

119TH CONGRESS
2D SESSION

S. _____

To authorize the Director of the National Science Foundation to identify grand challenges and award competitive prizes for artificial intelligence research and development.

IN THE SENATE OF THE UNITED STATES

Mr. BOOKER (for himself, Mr. ROUNDS, and Mr. HEINRICH) introduced the following bill; which was read twice and referred to the Committee on

A BILL

To authorize the Director of the National Science Foundation to identify grand challenges and award competitive prizes for artificial intelligence research and development.

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 “AI Grand Challenges
5 Act of 2026”.

1 **SEC. 2. PRIZE COMPETITIONS FOR ARTIFICIAL INTEL-**
2 **LIGENCE RESEARCH AND DEVELOPMENT.**

3 (a) DEFINITION.—Except as otherwise expressly pro-
4 vided, in this section the term “Director” means the Di-
5 rector of the National Science Foundation.

6 (b) ESTABLISHMENT OF PROGRAM.—

7 (1) IN GENERAL.—Not later than 12 months
8 after the date of enactment of this Act, the Director,
9 in coordination with the National Artificial Intel-
10 ligence Advisory Committee, shall establish a pro-
11 gram to award prizes, utilizing the authorities and
12 processes established under section 24 of the Steven-
13 son-Wylder Technology Innovation Act of 1980 (15
14 U.S.C. 3719), to eligible participants as determined
15 by the Director pursuant to subsection (e) to stimu-
16 late artificial intelligence research, development, and
17 commercialization that solves or advances specific,
18 well-defined, and measurable grand challenges in 1
19 or more of the following categories:

20 (A) National security.

21 (B) Cybersecurity.

22 (C) Health.

23 (D) Energy.

24 (E) Environment.

25 (F) Transportation.

26 (G) Agriculture and rural development.

3

1 (H) Education and workforce training.

2 (I) Manufacturing.

3 (J) Space and aerospace.

4 (K) Quantum computing, including molec-
5 ular modeling and simulation.

6 (L) Materials science.

7 (M) Supply chain resilience.

8 (N) Disaster preparedness.

9 (O) Natural resources management.

10 (P) Cross-cutting challenges in artificial
11 intelligence, including robustness,
12 interpretability, explainability, transparency,
13 safety, privacy, content provenance, and bias
14 mitigation.

15 (2) DESIGNATION.—The grand challenges and
16 prize competition program established under para-
17 graph (1) shall be known as the “AI Grand Chal-
18 lenges Program”.

19 (3) ROTATORS.—Participants in the Rotator
20 Program of the National Science Foundation may
21 support the development and implementation of the
22 AI Grand Challenges Program.

23 (c) GRAND CHALLENGES SELECTION AND GRAND
24 CHALLENGES INFORMATION.—

25 (1) IN GENERAL.—

1 (A) CONSULTATION ON IDENTIFICATION
2 AND SELECTION.—The Director shall consult
3 with the Director of the Office of Science and
4 Technology Policy, and may consult with the
5 Director of the National Institute of Standards
6 and Technology, the Director of the Defense
7 Advanced Research Projects Agency, the heads
8 of relevant Federal agencies, and the National
9 Artificial Intelligence Advisory Committee, to
10 identify and select artificial intelligence research
11 and development grand challenges in which eli-
12 gible participants will compete to solve or ad-
13 vance for prize awards under subsection (b).

14 (B) PUBLIC INPUT ON IDENTIFICATION.—
15 The Director shall also seek public input on the
16 identification of artificial intelligence research
17 and development grand challenges.

18 (2) PROBLEM STATEMENTS; SUCCESS
19 METRICS.—For each grand challenge selected under
20 paragraph (1) and the grand challenge under para-
21 graph (3), the Director shall—

22 (A) establish a specific and well-defined
23 grand challenge problem statement and ensure
24 that such problem statement is published on the
25 National Science Foundation website linking

1 out to relevant prize competition listings on the
2 website Challenge.gov that is managed by the
3 General Services Administration; and

4 (B) establish and publish on the website
5 Challenge.gov clear targets, the challenge proc-
6 ess (which may include a multi-stage process),
7 success metrics, and validation protocols for the
8 prize competitions designed to address each
9 grand challenge, in order to provide specific
10 benchmarks that will be used to evaluate sub-
11 missions to the prize competition.

12 (3) GRAND CHALLENGE FOR ARTIFICIAL INTEL-
13 LIGENCE-ENABLED CANCER BREAKTHROUGHS.—

14 (A) REQUIRED PRIZE COMPETITION.—Not
15 later than 1 year after the date of enactment of
16 this Act, the Director, in consultation with the
17 Director of the Office of Science and Tech-
18 nology Policy and the Director of the National
19 Institutes of Health, shall establish not less
20 than 1 grand challenge in which eligible partici-
21 pants will compete in a prize competition to
22 solve or advance solutions for prize awards
23 under subsection (b) that seek to advance med-
24 ical breakthroughs to address 1 or more of the
25 most lethal forms of cancer and related

1 comorbidities. The grand challenge shall relate
2 to detection, diagnostics, treatments, thera-
3 peutics, or other innovations in artificial intel-
4 ligence to increase the total quality-adjusted life
5 years of those affected or likely to be affected
6 by cancer.

7 (B) PRIZE AMOUNT.—In carrying out the
8 prize competition under subparagraph (A), the
9 Director shall award not less than \$10,000,000
10 in cash prize awards to each winner.

11 (4) AMBITIOUS AND ACHIEVABLE GOALS.—
12 Grand challenges selected under paragraph (1) and
13 the grand challenge under paragraph (3) shall be
14 ambitious but achievable goals that utilize science,
15 technology, and innovation to solve or advance solu-
16 tions to problems to benefit the United States.

17 (d) ADDITIONAL CONSULTATION.—The Director may
18 consult with, and incorporate effective practices from,
19 other entities that have developed successful large-scale
20 technology demonstration prize competitions, including
21 the Defense Advanced Research Projects Agency, the Na-
22 tional Aeronautics and Space Administration, other Fed-
23 eral agencies, private sector enterprises, and nonprofit or-
24 ganizations, in the development and implementation of the

1 AI Grand Challenges Program and related prize competi-
2 tions, including on the requirements under subsection (e).

3 (e) REQUIREMENTS.—

4 (1) IN GENERAL.—The Director shall develop
5 requirements for—

6 (A) the prize competition process, includ-
7 ing eligibility criteria for participants, con-
8 sistent with the requirements under paragraph
9 (2); and

10 (B) testing, judging, and verification pro-
11 cedures for submissions to receive a prize award
12 under the AI Grand Challenges Program.

13 (2) ELIGIBILITY REQUIREMENT AND JUDG-
14 ING.—

15 (A) ELIGIBILITY.—In accordance with the
16 requirement described in section 24(g)(3) of the
17 Stevenson-Wydler Technology Innovation Act of
18 1980 (15 U.S.C. 3719(g)(3)), a recipient of a
19 prize award under the AI Grand Challenges
20 Program—

21 (i) that is a private entity shall be in-
22 corporated in and maintain a primary
23 place of business in the United States; and

24 (ii) who is an individual, whether par-
25 ticipating singly or in a group, shall be a

1 citizen or permanent resident of the United
2 States.

3 (B) JUDGES.—In accordance with section
4 24(k) of the Stevenson-Wydler Technology In-
5 novation Act of 1980 (15 U.S.C. 3719(k)), a
6 judge of a prize competition under the AI
7 Grand Challenges Program may be an indi-
8 vidual from the private sector.

9 (f) PRIZE AMOUNT.—

10 (1) IN GENERAL.—In carrying out the AI
11 Grand Challenges Program, the Director—

12 (A) shall award not less than \$1,000,000
13 in cash prize awards to each winner of the prize
14 competitions, except as provided in subsection
15 (c)(3); and

16 (B) may also utilize non-cash awards.

17 (2) LARGER AWARDS.—The Director may
18 award prizes under the AI Grand Challenges Pro-
19 gram that are more than \$50,000,000, pursuant to
20 the requirements under section 24(m)(4)(A) of the
21 Stevenson-Wydler Technology Innovation Act of
22 1980 (15 U.S.C. 3719(m)(4)(A)).

23 (g) FUNDING.—

24 (1) IN GENERAL.—In accordance with section
25 24(m)(1) of the Stevenson-Wydler Technology Inno-

1 vation Act of 1980 (15 U.S.C. 3719(m)(1)), the Di-
2 rector may request and accept funds from other
3 Federal agencies, State, United States territory,
4 local, or Tribal government agencies, for-profit enti-
5 ties, and nonprofit entities to support the AI Grand
6 Challenges Program.

7 (2) PROHIBITION ON CONSIDERATION FOR SUP-
8 PORT.—The Director may not consider any support
9 provided by an agency or entity under paragraph (1)
10 in determining the winners of prize awards under
11 subsection (b).

12 (h) REPORTS.—

13 (1) NOTIFICATION OF WINNING SUBMISSION.—
14 Not later than 60 days after the date on which a
15 prize is awarded under the AI Grand Challenges
16 Program, the Director shall submit to the Com-
17 mittee on Commerce, Science, and Transportation of
18 the Senate, the Committee on Science, Space, and
19 Technology of the House of Representatives, and
20 other relevant committees of Congress a report that
21 describes the winning submission to the prize com-
22 petition and its benefits to the United States.

23 (2) BIENNIAL REPORT.—

24 (A) IN GENERAL.—Not later than 2 years
25 after the date of enactment of this Act, and bi-

1 ennially thereafter, the Director shall submit to
2 the Committee on Commerce, Science, and
3 Transportation of the Senate, the Committee on
4 Science, Space, and Technology of the House of
5 Representatives, and other relevant committees
6 of Congress a report that includes—

7 (i) a description of the activities car-
8 ried out under this Act;

9 (ii) a description of the active com-
10 petitions and the results of completed com-
11 petitions under the AI Grand Challenges
12 Program; and

13 (iii) efforts to provide information to
14 the public about the AI Grand Challenges
15 Program to encourage participation.

16 (B) PUBLIC ACCESSIBILITY.—The Director
17 shall make the biennial report required under
18 subparagraph (A) publicly accessible, including
19 by posting the biennial report on the website of
20 the National Science Foundation in an easily
21 accessible location.

22 (i) ACCESSIBILITY.—In carrying out the AI Grand
23 Challenges Program, the Director shall post the active
24 prize competitions and available prize awards under sub-
25 section (b) to Challenge.gov after the grand challenges are

1 selected and the prize competitions are designed pursuant
2 to subsections (c) and (e) to ensure the prize competitions
3 are widely accessible to eligible participants.

4 **SEC. 3. COORDINATION ON FEDERAL PUBLICATION OF**
5 **GRAND CHALLENGE DATA SETS.**

6 The Director of the Office of Science and Technology
7 Policy shall coordinate Federal agencies that fund science
8 to identify and publish data sets for grand challenges
9 that—

10 (1) address foundational scientific problems
11 that if addressed would significantly advance sci-
12 entific understanding; and

13 (2) can be addressed through innovation from
14 the use of artificial intelligence.