

119TH CONGRESS
1ST SESSION

S. 1290

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 NICE Workforce Framework for Cybersecurity, and for other purposes.

IN THE SENATE OF THE UNITED STATES

APRIL 3, 2025

Mr. PETERS (for himself and Mr. SCHMITT) introduced the following bill; which was read twice and referred to the Committee on Commerce, Science, and Transportation

A BILL

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 NICE Workforce Framework for Cybersecurity, 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,*

1 **SECTION 1. SHORT TITLE.**

2 This Act may be cited as the “Artificial Intelligence
3 and Critical Technology Workforce Framework Act of
4 2025”.

5 **SEC. 2. WORKFORCE FRAMEWORKS FOR CRITICAL AND**
6 **EMERGING TECHNOLOGIES.**

7 (a) DEFINITIONS.—

8 (1) IN GENERAL.—In this section, the terms
9 “competencies”, “workforce categories”, and “work-
10 force framework” have the meanings given such
11 terms in subsection (f) of section 2 of the National
12 Institute of Standards and Technology Act (15
13 U.S.C. 272), as added by subsection (b) of this sec-
14 tion.

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

18 “(f) DEFINITIONS.—In this section:

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

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

25 “(3) WORKFORCE FRAMEWORK.—The term
26 ‘workforce framework’ means a common taxonomy

1 and lexicon for any given domain that includes the
2 building blocks of tasks, knowledge, or skills that
3 can be structured to form work roles or competency
4 areas.”.

5 (b) EXPANSION OF FUNCTIONS OF DIRECTOR OF NA-
6 TIONAL INSTITUTE OF STANDARDS AND TECHNOLOGY TO
7 INCLUDE WORKFORCE FRAMEWORKS FOR CRITICAL AND
8 EMERGING TECHNOLOGIES.—Section 2(b) of such Act
9 (15 U.S.C. 272(b)) is amended—

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

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

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

15 “(14)(A) to develop, maintain, and provide in-
16 dustry, government, research, nonprofit, labor orga-
17 nizations, and educational institutions with work-
18 force frameworks for critical and emerging tech-
19 nologies and other science, technology, engineering,
20 and mathematics domains for the purpose of bol-
21 stering scientific and technical education, training,
22 and workforce development;

23 “(B) at least once every 3 years—

24 “(i) to determine if an update to any work-
25 force framework, or its components or associ-

1 ated materials, including work roles or com-
 2 petency areas, provided pursuant to subpara-
 3 graph (A) are appropriate; and

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

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

9 “(i) relevant professional skills or employ-
 10 ability skills;

11 “(ii) relevant support or operations work
 12 roles and competency areas such as administra-
 13 tion and finance, law and policy, ethics, privacy,
 14 human resources, information technology, oper-
 15 ational technology, supply chain security, and
 16 acquisition and procurement;

17 “(iii) information that promotes the dis-
 18 covery of careers in critical and emerging tech-
 19 nologies and the multiple career pathways for
 20 learners from a variety of backgrounds, includ-
 21 ing individuals with nontechnical or other non-
 22 traditional backgrounds and education; and

23 “(iv) information for how individuals can
 24 acquire relevant credentials (e.g., academic de-
 25 grees, certificates, certifications, etc.) that qual-

1 ify individuals for employment and career ad-
2 vancement;

3 “(D) consult, as the Director considers appro-
4 prium, with Federal agencies, industry, State, local,
5 Tribal, and territorial government, nonprofit, labor
6 organizations, research, and academic institutions in
7 the development of workforce frameworks, or associ-
8 ated materials;

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

12 “(F) after each determination under subpara-
13 graph (B), to submit to Congress a report on such
14 determination and any plans to review and update
15 any workforce frameworks under this paragraph.”.

16 (c) NICE WORKFORCE FRAMEWORK FOR CYBERSE-
17 curity Update.—

18 (1) REPORT ON UPDATES.—

19 (A) IN GENERAL.—Not later than 180
20 days after the date of the enactment of this
21 Act, and subsequently pursuant to paragraph
22 (14)(F) of section (2)(b) of the National Insti-
23 tute of Standards and Technology Act (15
24 U.S.C. 272(b)), as added by subsection (b) of
25 this section, the Director of the National Insti-

1 tute of Standards and Technology shall submit
2 to Congress a report that describes the process
3 for ongoing review and updates to the National
4 Initiative for Cybersecurity Education Work-
5 force Framework for Cybersecurity (NIST Spe-
6 cial Publication 800–181), or a successor
7 framework.

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

10 (i) summarize proposed changes to
11 the framework;

12 (ii) identify, with regard to the work
13 roles, tasks, knowledge, and skills included
14 in the framework, how industry, academia,
15 labor organizations, and relevant govern-
16 ment agencies are consulted in the update;
17 and

18 (iii) describe—

19 (I) the ongoing process and
20 timeline for updating the framework;
21 and

22 (II) the incorporation of any ad-
23 ditional work roles or competency
24 areas in domains such as administra-
25 tion and finance, law and policy, eth-

1 ics, privacy, human resources, infor-
2 mation technology, operational tech-
3 nology, supply chain security, and ac-
4 quisition and procurement.

5 (2) REPORT ON APPLICATION AND USE OF NICE
6 FRAMEWORK.—Not later than 3 years after the date
7 of the enactment of this Act and not less frequently
8 than once every 3 years thereafter for 9 years, the
9 Director shall, in consultation with industry, govern-
10 ment, nonprofit, labor organizations, research, and
11 academic institutions, submit to Congress a report
12 that identifies—

13 (A) applications and uses of the framework
14 described in paragraph (1)(A) in practice;

15 (B) any guidance that the program office
16 of the National Initiative for Cybersecurity
17 Education provides to increase adoption by em-
18 ployers and education and training providers of
19 the work roles and competency areas for indi-
20 viduals who perform cybersecurity work at all
21 proficiency levels;

22 (C) available information regarding em-
23 ployer and education and training provider use
24 of the framework;

1 (D) an assessment of the use and effective-
 2 ness of the framework by and for individuals
 3 with nontraditional backgrounds or education,
 4 especially individuals making a career change or
 5 not pursuing a bachelor's degree or higher; and

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

8 (3) CYBERSECURITY CAREER EXPLORATION RE-
 9 SOURCES.—The Director, acting through the Na-
 10 tional Initiative for Cybersecurity Education, shall
 11 disseminate cybersecurity career resources for all
 12 age groups, including kindergarten through sec-
 13 ondary and postsecondary education and adult work-
 14 ers.

15 (d) ADDITIONAL WORKFORCE FRAMEWORKS.—

16 (1) FRAMEWORK ASSESSMENT.—Not later than
 17 180 days after the date of the enactment of this Act,
 18 the Director shall assess the need for additional
 19 workforce frameworks for critical and emerging
 20 technologies, such as quantum information science.

21 (2) DEVELOPMENT OF ADDITIONAL FRAME-
 22 WORKS.—

23 (A) IN GENERAL.—The Director shall de-
 24 velop and publish a workforce framework for
 25 each additional workforce framework that the

1 Director determines is needed pursuant to an
2 assessment carried out pursuant to paragraph
3 (1).

4 (B) REQUIRED AI FRAMEWORK.—Notwith-
5 standing paragraph (1) and subparagraph (A)
6 of this paragraph, not less than 540 days after
7 the date of the enactment of this Act, the Di-
8 rector shall develop and publish a workforce
9 framework, workforce categories, work roles,
10 and competency areas for artificial intelligence.

11 (3) MODEL.—In developing a workforce frame-
12 work under paragraph (2), the Director may use the
13 Playbook for Workforce Frameworks developed by
14 the National Initiative for Cybersecurity Education
15 that is modeled after the National Initiative for Cy-
16 bersecurity Education Workforce Framework for Cy-
17 bersecurity (NIST Special Publication 800–181), or
18 a successor framework.

19 (4) FRAMEWORK COMPONENTS.—Each frame-
20 work developed pursuant to paragraph (2) shall in-
21 clude relevant support or operations work roles and
22 competency areas such as administration and fi-
23 nance, law and policy, ethics, privacy, human re-
24 sources, information technology, operational tech-
25 nology, supply chain security, and acquisition and

1 procurement, as the Director considers appropriate,
2 in alignment with paragraph (14)(C) of section 2(b)
3 of the National Institute of Standards and Tech-
4 nology Act (15 U.S.C. 272(b)), as added by sub-
5 section (b).

6 (5) PROFESSIONAL SKILLS REQUIRED.—Each
7 framework developed pursuant to paragraph (2)
8 shall include professional skills or employability
9 skills, as the Director considers appropriate, in
10 alignment with paragraph (14)(C) of section 2(b) of
11 the National Institute of Standards and Technology
12 Act (15 U.S.C. 272(b)), as added by subsection (b).

13 (6) NONTRADITIONAL BACKGROUNDS.—Each
14 framework developed under paragraph (2), or mate-
15 rials associated with each framework, shall include
16 information for how individuals with nontechnical or
17 other nontraditional backgrounds and education may
18 utilize their skills for such frameworks' roles and
19 tasks, in alignment with paragraph (14)(D) of sec-
20 tion 2(b) of the such Act (15 U.S.C.
21 272(b)(14)(D)), as so added.

22 (7) UPDATES.—The Director shall update each
23 framework developed under paragraph (2) in accord-
24 ance with subparagraph (B) of paragraph (14) of
25 section 2(b) of the National Institute of Standards

1 and Technology Act (15 U.S.C. 272(b)), as added by
2 subsection (b) of this section, and submit to Con-
3 gress reports in accordance with subparagraph (F)
4 of such paragraph.

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