and the Secretary of the Navy.

Clarification of selection dates for pilot program for the enhancement of the research, development, test, and evaluation centers of the Department of Defense (sec. 235)

The Senate amendment contained a provision (sec. 232) that would make clarifications and edits to the laboratory management demonstration program established in section 233 of the National Defense Authorization Act for Fiscal Year 2017 (Public Law 114-328). The provision would clarify the date limitations for consideration of an application to join the pilot program, and it would also clarify that any proposals pursuant to the pilot program shall be submitted to the appropriate assistant secretary.

The House bill contained no similar provision.

The House recedes.

Requirement for a plan to build a prototype for a new ground combat vehicle for the Army (sec. 236)

The Senate amendment contained a provision (sec. 233) that would require the Secretary of the Army to submit a report to the congressional defense committees on a plan to build a prototype for a new ground combat vehicle within 90 days of the enactment of this Act.

The House bill contained no similar provision.

The House recesses with an amendment that would require the Secretary of the Army to submit its plan not later than February 1, 2018.

The conferees encourage the Secretary of the Army to use all available acquisition authorities to the fullest extent possible to plan to build a prototype for a new ground combat vehicle. The conferees are interested in how the Army intends to exploit the latest enabling component technologies that have the potential to dramatically change basic combat vehicle design and improve lethality, protection, mobility, range, and sustainment. The required report should include an analysis of capabilities of the most advanced foreign ground combat vehicles and whether any have characteristics that should inform the development of the Army's prototype vehicle, including whether any U.S. allies or partners have advanced capabilities that could be directly incorporated in the prototype. Such technologies would include vehicle active protection systems with hard and soft kill capabilities, reactive armor, composite armor, thermal signature reduction, noise reduction, fuel cell propulsion, opposed-piston engines, 32 speed transmissions, suspension, power generation, voltage management, 3rd generation forward looking infrared sights, integrated hostile fire detection, manned-unmanned teaming, automatic loaders, munitions, and cannons.

Plan for successfully fielding the Integrated Air and Missile Defense Battle Command System (sec. 237)

The Senate amendment contained a provision (sec. 234) that would require the Secretary of the Army to submit to the congressional defense committees a plan to successfully field a suitable, survivable, and effective Integrated Air and Missile Defense Battle Command System (IBCS) program. The committee directs the Secretary to submit this plan within 180 days of the enactment of this Act. Furthermore, none of the funds authorized may be obligated until receipt of the Army's report.

The House Bill contained no similar provision.

The House recesses with an amendment that would require the Secretary of the Army to submit its plan not later than February 1, 2018. The amendment also stipulates that not more than 50 percent of the funds authorized may be obligated by the Secretary of the Army.

The conferees are concerned that this developmental program is not meeting schedule and performance objectives after having become a program of record over 7 years ago. The conferees are aware that the Army has delayed a Milestone C decision for limited production for 4 years.

Given that the Army has already expended over \$2.1 billion on this program with the expected requirement to spend much more, the conferees are concerned current software will soon become obsolete before a functional IBCS is fielded.

LEGISLATIVE PROVISIONS NOT ADOPTED

Codification and enhancement of authorities to provide funds for defense laboratories for research and development of technologies for military missions

The Senate amendment contained a provision (sec. 212) that would amend chapter 139 of title 10, United States Code, to codify the research authorities of the defense laboratories originally established in section 219 of the Duncan Hunter National Defense Authorization Act for Fiscal Year 2009 (Public Law 110-417) and improved and made permanent in subsequent legislation.

The Senate amendment also contained a provision (sec. 10202) that would remove force and effect from section 212.

The Senate recesses.

The conferees note that the codification of these authorities is contained elsewhere in this Act.

Hypersonic airbreathing weapons capabilities

The House bill contained a provision (sec. 216) that would allow the Secretary of Defense to transfer oversight and management of the Hypersonic Airbreathing Weapons Concept from the Defense Advanced Research Projects Agency to an entity of the Air Force.

The Senate amendment contained no similar provision.

The House recesses.

Limitation on availability of funds for MQ-25 unmanned air system

The House bill contained a provision (sec. 217) that would limit funding for the MQ-25 program until certain conditions are met.

The Senate amendment contained no similar provision.

The House recesses.

Differentiation of research and development activities from service activities

The Senate amendment contained a provision (sec. 217) that would differentiate between research and development activities and service activities through the establishment of clear definitions for each activity.

The House bill contained no similar provision.

The Senate recesses.

Limitation on availability of funds for contract writing systems

The House bill contained a provision (sec. 218) that would limit the availability of funds for contract writing systems.

The Senate amendment contained no similar provision.

The House recesses.

The conferees remain concerned that the military services continue to procure individual, functionally stove-piped business systems when there appear to be efficiencies and cost-savings that might be gained by consolidating acquisitions around areas with similar requirements. The conferees are encouraged by the Department of Defense's efforts to take a portfolio approach to contract-writing systems. The conferees recognize the challenge in reducing and consolidating the overall numbers of systems based on the lack of sustained focus on overall information technology modernization, but the burgeoning focus on data transparency vice systems integration indicates that this problem may be surmountable over time as current practices take hold within the Department.

Based on the progress in this area, the conferees encourage the Department to initiate or accelerate such efforts in other areas, to include personnel and pay, financial management, and enterprise resource programs. In addition to a portfolio approach, the conferees believe that these initiatives could be accelerated by leveraging the use of fixed-price contracting, pursuing the use of commercial-off-the-shelf solutions that minimize customization, and more frequent delivery of increments.

The conferees also encourage the Department to leverage the pilot program for agile and iterative development for software systems elsewhere in this Act as a means to test out some of the concepts, and to serve as a pathfinder for other programs.

Strategy for use of virtual training technology

The House bill contained a provision (sec. 219) that would require the Secretary of Defense to direct the head of each military department to establish a comprehensive strategy to determine what capability gaps exist in the department that can

be rectified with virtual training; to review the virtual training possibilities for this gap to determine what virtual training would rectify this gap most efficiently; and to determine what acquisitions would need to be made to acquire the correct amount of technology to achieve desired goals.

The Senate amendment contained no similar provision.

The House recesses.

Increase in funding for electronics and electronic devices of the Army

The House bill contained a provision (sec. 220) that would increase funding for Applied Research, Electronics and Electronic Devices.

The Senate amendment contained no similar provision.

The House recesses.

Increase in funding for Historically Black Colleges and Universities and Minority Institutions

The House bill contained a provision (sec. 221) that would authorize funds to be appropriated in section 4201 for research, development, test, and evaluation, Defense-wide, as specified in the corresponding funding table in section 4201, for Basic Research, Historically Black Colleges and Universities/Minority Institutions, Line 006, to increase by \$4,135,000.

The Senate amendment contained a similar provision (sec. 236) that would authorize funds to be appropriated in Research, Development, Test, and Evaluation, Defense-wide, PE 61228D8Z, section 4201, for Basic Research, Historically Black Colleges and Universities/Minority Institutions, Line 006, to increase by \$12,000,000.

The House recesses.

The Senate recesses.

The conferees note that historically black colleges and universities (HBCUs) and minority-serving institutions (MSI) play a vital role in educating diverse and underrepresented students in areas of national security need, particularly in areas of science, technology, engineering, and mathematics. For many years, these institutions have been collaborating with the Department of Defense in research and development efforts that contribute to the defense readiness and national security of the nation. The conferees have supported both greater participation among HBCU/MSI, as well as increased opportunities within the Department of Defense to find means to leverage that expertise more broadly, such as through internships, outside review committees and advisory groups.

Furthermore, the conferees recognize that these institutions are vital in developing the next generation of scientists and engineers who will help lead the Department of Defense in addressing high-priority national security challenges. It is important to further engage HBCUs and minority-serving institutions in university research and innovation, especially in prioritizing software development and cyber security by utilizing existing Department of Defense labs, and collaborating with existing programs that help attract candidates, including programs like the Air Force Minority Leaders Programs, which recruit Americans from diverse background to serve their country through service in our Nation's military.

The conferees also note that although these provisions are not adopted, the increase in funds authorized by them is still included in the funding tables in Section 4201.

STEM(MM) jobs action plan

The House bill contained a provision (sec. 224) that would direct the Secretary of Defense, in conjunction with the Secretary of each military department to perform an assessment of the science, technology, engineering, math, maintenance, and manufacturing (STEM(MM)) workforce for organizations within the Department of Defense, including the numbers and types of positions and the expectations for losses due to retirements and voluntary departures; identify the types and quantities of STEM(MM) jobs needed to support future mission work; determine the shortfall between lost STEM(MM) personnel and future requirements; analyze and explain the appropriateness and impact of using reimbursable and working capital fund dollars for new STEM(MM) hires; identify a plan of action to address the STEM(MM) jobs gap, including hiring strategies and timelines for replacement of STEM(MM) employees; and deliver to Congress, not later than December 31, 2018, a report specifying such plan of action.

The Senate amendment contained no similar provision.

The House recesses.

The conferees note that jobs in STEM(MM) make up a significant portion of the workforce of the Department of Defense. Many of these jobs exist within the organic industrial base, research, development, and engineering centers, life-cycle management commands, and logistics centers of the Department, and are thus vital to the mission of all of the military services. Because the demographics of personnel of the Department indicate that many of the STEM(MM) personnel of the Department will be eligible to retire in the next few years, the

conferees believe the Department should be taking decisive, proactive action to ensure there is sufficient personnel for these areas, and that any further skills and knowledge gap does not lead to a serious readiness gap.

Jet noise reduction program of the Navy

The House bill contained a provision (sec. 226) that would authorize the Secretary of the Navy to carry out a jet noise reduction program.

The Senate amendment contained no similar provision.

The House recesses.

Process for coordination of studies and analysis research of the Department of Defense

The House bill contained a provision (sec. 227) that would require the Secretary of Defense to implement a Department of Defense-wide process under which the heads of the military departments and Defense Agencies responsible for managing requests for studies and analysis research would be required to coordinate annual research requests and ongoing research efforts to minimize duplication and reduce costs.

The Senate amendment contained no similar provision.

The House recesses.

Very-low profile hardware to interact with the Mobile User Objective Systems and other systems

The Senate amendment contained a provision (sec. 10205) that would increase funding for the Joint Tactical Information Distribution System. The funding increase would also allow the Secretary of Defense to study and demonstrate very-low profile hardware, such as antennae and chipsets, with software, encryption, and cyber and network management tools necessary to interact with the Mobile User Objective System (MUOS) and other systems that are considered part of the Internet of Things to provide command, control, communications, and cyber restoral capabilities.

The House bill had no similar provision.

The Senate recesses.