

118TH CONGRESS
2D SESSION

S. 5539

To require systematic review of artificial intelligence systems before deployment by the Federal Government, and for other purposes.

IN THE SENATE OF THE UNITED STATES

DECEMBER 16, 2024

Mr. WELCH (for himself and Mr. LUJÁN) introduced the following bill; which was read twice and referred to the Committee on Homeland Security and Governmental Affairs

A BILL

To require systematic review of artificial intelligence systems before deployment by the Federal Government, 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 “Trustworthy By De-
5 sign Artificial Intelligence Act of 2024” or the “TBD AI
6 Act of 2024”.

7 **SEC. 2. DEFINITIONS.**

8 In this Act:

1 (1) ARTIFICIAL INTELLIGENCE SYSTEM.—The
 2 term “artificial intelligence system” means a ma-
 3 chine-based system that can, for a given set of ma-
 4 chine-defined or human-defined objectives, make or
 5 inform predictions, recommendations, or decisions
 6 influencing real or virtual environments. Artificial
 7 intelligence systems use machine and human-based
 8 inputs to—

9 (A) perceive real and virtual environments;

10 (B) abstract such perceptions into models
 11 through analysis in an automated manner; and

12 (C) use model inference to formulate op-
 13 tions for information or action.

14 (2) DIRECTOR.—The term “Director” means
 15 the Director of the National Institute of Standards
 16 and Technology.

17 (3) FEDERAL AGENCY.—The term “Federal
 18 agency” means any Federal department, agency, or
 19 organization.

20 **SEC. 3. GUIDELINES FOR EVALUATION OF TRUST-**
 21 **WORTHINESS OF ARTIFICIAL INTELLIGENCE**
 22 **SYSTEMS.**

23 (a) DEVELOPMENT REQUIRED.—

24 (1) IN GENERAL.—Not later than 1 year after
 25 the date of the enactment of this Act, the Director

1 shall develop and release a set of guidelines for eval-
2 uation of the trustworthiness of artificial intelligence
3 systems.

4 (2) USE OF EXISTING GUIDELINES OR ELE-
5 MENTS.—

6 (A) IN GENERAL.—In carrying out para-
7 graph (1), the Director may use existing guide-
8 lines, best practices, or elements of guidelines
9 or best practices that the Director identifies
10 from other sources.

11 (B) ANNOTATION.—If the Director uses
12 guidelines, best practices, or elements of guide-
13 lines or best practices pursuant to subpara-
14 graph (A) of this paragraph in order to carry
15 out paragraph (1), the Director shall clearly an-
16 notate such use in a central location and make
17 such annotations available online to the public.

18 (3) PERIODIC UPDATES.—The Director shall,
19 on a periodic basis but not less frequently than an-
20 nually, update the guidelines developed pursuant to
21 paragraph (1).

22 (b) COMPONENTS COVERED.—The guidelines devel-
23 oped pursuant to subsection (a) for evaluation of artificial
24 intelligence systems shall cover the following:

1 (1) The models used for the artificial intel-
2 ligence systems.

3 (2) The data used and activities conducted in
4 training the artificial intelligence systems, including
5 the collection and filtering of data.

6 (3) The processes and techniques applied after
7 initial training to enhance the capabilities of the ar-
8 tificial intelligence systems, such as fine-tuning, re-
9 inforcement learning, and other post-training optimi-
10 zation methods.

11 (4) Content generated by the artificial intel-
12 ligence systems.

13 (5) The hardware systems used by the artificial
14 intelligence systems.

15 (6) Interactions between humans and the artifi-
16 cial intelligence systems that are expected to arise
17 during intended or reasonably foreseeable use of the
18 artificial intelligence systems.

19 (7) Risks presented by anthropomorphic artifi-
20 cial intelligence systems.

21 (c) ELEMENTS OF TRUSTWORTHINESS.—

22 (1) IN GENERAL.—The guidelines developed
23 pursuant to subsection (a) shall cover trust-
24 worthiness with respect to the following:

25 (A) Validity and reliability.

1 (B) Safety.

2 (C) Security.

3 (D) Resiliency.

4 (E) Transparency and accountability.

5 (F) Explainability and interpretability.

6 (G) Privacy.

7 (H) Fairness and bias.

8 (I) Such other matters relating to safety,
9 security, or trustworthiness as the Director con-
10 siders appropriate.

11 (2) PROTECTED CLASSES.—The guidelines de-
12 veloped pursuant to subsection (a) shall specifically
13 highlight and consider accuracy and bias risks relat-
14 ing to protected classes under Federal law.

15 (d) APPLICABILITY.—The Director shall ensure that
16 the guidelines developed pursuant to subsection (a) are de-
17 veloped so that they include an assessment of the trust-
18 worthiness of all components covered under subsection (b)
19 with regards to all elements under subsection (c), but ac-
20 count for circumstances in which certain assessment meth-
21 ods or recommendations may not be applicable to certain
22 components or elements may not be applicable.

23 (e) LIMITATION RELATING TO SYNTHETIC CON-
24 TENT.—Under the guidelines developed pursuant to sub-
25 section (a), the Director shall identify appropriate mecha-

1 nisms to manage the risks from relying on synthetic con-
2 tent or content created by artificial intelligence systems
3 to improve a dataset or model, or to meet evaluation
4 guidelines.

5 (f) DEVELOPING ROBUST GUIDELINES.—The Direc-
6 tor shall ensure that the guidelines developed pursuant to
7 subsection (a) are developed in such a manner that en-
8 courages transparency, cooperation, and collaboration
9 with developers or evaluators of artificial intelligence sys-
10 tems, academia, and civil society sufficient to independ-
11 ently verify the elements set forth under subsection (c)(1).

12 (g) ITERATIVE EVALUATION.—The Director shall en-
13 sure that the guidelines developed pursuant to subsection
14 (a) cover how best to evaluate the trustworthiness of artifi-
15 cial intelligence systems iteratively, throughout the design,
16 development, and deployment lifecycle of an artificial intel-
17 ligence system.

18 (h) REPORT TO CONGRESS.—

19 (1) IN GENERAL.—The Director shall submit to
20 Congress a report on any expected barriers to imple-
21 menting and adhering to the guidelines developed
22 pursuant to subsection (a), especially with respect to
23 transparency, cooperation, or collaboration barriers
24 with developers of artificial intelligence systems.

1 (2) FORM.—The report under paragraph (1)
 2 shall be submitted in unclassified form, but may in-
 3 clude a classified appendix, if necessary.

4 **SEC. 4. FEDERAL DEPLOYMENT OF ARTIFICIAL INTEL-**
 5 **LIGENCE SYSTEMS.**

6 (a) COVERED USE DEFINED.—In this section, with
 7 respect to an artificial intelligence system, the term “cov-
 8 ered use”—

9 (1) means use in any automated decision mak-
 10 ing; and

11 (2) does not include any use that the Director
 12 exempts from any portion of the guidelines issued
 13 under section 3(a), including any use that—

14 (A) is subject to evaluation by existing na-
 15 tional security assessments; or

16 (B) is an edge case, especially a time sen-
 17 sitive or emergency case, as determined by the
 18 Director.

19 (b) EXISTING ARTIFICIAL INTELLIGENCE SYS-
 20 TEMS.—With respect to any artificial intelligence system
 21 deployed for a covered use that is in use by a Federal
 22 agency before the date of enactment of this Act, the Fed-
 23 eral agency shall evaluate the artificial intelligence system
 24 deployment to ensure the artificial intelligence system
 25 meets the guidelines developed under section 3(a) not later

1 than 2 years after the effective date of this section or cease
2 using the artificial intelligence system.

3 (c) NEW ARTIFICIAL INTELLIGENCE SYSTEMS.—The
4 head of each Federal agency shall ensure that each new
5 acquisition or integration of an artificial intelligence sys-
6 tem by the Federal agency for a covered use meets the
7 guidelines developed under section 3(a) prior to deploy-
8 ment of the artificial intelligence system.

9 (d) LABELING.—

10 (1) IN GENERAL.—The head of each Federal
11 agency shall identify as compliant, and make pub-
12 licly available, in accordance with all applicable clas-
13 sification requirements and national security restric-
14 tions, the documentation of evaluation status and
15 compliance details for, each artificial intelligence
16 system deployment for a covered use by the Federal
17 agency that meets the guidelines developed under
18 section 3(a).

19 (2) NONCOMPLIANT DEPLOYMENTS.—Not later
20 than 2 years after the effective date of this section,
21 the head of each Federal agency that deploys an ar-
22 tificial intelligence system that is not compliant or is
23 not evaluated pursuant to paragraph (1), shall—

24 (A) make publicly available documentation
25 of each such deployment; and

(B) with respect to each such deployment,
report—

- (i) the status of the evaluation;
- (ii) progress made towards compliance;
- (iii) a clear, specific justification for any delay; and
- (iv) any barriers to compliance, including resource constraints.

(3) REPORT TO CONGRESS.—

(A) IN GENERAL.—Not later than 3 years after the effective date of this section, the head of each Federal agency shall submit to Congress a report of each deployment described in paragraph (2).

(B) FORM.—The report under subparagraph (A) shall be submitted in unclassified form, but may include a classified appendix, if necessary.

(e) CHIEF AI OFFICERS.—

(1) IN GENERAL.—Not later than 120 days after the effective date of this section, the head of each Federal agency shall designate a Chief Artificial Intelligence Officer, with responsibility for the management, governance, acquisition, and oversight

1 processes of the Federal agency relating to artificial
2 intelligence, including implementation of the guide-
3 lines developed under section 3(a).

4 (2) FULL-TIME EMPLOYEE.—To the extent
5 practicable, each Chief Artificial Intelligence Officer
6 designated under paragraph (1) shall be a full-time
7 employee of the Federal agency on the date of the
8 designation.

9 (3) SENIORITY.—With respect to the Chief Ar-
10 tificial Intelligence Officer of any agency described
11 in section 901(b) of title 31, United States Code, the
12 Chief Artificial Intelligence Officer shall be an exec-
13 utive with a position classified above GS–15 of the
14 General Schedule or the equivalent.

15 (f) EFFECTIVE DATE.—This section shall take effect
16 on the date that the guidelines developed pursuant to sec-
17 tion 3(a) are released.

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