

Peters - Schmitt - 1



AMENDMENT NO. _____ Calendar No. _____

Purpose: To expand the functions of the National Institute of Standards and Technology to include workforce frameworks for critical and emerging technologies, to require the Director of the National Institute of Standards and Technology to develop an artificial intelligence workforce framework, and periodically review and update the National Initiative for Cybersecurity Education Workforce Framework for Cybersecurity.

IN THE SENATE OF THE UNITED STATES—118th Cong., 2d Sess.

S. 4394

To support National Science Foundation education and professional development relating to artificial intelligence.

Referred to the Committee on _____ and ordered to be printed

Ordered to lie on the table and to be printed

AMENDMENT intended to be proposed by Mr. PETERS

Viz:

- 1 At the appropriate place, insert the following:
- 2 **SEC. ____ . WORKFORCE FRAMEWORKS FOR CRITICAL AND**
- 3 **EMERGING TECHNOLOGIES.**
- 4 (a) DEFINITIONS.—
- 5 (1) IN GENERAL.—In this section, the terms
- 6 “competencies”, “workforce categories”, and “work-
- 7 force framework” have the meanings given such
- 8 terms in subsection (f) of section 2 of the National

1 Institute of Standards and Technology Act (15
2 U.S.C. 272), as added by subsection (b) of this sec-
3 tion.

4 (2) AMENDMENT TO NIST ACT.—Section 2 of
5 such Act (15 U.S.C. 272) is amended by adding at
6 the end the following:

7 “(f) DEFINITIONS.—In this section:

8 “(1) COMPETENCIES.—The term ‘competencies’
9 means knowledge and skills.

10 “(2) WORKFORCE CATEGORIES.—The term
11 ‘workforce categories’ means a high-level grouping of
12 tasks across an organization as defined by work
13 roles within the category.

14 “(3) WORKFORCE FRAMEWORK.—The term
15 ‘workforce framework’ means a common taxonomy
16 and lexicon for any given domain that includes the
17 building blocks of tasks, knowledge, or skills that
18 can be structured to form work roles or competency
19 areas.”.

20 (b) EXPANSION OF FUNCTIONS OF DIRECTOR OF NA-
21 TIONAL INSTITUTE OF STANDARDS AND TECHNOLOGY TO
22 INCLUDE WORKFORCE FRAMEWORKS FOR CRITICAL AND
23 EMERGING TECHNOLOGIES.—Section 2(b) of such Act
24 (15 U.S.C. 272(b)) is amended—

1 (1) in paragraph (12), by striking “; and” and
2 inserting a semicolon;

3 (2) in paragraph (13), by striking the period at
4 the end and inserting “; and”; and

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

6 “(14)(A) to develop, maintain, and provide in-
7 dustry, government, research, nonprofit, labor orga-
8 nizations, and educational institutions with work-
9 force frameworks for critical and emerging tech-
10 nologies and other science, technology, engineering,
11 and mathematics domains for the purpose of bol-
12 stering scientific and technical education, training,
13 and workforce development;

14 “(B) at least once every 3 years—

15 “(i) to determine if an update to any work-
16 force framework, or its components or associ-
17 ated materials, including work roles or com-
18 petency areas, provided pursuant to subpara-
19 graph (A) are appropriate; and

20 “(ii) if the Director determines it is appro-
21 priate under clause (i), to update such frame-
22 works and components;

23 “(C) consider including in all workforce frame-
24 works, or associated materials—

1 “(i) relevant professional skills or employ-
2 ability skills;

3 “(ii) relevant support or operations work
4 roles and competency areas such as administra-
5 tion and finance, law and policy, ethics, privacy,
6 human resources, information technology, oper-
7 ational technology, supply chain security, and
8 acquisition and procurement;

9 “(iii) information that promotes the dis-
10 covery of careers in critical and emerging tech-
11 nologies and the multiple career pathways for
12 learners from a variety of backgrounds, includ-
13 ing individuals with nontechnical or other non-
14 traditional backgrounds and education; and

15 “(iv) information for how individuals can
16 acquire relevant credentials (e.g., academic de-
17 grees, certificates, certifications, etc.) that qual-
18 ify individuals for employment and career ad-
19 vancement;

20 “(D) consult, as the Director considers appro-
21 priate, with Federal agencies, industry, State, local,
22 Tribal, and territorial government, nonprofit, labor
23 organizations, research, and academic institutions in
24 the development of workforce frameworks, or associ-
25 ated materials;

1 “(E) to produce resources in multiple languages
2 to support global adoption of the frameworks pro-
3 vided pursuant to subparagraph (A); and

4 “(F) after each determination under subpara-
5 graph (B), to submit to Congress a report on such
6 determination and any plans to review and update
7 any workforce frameworks under this paragraph.”.

8 (c) NICE WORKFORCE FRAMEWORK FOR CYBERSE-
9 CURITY UPDATE.—

10 (1) REPORT ON UPDATES.—

11 (A) IN GENERAL.—Not later than 180
12 days after the date of the enactment of this
13 Act, and subsequently pursuant to paragraph
14 (14)(F) of section (2)(b) of the National Insti-
15 tute of Standards and Technology Act (15
16 U.S.C. 272(b)), as added by subsection (b) of
17 this section, the Director of the National Insti-
18 tute of Standards and Technology shall submit
19 to Congress a report that describes the process
20 for ongoing review and updates to the National
21 Initiative for Cybersecurity Education Work-
22 force Framework for Cybersecurity (NIST Spe-
23 cial Publication 800-181), or a successor
24 framework.

1 (B) REQUIREMENTS.—Each report sub-
2 mitted pursuant to subparagraph (A) shall—

3 (i) summarize proposed changes to
4 the framework;

5 (ii) identify, with regard to the work
6 roles, tasks, knowledge, and skills included
7 in the framework, how industry, academia,
8 labor organizations, and relevant govern-
9 ment agencies are consulted in the update;
10 and

11 (iii) describe—

12 (I) the ongoing process and
13 timeline for updating the framework;
14 and

15 (II) the incorporation of any ad-
16 ditional work roles or competency
17 areas in domains such as administra-
18 tion and finance, law and policy, eth-
19 ics, privacy, human resources, infor-
20 mation technology, operational tech-
21 nology, supply chain security, and ac-
22 quisition and procurement.

23 (2) REPORT ON APPLICATION AND USE OF NICE
24 FRAMEWORK.—Not later than 3 years after the date
25 of the enactment of this Act and not less frequently

1 than once every 3 years thereafter for 9 years, the
2 Director shall, in consultation with industry, govern-
3 ment, nonprofit, labor organizations, research, and
4 academic institutions, submit to Congress a report
5 that identifies—

6 (A) applications and uses of the framework
7 described in paragraph (1)(A) in practice;

8 (B) any guidance that the program office
9 of the National Initiative for Cybersecurity
10 Education provides to increase adoption by em-
11 ployers and education and training providers of
12 the work roles and competency areas for indi-
13 viduals who perform cybersecurity work at all
14 proficiency levels;

15 (C) available information regarding em-
16 ployer and education and training provider use
17 of the framework;

18 (D) an assessment of the use and effective-
19 ness of the framework by and for individuals
20 with nontraditional backgrounds or education,
21 especially individuals making a career change or
22 not pursuing a bachelor's degree or higher; and

23 (E) any additional actions taken by the Di-
24 rector to increase the use of the framework.

1 (3) CYBERSECURITY CAREER EXPLORATION RE-
2 SOURCES.—The Director, acting through the Na-
3 tional Initiative for Cybersecurity Education, shall
4 disseminate cybersecurity career resources for all
5 age groups, including kindergarten through sec-
6 ondary and postsecondary education and adult work-
7 ers.

8 (d) ADDITIONAL WORKFORCE FRAMEWORKS.—

9 (1) FRAMEWORK ASSESSMENT.—Not later than
10 180 days after the date of the enactment of this Act,
11 the Director shall assess the need for additional
12 workforce frameworks for critical and emerging
13 technologies, such as quantum information science.

14 (2) DEVELOPMENT OF ADDITIONAL FRAME-
15 WORKS.—

16 (A) IN GENERAL.—The Director shall de-
17 velop and publish a workforce framework for
18 each additional workforce framework that the
19 Director determines is needed pursuant to an
20 assessment carried out pursuant to paragraph

21 (1).

22 (B) REQUIRED AI FRAMEWORK.—Notwith-
23 standing paragraph (1) and subparagraph (A)
24 of this paragraph, not less than 540 days after
25 the date of the enactment of this Act, the Di-

1 rector shall develop and publish a workforce
2 framework, workforce categories, work roles,
3 and competency areas for artificial intelligence.

4 (3) MODEL.—In developing a workforce frame-
5 work under paragraph (2), the Director may use the
6 Playbook for Workforce Frameworks developed by
7 the National Initiative for Cybersecurity Education
8 that is modeled after the National Initiative for Cy-
9 bersecurity Education Workforce Framework for Cy-
10 bersecurity (NIST Special Publication 800–181), or
11 a successor framework.

12 (4) FRAMEWORK COMPONENTS.—Each frame-
13 work developed pursuant to paragraph (2) shall in-
14 clude relevant support or operations work roles and
15 competency areas such as administration and fi-
16 nance, law and policy, ethics, privacy, human re-
17 sources, information technology, operational tech-
18 nology, supply chain security, and acquisition and
19 procurement, as the Director considers appropriate,
20 in alignment with paragraph (14)(C) of section 2(b)
21 of the National Institute of Standards and Tech-
22 nology Act (15 U.S.C. 272(b)), as added by sub-
23 section (b).

24 (5) PROFESSIONAL SKILLS REQUIRED.—Each
25 framework developed pursuant to paragraph (2)

1 shall include professional skills or employability
2 skills, as the Director considers appropriate, in
3 alignment with paragraph (14)(C) of section 2(b) of
4 the National Institute of Standards and Technology
5 Act (15 U.S.C. 272(b)), as added by subsection (b).

6 (6) NONTRADITIONAL BACKGROUNDS.—Each
7 framework developed under paragraph (2), or mate-
8 rials associated with each framework, shall include
9 information for how individuals with nontechnical or
10 other nontraditional backgrounds and education may
11 utilize their skills for such frameworks' roles and
12 tasks, in alignment with paragraph (14)(D) of sec-
13 tion 2(b) of the such Act (15 U.S.C.
14 272(b)(14)(D)), as so added.

15 (7) UPDATES.—The Director shall update each
16 framework developed under paragraph (2) in accord-
17 ance with subparagraph (B) of paragraph (14) of
18 section 2(b) of the National Institute of Standards
19 and Technology Act (15 U.S.C. 272(b)), as added by
20 subsection (b) of this section, and submit to Con-
21 gress reports in accordance with subparagraph (F)
22 of such paragraph.