

**Suspend the Rules and Pass the Bill, H. R. 3578, With an
Amendment**

**(The amendment strikes all after the enacting clause and inserts a
new text)**

114TH CONGRESS
1ST SESSION

H. R. 3578

To amend the Homeland Security Act of 2002 to strengthen and make improvements to the Directorate of Science and Technology of the Department of Homeland Security, and for other purposes.

IN THE HOUSE OF REPRESENTATIVES

SEPTEMBER 18, 2015

Mr. RATCLIFFE (for himself and Mr. RICHMOND) introduced the following bill;
which was referred to the Committee on Homeland Security

A BILL

To amend the Homeland Security Act of 2002 to strengthen and make improvements to the Directorate of Science and Technology of the Department of Homeland Security, and for other purposes.

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

3 **SECTION 1. SHORT TITLE.**

4 This Act may be cited as the “DHS Science and
5 Technology Reform and Improvement Act of 2015”.

1 **SEC. 2. SCIENCE AND TECHNOLOGY IN SUPPORT OF HOME-**
2 **LAND SECURITY.**

3 (a) IN GENERAL.—Title III of the Homeland Secu-
4 rity Act of 2002 is amended—

5 (1) in section 301 (6 U.S.C. 181)—

6 (A) by striking “There” and inserting the
7 following new subsection:

8 “(a) IN GENERAL.—There”; and

9 (B) by adding at the end the following new
10 subsection:

11 “(b) MISSION.—The Directorate of Science and
12 Technology shall be the primary research, development,
13 testing, and evaluation arm of the Department, respon-
14 sible for coordinating the research, development, testing,
15 and evaluation of the Department to strengthen the secu-
16 rity and resiliency of the United States. The Directorate
17 shall—

18 “(1) develop and deliver knowledge, analyses,
19 and innovative solutions that are responsive to
20 homeland security capability gaps and threats to the
21 homeland identified by components and offices of the
22 Department, the first responder community, and the
23 Homeland Security Enterprise (as such term is de-
24 fined in section 322) and that can be integrated into
25 operations of the Department;

1 “(2) seek innovative, system-based solutions to
2 complex homeland security problems and threats;
3 and

4 “(3) build partnerships and leverage technology
5 solutions developed by other Federal agencies and
6 laboratories, State, local, and tribal governments,
7 universities, and the private sector.”;

8 (2) in section 302 (6 U.S.C. 182)—

9 (A) in the matter preceding paragraph (1),
10 by striking “The Secretary, acting through the
11 Under Secretary for Science and Technology,
12 shall” and inserting the following new sub-
13 section:

14 “(a) IN GENERAL.—The Secretary, acting through
15 the Under Secretary for Science and Technology, shall
16 carry out the mission described in subsection (b) of section
17 301 and shall”;

18 (B) in subsection (a), as so amended by
19 subparagraph (A) of this paragraph—

20 (i) in paragraph (1), by inserting
21 “and serving as the senior scientific advi-
22 sor to the Secretary” before the semicolon
23 at the end;

24 (ii) in paragraph (2)—

25 (I) by striking “national”;

1 (II) by striking “biological,,” and
2 inserting “biological,”; and

3 (III) by inserting “that may
4 serve as a basis of a national strat-
5 egy” after “terrorist threats”;

6 (iii) in paragraph (3)—

7 (I) by striking “the Under Sec-
8 retary for Intelligence and Analysis
9 and the Assistant Secretary for Infra-
10 structure Protection” and inserting
11 “components and offices of the De-
12 partment”; and

13 (II) by inserting “terrorist” be-
14 fore “threats”;

15 (iv) in paragraph (4), by striking “ex-
16 cept that such responsibility does not ex-
17 tend to human health-related research and
18 development activities” and inserting the
19 following: “including coordinating with rel-
20 evant components and offices of the De-
21 partment appropriate to—

22 “(A) identify and prioritize technical capa-
23 bility requirements and create solutions that in-
24 clude researchers, the private sector, and oper-
25 ational end users, and

1 “(B) develop capabilities to address issues
2 on research, development, testing, evaluation,
3 technology, and standards for the first re-
4 sponder community,
5 except that such responsibility does not extend to
6 the human health-related research and development
7 activities;”.

8 (v) in paragraph (5)(A), by striking
9 “biological,,” and inserting “biological,,”;

10 (vi) by amending paragraph (12) to
11 read as follows:

12 “(12) coordinating and integrating all research,
13 development, demonstration, testing, and evaluation
14 activities of the Department, including through a
15 centralized Federal clearinghouse established pursu-
16 ant to paragraph (1) of section 313(b) for informa-
17 tion relating to technologies that would further the
18 mission of the Department, and providing advice, as
19 necessary, regarding major acquisition programs;”.

20 (vii) in paragraph (13), by striking
21 “and” at the end;

22 (viii) in paragraph (14), by striking
23 the period at the end and inserting a semi-
24 colon; and

1 (ix) by adding at the end the following
2 new paragraphs:

3 “(15) establishing a process that—

4 “(A) includes consideration by Directorate
5 leadership, senior component leadership, first
6 responders, and outside expertise;

7 “(B) is strategic, transparent, and repeat-
8 able with a goal of continuous improvement;

9 “(C) through which research and develop-
10 ment projects undertaken by the Directorate
11 are assessed on a regular basis; and

12 “(D) includes consideration of metrics to
13 ensure research and development projects meet
14 Directorate and Department goals and inform
15 departmental budget and program planning;

16 “(16) developing and overseeing the administra-
17 tion of guidelines for periodic external review of de-
18 partmental research and development programs or
19 activities, including through—

20 “(A) consultation with experts, including
21 scientists and practitioners, regarding the re-
22 search and development activities conducted by
23 the Directorate of Science and Technology; and

24 “(B) biennial independent, external re-
25 view—

1 “(i) initially at the division level; or

2 “(ii) when divisions conduct multiple
3 programs focused on significantly different
4 subjects, at the program level; and

5 “(17) partnering with components and offices
6 of the Department to develop and deliver knowledge,
7 analyses, and innovative solutions that are respon-
8 sive to identified homeland security capability gaps
9 and threats to the homeland and raise the science-
10 based, analytic capability and capacity of appro-
11 priate individuals throughout the Department by
12 providing guidance on how to better identify home-
13 land security capability gaps and threats to the
14 homeland that may be addressed through a techno-
15 logical solution and by partnering with such compo-
16 nents and offices to—

17 “(A) support technological assessments of
18 major acquisition programs throughout the ac-
19 quisition lifecycle;

20 “(B) help define appropriate technological
21 requirements and perform feasibility analysis;

22 “(C) assist in evaluating new and emerging
23 technologies against homeland security capa-
24 bility gaps and terrorist threats;

25 “(D) support evaluation of alternatives;

1 “(E) improve the use of technology De-
2 partment-wide; and

3 “(F) provide technical assistance in the de-
4 velopment of acquisition lifecycle cost for tech-
5 nologies;

6 “(18) acting as a coordinating office for tech-
7 nology development for the Department by helping
8 components and offices define technological require-
9 ments, and building partnerships with appropriate
10 entities (such as within the Department and with
11 other Federal agencies and laboratories, State, local,
12 and tribal governments, universities, and the private
13 sector) to help each such component and office at-
14 tain the technology solutions it needs;

15 “(19) coordinating with organizations that pro-
16 vide venture capital to businesses, particularly small
17 businesses, as appropriate, to assist in the commer-
18 cialization of innovative homeland security tech-
19 nologies that are expected to be ready for commer-
20 cialization in the near term and within 36 months.”;
21 and

22 (C) by adding at the end the following new
23 subsections:

24 “(b) REVIEW OF RESPONSIBILITIES.—Not later than
25 180 days after the date of the enactment of this sub-

1 section, the Under Secretary for Science and Technology
2 shall submit to the Committee on Homeland Security and
3 the Committee on Science, Space, and Technology of the
4 House of Representatives and the Committee on Home-
5 land Security and Governmental Affairs of the Senate a
6 report on the implementation of paragraphs (2) (including
7 how the policy and strategic plan under such paragraph
8 may serve as a basis for a national strategy referred to
9 in such paragraph), (11), (12), (13), (16), and (17) of
10 subsection (a).”;

11 (3) in section 303(1) (6 U.S.C. 183(1)), by
12 striking subparagraph (F);

13 (4) in section 305 (6 U.S.C. 185)—

14 (A) by striking “The” and inserting the
15 following new subsection:

16 “(a) ESTABLISHMENT.—The”; and

17 (B) by adding at the end the following new
18 subsection:

19 “(b) CONFLICTS OF INTEREST.—The Secretary shall
20 review and revise, as appropriate, the policies of the De-
21 partment relating to personnel conflicts of interest to en-
22 sure that such policies specifically address employees of
23 federally funded research and development centers estab-
24 lished pursuant to subsection (a) who are in a position

1 to make or materially influence research findings or agen-
2 cy decision making.”;

3 (5) in section 306 (6 U.S.C. 186)—

4 (A) in subsection (e), by adding at the end
5 the following new sentence: “If such regulations
6 are issued, the Under Secretary shall report to
7 the Committee on Homeland Security and the
8 Committee on Science, Space, and Technology
9 of the House of Representatives and the Com-
10 mittee on Homeland Security and Govern-
11 mental Affairs of the Senate prior to such
12 issuance.”; and

13 (B) by amending subsection (d) to read as
14 follows:

15 “(d) PERSONNEL.—In hiring personnel for the Direc-
16 torate of Science and Technology, the Secretary shall have
17 the hiring and management authorities described in sec-
18 tion 1101 of the Strom Thurmond National Defense Au-
19 thorization Act for Fiscal Year 1999 (5 U.S.C. 3104 note;
20 Public Law 105–261). The term of appointments for em-
21 ployees under subsection (c)(1) of such section may not
22 exceed five years before the granting of any extension
23 under subsection (c)(2) of such section.”;

24 (6) in section 308 (6 U.S.C. 188)—

25 (A) in subsection (b)(2)—

1 (i) in subparagraph (B)—

2 (I) in clause (iv), by striking
3 “and nuclear countermeasures or de-
4 tection” and inserting “nuclear, and
5 explosives countermeasures or detec-
6 tion (which may include research into
7 remote sensing and remote imaging)”;
8 and

9 (II) by adding after clause (xiv)
10 the following new clause:

11 “(xv) Cybersecurity.”; and

12 (ii) by amending subparagraph (D) to
13 read as follows:

14 “(D) ANNUAL REPORT TO CONGRESS.—

15 Not later than one year after the date of the
16 enactment of this subparagraph and annually
17 thereafter, the Secretary shall submit to Con-
18 gress a report on the implementation of this
19 section. Each such report shall—

20 “(i) indicate which center or centers
21 have been designated pursuant to this sec-
22 tion;

23 “(ii) describe how such designation or
24 designations enhance homeland security;

1 “(iii) provide information on any deci-
2 sions to revoke or modify such designation
3 or designations;

4 “(iv) describe research that has been
5 tasked and completed by each center that
6 has been designated during the preceding
7 year;

8 “(v) describe funding provided by the
9 Secretary for each center under clause (iv)
10 for that year; and

11 “(vi) describe plans for utilization of
12 each center or centers in the forthcoming
13 year.”; and

14 (B) by adding at the end the following new
15 subsection:

16 “(d) TEST, EVALUATION, AND STANDARDS DIVI-
17 SION.—

18 “(1) ESTABLISHMENT.—There is established in
19 the Directorate of Science and Technology a Test,
20 Evaluation, and Standards Division.

21 “(2) DIRECTOR.—The Test, Evaluation, and
22 Standards Division shall be headed by a Director of
23 Test, Evaluation, and Standards, who shall be ap-
24 pointed by the Secretary and report to the Under
25 Secretary for Science and Technology.

1 “(3) RESPONSIBILITIES, AUTHORITIES, AND
2 FUNCTIONS.—The Director of Test, Evaluation, and
3 Standards—

4 “(A) through the Under Secretary for
5 Science and Technology, serve as an adviser to
6 the Secretary and the Under Secretary of Man-
7 agement on all test and evaluation or standards
8 activities in the Department; and

9 “(B) shall—

10 “(i) establish and update as necessary
11 test and evaluation policies for the Depart-
12 ment, including policies to ensure that
13 operational testing is done at facilities that
14 already have relevant and appropriate safe-
15 ty and material certifications to the extent
16 such facilities are available;

17 “(ii) oversee and ensure that adequate
18 test and evaluation activities are planned
19 and conducted by or on behalf of compo-
20 nents and offices of the Department with
21 respect to major acquisition programs of
22 the Department, as designated by the Sec-
23 retary, based on risk, acquisition level, nov-
24 elty, complexity, and size of any such ac-

1 quisition program, or as otherwise estab-
2 lished in statute;

3 “ (iii) review major acquisition pro-
4 gram test reports and test data to assess
5 the adequacy of test and evaluation activi-
6 ties conducted by or on behalf of compo-
7 nents and offices of the Department, in-
8 cluding test and evaluation activities
9 planned or conducted pursuant to clause
10 (ii); and

11 “ (iv) review available test and evalua-
12 tion infrastructure to determine whether
13 the Department has adequate resources to
14 carry out its testing and evaluation respon-
15 sibilities, as established under this title.

16 “ (4) LIMITATION.—The Test, Evaluation, and
17 Standards Division is not required to carry out oper-
18 ational testing of major acquisition programs.

19 “ (5) EVALUATION OF DEPARTMENT OF DE-
20 FENSE TECHNOLOGIES.—The Director of Test,
21 Evaluation, and Standards may evaluate tech-
22 nologies currently in use or being developed by the
23 Department of Defense to assess whether such tech-
24 nologies can be leveraged to address homeland secu-
25 rity capability gaps.”;

1 (7) in section 309(a) (6 U.S.C. 189(a)), by add-
2 ing at the end the following new paragraph:

3 “(3) TREATMENT OF CERTAIN FUNDS.—Not-
4 withstanding any other provision of law, any funds
5 provided to a Department of Energy national labora-
6 tory by the Department may not be treated as an
7 assisted acquisition.”;

8 (8) in section 310 (6 U.S.C. 190), by adding at
9 the end the following new subsection:

10 “(e) SUCCESSOR FACILITY.—Any successor facility
11 to the Plum Island Animal Disease Center, including the
12 National Bio and Agro-Defense Facility (NBAF) under
13 construction as of the date of the enactment of this sub-
14 section, which is intended to the replace the Plum Island
15 Animal Disease Center shall be subject to the require-
16 ments of this section in the same manner and to the same
17 extent as the Plum Island Animal Disease Center under
18 this section.”;

19 (9) in section 311 (6 U.S.C. 191)—

20 (A) in subsection (b)—

21 (i) in paragraph (1)—

22 (I) by striking “20 members”
23 and inserting “not fewer than 15 and
24 not more than 30”; and

1 (II) by inserting “academia, na-
2 tional labs, private industry, and”
3 after “representatives of”;

4 (ii) by redesignating paragraph (2) as
5 paragraph (3); and

6 (iii) by inserting after paragraph (1)
7 the following new paragraph:

8 “(2) SUBCOMMITTEES.—The Advisory Com-
9 mittee may establish subcommittees that focus on
10 research and development challenges, as appro-
11 priate.”;

12 (B) in subsection (c)—

13 (i) in paragraph (1), by inserting “on
14 a rotating basis” before the period at the
15 end;

16 (ii) by striking paragraph (2) and re-
17 designating paragraph (3) as paragraph
18 (2); and

19 (iii) in paragraph (2), as so redesign-
20 ated, by striking “be appointed” and in-
21 serting “serve”;

22 (C) in subsection (e), in the second sen-
23 tence, by striking “the call of”;

24 (D) in subsection (h)—

25 (i) in paragraph (1)—

- 1 (I) in the first sentence—
- 2 (aa) by striking “render”
- 3 and inserting “submit”; and
- 4 (bb) by striking “Congress”
- 5 and inserting “the appropriate
- 6 congressional committees”;
- 7 (II) in the second sentence, by
- 8 inserting “, and incorporate the find-
- 9 ings and recommendations of the Ad-
- 10 visory Committee subcommittees,” be-
- 11 fore “during”; and
- 12 (ii) in paragraph (2)—
- 13 (I) striking “render” and insert-
- 14 ing “submit”; and
- 15 (II) by striking “Congress” and
- 16 inserting “the Committee on Home-
- 17 land Security and the Committee on
- 18 Science, Space, and Technology of the
- 19 House of Representatives and the
- 20 Committee on Homeland Security and
- 21 Governmental Affairs of the Senate”;
- 22 (E) in subsection (i), by inserting “, except
- 23 that the Advisory Committee shall file a charter
- 24 with Congress every two years in accordance
- 25 with subsection (b)(2) of such section (14)”;

1 (F) in subsection (j), by striking “2008”
2 and inserting “2020”;

3 (10) in section 313 (6 U.S.C. 193)—

4 (A) by redesignating subsection (c) as sub-
5 section (d); and

6 (B) by inserting after subsection (b) the
7 following new subsection:

8 “(c) APPLICATION OF PROGRAM.—The Secretary,
9 acting through the Under Secretary for Science and Tech-
10 nology, shall use the program established under subsection
11 (a) to—

12 “(1) enhance the cooperation between compo-
13 nents and offices of the Department on projects that
14 have similar goals, timelines, or outcomes;

15 “(2) ensure the coordination of technologies to
16 eliminate unnecessary duplication of research and
17 development;

18 “(3) ensure technologies are accessible for com-
19 ponent and office use on a Department website; and

20 “(4) carry out any additional purpose the Sec-
21 retary determines necessary.”;

22 (11) by adding after section 317 (6 U.S.C.
23 195c) the following new sections:

1 **“SEC. 318. IDENTIFICATION AND PRIORITIZATION OF RE-**
2 **SEARCH AND DEVELOPMENT.**

3 “(a) IN GENERAL.—Not later than 180 days after
4 the date of the enactment of this section, the Under Sec-
5 retary for Science and Technology shall establish a process
6 to define, identify, prioritize, fund, and task the basic and
7 applied homeland security research and development ac-
8 tivities of the Directorate of Science and Technology to
9 meet the needs of the components and offices of the De-
10 partment, the first responder community, and the Home-
11 land Security Enterprise (as such term is defined in sec-
12 tion 322).

13 “(b) PROCESS.—The process established under sub-
14 section (a) shall—

15 “(1) be responsive to near-, mid-, and long-term
16 needs, including unanticipated needs to address
17 emerging terrorist threats;

18 “(2) utilize gap analysis and risk assessment
19 tools where available and applicable;

20 “(3) include protocols to assess—

21 “(A) off-the-shelf technology to determine
22 if an identified homeland security capability gap
23 or threat to the homeland can be addressed
24 through the acquisition process instead of com-
25 mencing research and development of tech-

1 nology to address such capability gap or threat;
2 and

3 “(B) communication and collaboration for
4 research and development activities pursued by
5 other executive agencies, to determine if tech-
6 nology can be leveraged to identify and address
7 homeland security capability gaps or threats to
8 the homeland and avoid unnecessary duplication
9 of efforts;

10 “(4) provide for documented and validated re-
11 search and development requirements;

12 “(5) strengthen first responder participation to
13 identify and prioritize homeland security techno-
14 logical gaps, including by—

15 “(A) soliciting feedback from appropriate
16 national associations and advisory groups rep-
17 resenting the first responder community and
18 first responders within the components and of-
19 fices of the Department; and

20 “(B) establishing and promoting a publicly
21 accessible portal to allow the first responder
22 community to help the Directorate of Science
23 and Technology develop homeland security re-
24 search and development goals;

1 “(6) institute a mechanism to publicize the De-
2 partment’s homeland security technology priorities
3 for the purpose of informing Federal, State, and
4 local governments, first responders, and the private
5 sector;

6 “(7) establish considerations to be used by the
7 Directorate in selecting appropriate research enti-
8 ties, including the national laboratories, federally
9 funded research and development centers, university-
10 based centers, and the private sector, to carry out
11 research and development requirements;

12 “(8) incorporate feedback derived as a result of
13 the mechanism established in section 323, ensuring
14 the Directorate is utilizing regular communication
15 with components and offices of the Department; and

16 “(9) include any other criteria or measures the
17 Under Secretary for Science and Technology con-
18 siders necessary for the identification and
19 prioritization of research requirements.

20 **“SEC. 319. DEVELOPMENT OF DIRECTORATE STRATEGY**
21 **AND RESEARCH AND DEVELOPMENT PLAN.**

22 “(a) STRATEGY.—

23 “(1) IN GENERAL.—Not later than one year
24 after the date of the enactment of this section, the
25 Under Secretary for Science and Technology shall

1 develop and submit to the Committee on Homeland
2 Security and the Committee on Science, Space, and
3 Technology of the House of Representatives and the
4 Committee on Homeland Security and Governmental
5 Affairs of the Senate a strategy to guide the activi-
6 ties of the Directorate of Science and Technology.
7 Such strategy shall be updated at least once every
8 five years and shall identify priorities and objectives
9 for the development of science and technology solu-
10 tions and capabilities addressing homeland security
11 operational needs. Such strategy shall include the
12 coordination of such priorities and activities within
13 the Department. Such strategy shall take into ac-
14 count the priorities and needs of stakeholders in the
15 Homeland Security Enterprise (as such term is de-
16 fined in section 322). In developing such strategy,
17 efforts shall be made to support collaboration and
18 avoid unnecessary duplication across the Federal
19 Government. Such strategy shall be risk-based and
20 aligned with other strategic guidance provided by—
21 “(A) the National Strategy for Homeland
22 Security;
23 “(B) the Quadrennial Homeland Security
24 Review; and

1 “(C) any other relevant strategic planning
2 documents, as determined by the Under Sec-
3 retary.

4 “(2) CONTENTS.—The strategy required under
5 paragraph (1) shall be prepared in accordance with
6 applicable Federal requirements and guidelines, and
7 shall include the following:

8 “(A) An identification of the long-term
9 strategic goals, objectives, and metrics of the
10 Directorate, including those to address terrorist
11 threats.

12 “(B) A technology transition strategy for
13 the programs of the Directorate.

14 “(C) Short- and long-term strategic goals,
15 and objectives for increasing the number of des-
16 ignations and certificates issued under subtitle
17 G of title VIII, including cybersecurity tech-
18 nologies that could significantly reduce, or miti-
19 gate the effects of, cybersecurity risks (as such
20 term is defined in subsection (a)(1) of the sec-
21 ond section 226, relating to the national cyber-
22 security and communications integration cen-
23 ter), without compromising the quality of the
24 evaluation of applications for such designations
25 and certificates.

1 “(b) FIVE-YEAR RESEARCH AND DEVELOPMENT
2 PLAN.—

3 “(1) IN GENERAL.—The Under Secretary for
4 Science and Technology shall develop, and update at
5 least once every five years, a five-year research and
6 development plan for the activities of the Directorate
7 of Science and Technology. The Under Secretary
8 shall develop the first such plan by the date that is
9 not later than one year after the date of the enact-
10 ment of this section.

11 “(2) CONTENTS.—Each five-year research and
12 development plan developed and revised under sub-
13 section (a) shall—

14 “(A) define the Directorate of Science and
15 Technology’s research, development, testing,
16 and evaluation activities, priorities, performance
17 metrics, and key milestones and deliverables
18 for, as the case may be, the five-fiscal-year pe-
19 riod from 2016 through 2020, and for each
20 five-fiscal-year period thereafter;

21 “(B) describe, for the activities of the
22 strategy developed under subsection (a), the
23 planned annual funding levels for the period
24 covered by each such five-year research and de-
25 velopment plan;

1 “(C) indicate joint investments with other
2 Federal partners where applicable, and en-
3 hanced coordination, as appropriate, with orga-
4 nizations as specified in paragraph (19) of sec-
5 tion 302;

6 “(D) analyze how the research programs of
7 the Directorate support achievement of the
8 strategic goals and objectives identified in the
9 strategy required under subsection (a);

10 “(E) describe how the activities and pro-
11 grams of the Directorate meet the requirements
12 or homeland security capability gaps or threats
13 to the homeland identified by customers within
14 and outside of the Department, including the
15 first responder community; and

16 “(F) describe the policies of the Direc-
17 torate regarding the management, organization,
18 and personnel of the Directorate.

19 “(3) SCOPE.—The Under Secretary for Science
20 and Technology shall ensure that each five-year re-
21 search and development plan developed and revised
22 under subsection (a)—

23 “(A) reflects input from a wide range of
24 stakeholders; and

1 “(B) takes into account how research and
2 development by other Federal, State, private
3 sector, and nonprofit institutions contributes to
4 the achievement of the priorities identified in
5 each plan, and avoids unnecessary duplication
6 with such efforts.

7 “(4) REPORTS.—The Under Secretary for
8 Science and Technology shall submit to the Com-
9 mittee on Homeland Security and the Committee on
10 Science, Space, and Technology of the House of
11 Representatives and the Committee on Homeland
12 Security and Governmental Affairs of the Senate an
13 annual report for seven years beginning not later
14 than one year after the date of the development of
15 the initial five-year research and development plan
16 under paragraph (1) on the status and results to
17 date of the implementation of such plan and the up-
18 dates to such plan, including—

19 “(A) a summary of the research and devel-
20 opment activities for the previous fiscal year in
21 each mission area, including such activities to
22 address homeland security risks, including
23 threats, vulnerabilities, and consequences, and a
24 summary of the coordination activities under-
25 taken by the Directorate of Science and Tech-

1 nology for components and offices of the De-
2 partment, together with the results of the proc-
3 ess specified in paragraph (15) of section 302;

4 “(B) clear links between the Directorate’s
5 budget and each mission area or program, in-
6 cluding those mission areas or programs to ad-
7 dress homeland security risks, including
8 threats, vulnerabilities, and consequences, speci-
9 fying which mission areas or programs fall
10 under which budget lines, and clear links be-
11 tween Directorate coordination work and prior-
12 ities and annual expenditures for such work and
13 priorities, including joint investments with other
14 Federal partners, where applicable;

15 “(C) an assessment of progress of the re-
16 search and development activities based on the
17 performance metrics and milestones set forth in
18 such plan; and

19 “(D) any changes to such plan.

20 **“SEC. 320. MONITORING OF PROGRESS.**

21 “(a) IN GENERAL.—The Under Secretary for Science
22 and Technology shall establish and utilize a system to
23 track the progress of the research, development, testing,
24 and evaluation activities undertaken by the Directorate of
25 Science and Technology, and shall provide to the Com-

1 mittee on Homeland Security and the Committee on
2 Science, Space, and Technology of the House of Rep-
3 resentatives and the Committee on Homeland Security
4 and Governmental Affairs of the Senate and customers of
5 such activities, at a minimum on a biannual basis, regular
6 updates on such progress.

7 “(b) REQUIREMENTS.—In order to provide the
8 progress updates required under subsection (a), the Under
9 Secretary for Science and Technology shall develop a sys-
10 tem that—

11 “(1) monitors progress toward project mile-
12 stones identified by the Under Secretary;

13 “(2) maps progress toward deliverables identi-
14 fied in each five-year research and development plan
15 required under section 319(b);

16 “(3) generates up-to-date reports to customers
17 that transparently disclose the status and progress
18 of research, development, testing, and evaluation ef-
19 forts of the Directorate of Science and Technology;
20 and

21 “(4) allows the Under Secretary to report the
22 number of products and services developed by the
23 Directorate that have been transitioned into acquisi-
24 tion programs and resulted in successfully fielded
25 technologies.

1 “(c) EVALUATION METHODS.—

2 “(1) EXTERNAL INPUT, CONSULTATION, AND
3 REVIEW.—The Under Secretary for Science and
4 Technology shall implement procedures to engage
5 outside experts to assist in the evaluation of the
6 progress of research, development, testing, and eval-
7 uation activities of the Directorate of Science and
8 Technology, including through—

9 “(A) consultation with experts, including
10 scientists and practitioners, to gather inde-
11 pendent expert peer opinion and advice on a
12 project or on specific issues or analyses con-
13 ducted by the Directorate; and

14 “(B) periodic, independent, external review
15 to assess the quality and relevance of the Direc-
16 torate’s programs and projects.

17 “(2) COMPONENT FEEDBACK.—The Under Sec-
18 retary for Science and Technology shall establish a
19 formal process to collect feedback from customers of
20 the Directorate of Science and Technology on the
21 performance of the Directorate that includes—

22 “(A) appropriate methodologies through
23 which the Directorate can assess the quality
24 and usefulness of technology and services deliv-
25 ered by the Directorate;

1 “(B) development of metrics for measuring
2 the usefulness of any technology or service pro-
3 vided by the Directorate; and

4 “(C) standards for high-quality customer
5 service.

6 **“SEC. 321. HOMELAND SECURITY SCIENCE AND TECH-**
7 **NOLOGY FELLOWS PROGRAM.**

8 “(a) ESTABLISHMENT.—The Secretary, acting
9 through the Under Secretary for Science and Technology
10 and the Under Secretary for Management, shall establish
11 a fellows program, to be known as the Homeland Security
12 Science and Technology Fellows Program (in this section
13 referred to as the ‘Program’), under which the Under Sec-
14 retary for Science and Technology, in coordination with
15 the Office of University Programs of the Department,
16 shall facilitate the placement of fellows in relevant sci-
17 entific or technological fields for up to two years in compo-
18 nents and offices of the Department with a need for sci-
19 entific and technological expertise.

20 “(b) UTILIZATION OF FELLOWS.—

21 “(1) IN GENERAL.—Under the Program, the
22 Department may employ fellows—

23 “(A) for the use of the Directorate of
24 Science and Technology; or

1 “(B) for the use of a component or office
2 of the Department outside the Directorate,
3 under a memorandum of agreement with the
4 head of such a component or office under which
5 such component or office will reimburse the Di-
6 rectorate for the costs of such employment.

7 “(2) RESPONSIBILITIES.—Under an agreement
8 referred to in subparagraph (B) of paragraph (1)—

9 “(A) the Under Secretary for Science and
10 Technology and the Under Secretary for Man-
11 agement shall—

12 “(i) solicit and accept applications
13 from individuals who are currently enrolled
14 in or who are graduates of postgraduate
15 programs in scientific and engineering
16 fields related to the promotion of securing
17 the homeland or critical infrastructure sec-
18 tors;

19 “(ii) screen applicants and interview
20 them as appropriate to ensure that such
21 applicants possess the appropriate level of
22 scientific and engineering expertise and
23 qualifications;

24 “(iii) provide a list of qualified appli-
25 cants to the heads of components and of-

1 fices of the Department seeking to utilize
2 qualified fellows;

3 “(iv) subject to the availability of ap-
4 propriations, pay financial compensation to
5 such fellows;

6 “(v) coordinate with the Chief Secu-
7 rity Officer to facilitate and expedite provi-
8 sion of security and suitability clearances
9 to such fellows, as appropriate; and

10 “(vi) otherwise administer all aspects
11 of the employment of such fellows with the
12 Department; and

13 “(B) the head of the component or office
14 of the Department utilizing a fellow shall—

15 “(i) select such fellow from the list of
16 qualified applicants provided by the Under
17 Secretary;

18 “(ii) reimburse the Under Secretary
19 for the costs of employing such fellow, in-
20 cluding administrative costs; and

21 “(iii) be responsible for the day-to-day
22 management of such fellow.

23 “(c) APPLICATIONS FROM NONPROFIT ORGANIZA-
24 TIONS.—The Under Secretary for Science and Technology
25 may accept an application under subsection (b)(2)(A) that

1 is submitted by a nonprofit organization on behalf of indi-
2 viduals whom such nonprofit organization has determined
3 may be qualified applicants under the Program.

4 **“SEC. 322. CYBERSECURITY RESEARCH AND DEVELOP-**
5 **MENT.**

6 “(a) IN GENERAL.—The Under Secretary for Science
7 and Technology shall support research, development, test-
8 ing, evaluation, and transition of cybersecurity technology,
9 including fundamental research to improve the sharing of
10 information, analytics, and methodologies related to cyber-
11 security risks and incidents, consistent with current law.

12 “(b) ACTIVITIES.—The research and development
13 supported under subsection (a) shall serve the components
14 of the Department and shall—

15 “(1) advance the development and accelerate
16 the deployment of more secure information systems;

17 “(2) improve and create technologies for detect-
18 ing attacks or intrusions, including real-time contin-
19 uous diagnostics and real-time analytic technologies;

20 “(3) improve and create mitigation and recov-
21 ery methodologies, including techniques and policies
22 for real-time containment of attacks, and develop-
23 ment of resilient networks and information systems;

1 “(4) support, in coordination with the private
2 sector, the review of source code that underpins crit-
3 ical infrastructure information systems;

4 “(5) develop and support infrastructure and
5 tools to support cybersecurity research and develop-
6 ment efforts, including modeling, testbeds, and data
7 sets for assessment of new cybersecurity tech-
8 nologies;

9 “(6) assist the development and support of
10 technologies to reduce vulnerabilities in industrial
11 control systems; and

12 “(7) develop and support cyber forensics and
13 attack attribution.

14 “(c) COORDINATION.—In carrying out this section,
15 the Under Secretary for Science and Technology shall co-
16 ordinate activities with—

17 “(1) the Under Secretary appointed pursuant to
18 section 103(a)(1)(H);

19 “(2) the heads of other relevant Federal depart-
20 ments and agencies, including the National Science
21 Foundation, the Defense Advanced Research
22 Projects Agency, the Information Assurance Direc-
23 torate of the National Security Agency, the National
24 Institute of Standards and Technology, the Depart-
25 ment of Commerce, the Networking and Information

1 Technology Research and Development Program Of-
2 fice, Sector Specific Agencies for critical infrastruc-
3 ture, and other appropriate working groups estab-
4 lished by the President to identify unmet needs and
5 cooperatively support activities, as appropriate; and
6 “(3) industry and academia.

7 “(d) TRANSITION TO PRACTICE.—The Under Sec-
8 retary for Science and Technology shall support projects
9 through the full life cycle of such projects, including re-
10 search, development, testing, evaluation, pilots, and tran-
11 sitions. The Under Secretary shall identify mature tech-
12 nologies that address existing or imminent cybersecurity
13 gaps in public or private information systems and net-
14 works of information systems, identify and support nec-
15 essary improvements identified during pilot programs and
16 testing and evaluation activities, and introduce new cyber-
17 security technologies throughout the Homeland Security
18 Enterprise through partnerships and commercialization.
19 The Under Secretary shall target federally funded cyberse-
20 curity research that demonstrates a high probability of
21 successful transition to the commercial market within two
22 years and that is expected to have notable impact on the
23 cybersecurity of the information systems or networks of
24 information systems of the United States.

25 “(e) DEFINITIONS.—In this section:

1 “(1) CYBERSECURITY RISK.—The term ‘cyber-
2 security risk’ has the meaning given such term in
3 the second section 226, relating to the national cy-
4 bersecurity and communications integration center.

5 “(2) HOMELAND SECURITY ENTERPRISE.—The
6 term ‘Homeland Security Enterprise’ means relevant
7 governmental and nongovernmental entities involved
8 in homeland security, including Federal, State, local,
9 and tribal government officials, private sector rep-
10 resentatives, academics, and other policy experts.

11 “(3) INCIDENT.—The term ‘incident’ has the
12 meaning given such term in the second section 226,
13 relating to the national cybersecurity and commu-
14 nications integration center.

15 “(4) INFORMATION SYSTEM.—The term ‘infor-
16 mation system’ has the meaning given that term in
17 section 3502(8) of title 44, United States Code.

18 **“SEC. 323. INTEGRATED PRODUCT TEAMS.**

19 “(a) IN GENERAL.—The Secretary shall establish in-
20 tegrated product teams to serve as a central mechanism
21 for the Department to identify, coordinate, and align re-
22 search and development efforts with departmental mis-
23 sions. Each team shall be managed by the Under Sec-
24 retary for Science and Technology and the relevant senior

1 leadership of operational components, and shall be respon-
2 sible for the following:

3 “(1) Identifying and prioritizing homeland secu-
4 rity capability gaps or threats to the homeland with-
5 in a specific mission area and technological solutions
6 to address such gaps.

7 “(2) Identifying ongoing departmental research
8 and development activities and component acquisi-
9 tions of technologies that are outside of depart-
10 mental research and development activities to ad-
11 dress a specific mission area.

12 “(3) Assessing the appropriateness of a tech-
13 nology to address a specific mission area.

14 “(4) Identifying unnecessary redundancy in de-
15 partmental research and development activities with-
16 in a specific mission area.

17 “(5) Informing the Secretary and the annual
18 budget process regarding whether certain techno-
19 logical solutions are able to address homeland secu-
20 rity capability gaps or threats to the homeland with-
21 in a specific mission area.

22 “(b) CONGRESSIONAL OVERSIGHT.—Not later than
23 two years after the date of enactment of this section, the
24 Secretary shall provide to the Committee on Homeland Se-
25 curity and the Committee on Science, Space, and Tech-

1 nology of the House of Representatives and the Committee
2 on Homeland Security and Governmental Affairs of the
3 Senate information on the impact and effectiveness of the
4 mechanism described in subsection (a) on research and de-
5 velopment efforts, component relationships, and how the
6 process has informed the research and development budget
7 and enhanced decision making, including acquisition deci-
8 sion making, at the Department. The Secretary shall seek
9 feedback from the Under Secretary for Science and Tech-
10 nology, Under Secretary for Management, and the senior
11 leadership of operational components regarding the impact
12 and effectiveness of such mechanism and include such
13 feedback in the information provided under this sub-
14 section.

15 **“SEC. 324. HOMELAND SECURITY-STEM SUMMER INTERN-**
16 **SHIP PROGRAM.**

17 “(a) IN GENERAL.—The Under Secretary for Science
18 and Technology shall establish a Homeland Security-
19 STEM internship program (in this section referred to as
20 the ‘program’) to carry out the objectives of this subtitle.

21 “(b) PROGRAM.—The program shall provide students
22 with exposure to Department mission-relevant research
23 areas, including threats to the homeland, to encourage
24 such students to pursue STEM careers in homeland secu-

1 rity related fields. Internships offered under the program
2 shall be for up to ten weeks during the summer.

3 “(c) ELIGIBILITY.—The Under Secretary for Science
4 and Technology shall develop criteria for participation in
5 the program, including the following:

6 “(1) At the time of application, an intern
7 shall—

8 “(A) have successfully completed not less
9 than one academic year of study at an institu-
10 tion of higher education in a STEM field;

11 “(B) be enrolled in a course of study in a
12 STEM field at an institution of higher edu-
13 cation; and

14 “(C) plan to continue such course of study
15 or pursue an additional course of study in a
16 STEM field at an institution of higher edu-
17 cation in the academic year following the in-
18 ternship.

19 “(2) An intern shall be pursuing career goals
20 aligned with the Department’s mission, goals, and
21 objectives.

22 “(3) Any other criteria the Under Secretary de-
23 termines appropriate.

24 “(d) COOPERATION.—The program shall be adminis-
25 tered in cooperation with the university-based centers for

1 homeland security under section 308. Interns in the pro-
2 gram shall be provided hands-on research experience and
3 enrichment activities focused on Department research
4 areas.

5 “(e) ACADEMIC REQUIREMENTS; OPERATION.—The
6 Under Secretary for Science and Technology shall deter-
7 mine the academic requirements, other selection criteria,
8 and standards for successful completion of each internship
9 period in the program. The Under Secretary shall be re-
10 sponsible for the design, implementation, and operation of
11 the program.

12 “(f) RESEARCH MENTORS.—The Under Secretary
13 for Science and Technology shall ensure that each intern
14 in the program is assigned a research mentor to act as
15 counselor and advisor and provide career-focused advice.

16 “(g) OUTREACH TO CERTAIN UNDER-REPRESENTED
17 STUDENTS.—The Under Secretary for Science and Tech-
18 nology shall conduct outreach to students who are mem-
19 bers of groups under-represented in STEM careers to en-
20 courage their participation in the program.

21 “(h) INSTITUTION OF HIGHER EDUCATION DE-
22 FINED.—In this section, the term ‘institution of higher
23 education’ has the meaning given the term in section 102
24 of the Higher Education Act of 1965 (20 U.S.C. 1002),

1 except that the term does not include institutions de-
2 scribed in subparagraph (C) of such section 102(a)(1).”.

3 (b) EFFECTIVE DATE.—The amendments made by
4 subsection (a) shall take effect on the date that is 30 days
5 after the date of the enactment of this section.

6 (c) CLERICAL AMENDMENT.—The table of contents
7 in section 1(b) of the Homeland Security Act of 2002 is
8 amended by inserting after the item relating to section
9 317 the following new items:

“Sec. 318. Identification and prioritization of research and development.

“Sec. 319. Development of Directorate strategy and research and development
plan.

“Sec. 320. Monitoring of progress.

“Sec. 321. Homeland Security Science and Technology Fellows Program.

“Sec. 322. Cybersecurity research and development.

“Sec. 323. Integrated product teams.

“Sec. 324. Homeland Security-STEM summer internship program.”.

10 (d) RESEARCH AND DEVELOPMENT PROJECTS.—
11 Section 831 of the Homeland Security Act of 2002 (6
12 U.S.C. 391) is amended—

13 (1) in subsection (a)—

14 (A) in the matter preceding paragraph (1),
15 by striking “2015” and inserting “2020”;

16 (B) in paragraph (1), by striking the last
17 sentence; and

18 (C) by adding at the end the following new
19 paragraph:

20 “(3) PRIOR APPROVAL.—In any case in which
21 a component or office of the Department seeks to

1 utilize the authority under this section, such office
2 or component shall first receive prior approval from
3 the Secretary by providing to the Secretary a pro-
4 posal that includes the rationale for the use of such
5 authority, the funds to be spent on the use of such
6 authority, and the expected outcome for each project
7 that is the subject of the use of such authority. In
8 such a case, the authority for evaluating the pro-
9 posal may not be delegated by the Secretary to any-
10 one other than the Under Secretary for Manage-
11 ment.”;

12 (2) in subsection (c)—

13 (A) in paragraph (1), in the matter pre-
14 ceding subparagraph (A), by striking “2015”
15 and inserting “2020”; and

16 (B) by amending paragraph (2) to read as
17 follows:

18 “(2) REPORT.—The Secretary shall annually
19 submit to the Committee on Homeland Security and
20 the Committee on Science, Space, and Technology of
21 the House of Representatives and the Committee on
22 Homeland Security and Governmental Affairs of the
23 Senate a report detailing the projects for which the
24 authority granted by subsection (a) was used, the
25 rationale for such use, the funds spent using such

1 authority, the extent of cost-sharing for such
2 projects among Federal and non-federal sources, the
3 extent to which use of such authority has addressed
4 a homeland security capability gap or threat to the
5 homeland identified by the Department, the total
6 amount of payments, if any, that were received by
7 the Federal Government as a result of the use of
8 such authority during the period covered by each
9 such report, the outcome of each project for which
10 such authority was used, and the results of any au-
11 dits of such projects.”; and

12 (3) by adding at the end the following new sub-
13 sections:

14 “(e) TRAINING.—The Secretary shall develop a train-
15 ing program for acquisitions staff in the use of other
16 transaction authority to help ensure the appropriate use
17 of such authority.

18 “(f) OTHER TRANSACTION AUTHORITY DEFINED.—
19 In this section, the term ‘other transaction authority’
20 means authority under subsection (a).”.

21 (e) AMENDMENT TO DEFINITION.—Paragraph (2) of
22 subsection (a) of the second section 226 of the Homeland
23 Security Act of 2002 (6 U.S.C. 148; relating to the na-
24 tional cybersecurity and communications integration cen-
25 ter) is amended to read as follows:

1 “(2) INCIDENT.—The term ‘incident’ means an
2 occurrence that actually or imminently jeopardizes,
3 without lawful authority, the integrity, confiden-
4 tiality, or availability of information on an informa-
5 tion system, or actually or imminently jeopardizes,
6 without lawful authority, an information system.”.

7 (f) GAO STUDY OF UNIVERSITY-BASED CENTERS.—

8 (1) IN GENERAL.—Not later than 120 days
9 after the date of the enactment of this Act, the
10 Comptroller General of the United States shall ini-
11 tiate a study to assess the university-based centers
12 for homeland security program authorized by section
13 308(b)(2) of the Homeland Security Act of 2002 (6
14 U.S.C. 188(b)(2)), and provide recommendations to
15 the Committee on Homeland Security and the Com-
16 mittee on Science, Space, and Technology of the
17 House of Representatives and the Committee on
18 Homeland Security and Governmental Affairs of the
19 Senate for appropriate improvements.

20 (2) SUBJECT MATTERS.—The study required
21 under subsection (a) shall include the following:

22 (A) A review of the Department of Home-
23 land Security’s efforts to identify key areas of
24 study needed to support the homeland security
25 mission, and criteria that the Department uti-

1 lized to determine those key areas for which the
2 Department should maintain, establish, or
3 eliminate university-based centers.

4 (B) A review of the method by which uni-
5 versity-based centers, federally funded research
6 and development centers, and Department of
7 Energy national laboratories receive tasking
8 from the Department of Homeland Security, in-
9 cluding a review of how university-based re-
10 search is identified, prioritized, and funded.

11 (C) A review of selection criteria for desig-
12 nating university-based centers and a weighting
13 of such criteria.

14 (D) An examination of best practices from
15 other agencies' efforts to organize and use uni-
16 versity-based research to support their missions.

17 (E) A review of the Department of Home-
18 land Security's criteria and metrics to measure
19 demonstrable progress achieved by university-
20 based centers in fulfilling Department taskings,
21 and mechanisms for delivering and dissemi-
22 nating the research results of designated uni-
23 versity-based centers within the Department
24 and to other Federal, State, and local agencies.

1 (F) An examination of the means by which
2 academic institutions that are not designated or
3 associated with the designated university-based
4 centers can optimally contribute to the research
5 mission of the Directorate of Science and Tech-
6 nology of the Department of Homeland Secu-
7 rity.

8 (G) An assessment of the interrelationship
9 between the different university-based centers
10 and the degree to which outreach and collabora-
11 tion among a diverse array of academic institu-
12 tions is encouraged by the Department of
13 Homeland Security, particularly with histori-
14 cally Black colleges and universities and minor-
15 ity-serving institutions.

16 (H) A review of any other essential ele-
17 ments of the programs determined in the con-
18 duct of the study.

19 (g) PRIZE AUTHORITY.—The Under Secretary for
20 Science and Technology of the Department of Homeland
21 Security shall utilize, as appropriate, prize authority
22 granted pursuant to current law.

23 (h) PROHIBITION ON NEW FUNDING.—No funds are
24 authorized to be appropriated to carry out this section and
25 the amendments made by this section. Such section and

- 1 amendments shall be carried out using amounts otherwise
- 2 appropriated or made available for such purposes.