

National Artificial Intelligence Initiative Act of 2020

Division E of Public Law 116-283,¹ current as of April 15, 2023²

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¹ William M. (Mac) Thornberry National Defense Authorization Act for Fiscal Year 2021 (NDAA for FY21).

² While this publication does not represent an official version of any Federal statute, substantial efforts have been made to ensure the accuracy of its contents. The official version of Federal law is found in the United States Statutes at Large and in the United States Code. The legal effect to be given to the Statutes at Large and the United States Code is established by statute (1 U.S.C. 112, 204).

SEC. 5001. [15 U.S.C. 9401 NOTE] SHORT TITLE.

This division may be cited as the “National Artificial Intelligence Initiative Act of 2020”.

SEC. 5002. [15 U.S.C. 9401] DEFINITIONS.

In this division:

(1) **ADVISORY COMMITTEE.**—The term “Advisory Committee” means the National Artificial Intelligence Advisory Committee established under section 5104(a).

(2) **AGENCY HEAD.**—The term “agency head” means the head of any Executive agency (as defined in section 105 of title 5, United States Code).

(3) **ARTIFICIAL INTELLIGENCE.**—The term “artificial intelligence” means a machine-based system that can, for a given set of human-defined objectives, make predictions, recommendations or decisions influencing real or virtual environments. Artificial intelligence systems use machine and human-based inputs to—

(A) perceive real and virtual environments;

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

(C) use model inference to formulate options for information or action.

(4) **COMMUNITY COLLEGE.**—The term “community college” means a public institution of higher education at which the highest degree that is predominantly awarded to students is an associate’s degree, including 2-year Tribal Colleges or Universities under section 316 of the Higher Education Act of 1965 (20 U.S.C. 1059c) and public 2-year State institutions of higher education.

(5) **INITIATIVE.**—The term “Initiative” means the National Artificial Intelligence Initiative established under section 5101(a).

(6) **INITIATIVE OFFICE.**—The term “Initiative Office” means the National Artificial Intelligence Initiative Office established under section 5102(a).

(7) **INSTITUTE.**—The term “Institute” means an Artificial Intelligence Research Institute described in section 5201(b)(2).

(8) **INSTITUTION OF HIGHER EDUCATION.**—The term “institution of higher education” has the meaning given the term in section 101 and section 102(c) of the Higher Education Act of 1965 (20 U.S.C. 1001).

(9) INTERAGENCY COMMITTEE.—The term “Interagency Committee” means the interagency committee established under section 5103(a).

(10) K-12 EDUCATION.—The term “K-12 education” means elementary school and secondary school education provided by local educational agencies, as such agencies are defined in section 8101 of the Elementary and Secondary Education Act of 1965 (20 U.S.C. 7801).

(11) MACHINE LEARNING.—The term “machine learning” means an application of artificial intelligence that is characterized by providing systems the ability to automatically learn and improve on the basis of data or experience, without being explicitly programmed.

TITLE LI—NATIONAL ARTIFICIAL INTELLIGENCE INITIATIVE

SEC. 5101. [15 U.S.C. 9411] NATIONAL ARTIFICIAL INTELLIGENCE INITIATIVE.

(a) ESTABLISHMENT; PURPOSES.—The President shall establish and implement an initiative to be known as the “National Artificial Intelligence Initiative”. The purposes of the Initiative shall be to—

(1) ensure continued United States leadership in artificial intelligence research and development;

(2) lead the world in the development and use of trustworthy artificial intelligence systems in the public and private sectors;

(3) prepare the present and future United States workforce for the integration of artificial intelligence systems across all sectors of the economy and society; and

(4) coordinate ongoing artificial intelligence research, development, and demonstration activities among the civilian agencies, the Department of Defense and the Intelligence Community to ensure that each informs the work of the others.

(b) INITIATIVE ACTIVITIES.—In carrying out the Initiative, the President, acting through the Initiative Office, the Interagency Committee, and agency heads as the President considers appropriate, shall carry out activities that include the following:

(1) Sustained and consistent support for artificial intelligence research and development through grants, cooperative agreements, testbeds, and access to data and computing resources.

(2) Support for K-12 education and postsecondary educational programs, including workforce training and career and technical education programs, and informal education programs to prepare the American workforce and the general public to be able to create, use, and interact with artificial intelligence systems.

(3) Support for interdisciplinary research, education, and workforce training programs for students and researchers that promote learning in the methods and systems used in artificial intelligence and foster interdisciplinary perspectives and collaborations among subject matter experts in relevant fields, including computer science, mathematics, statistics, engineering, social sciences, health, psychology, behavioral science, ethics, security, legal scholarship, and other disciplines that will be necessary to advance artificial intelligence research and development responsibly.

(4) Interagency planning and coordination of Federal artificial intelligence research, development, demonstration, standards engagement, and other activities under the Initiative, as appropriate.

(5) Outreach to diverse stakeholders, including citizen groups, industry, and civil rights and disability rights organizations, to ensure public input is taken into account in the activities of the Initiative.

(6) Leveraging existing Federal investments to advance objectives of the Initiative.

(7) Support for a network of interdisciplinary artificial intelligence research institutes, as described in section 5201(b)(7)(B).

(8) Support opportunities for international cooperation with strategic allies, as appropriate, on the research and development, assessment, and resources for trustworthy artificial intelligence systems.

(c) LIMITATION.—The Initiative shall not impact sources and methods, as determined by the Director of National Intelligence.

(d) RULES OF CONSTRUCTION.—Nothing in this division shall be construed as—

(1) modifying any authority or responsibility, including any operational authority or responsibility of any head of a Federal department or agency, with respect to intelligence or the intelligence community, as those terms are defined in 50 U.S.C. 3003;³

(2) authorizing the Initiative, or anyone associated with its derivative efforts to approve, interfere with, direct or to conduct an intelligence activity, resource, or operation; or

(3) authorizing the Initiative, or anyone associated with its derivative efforts to modify the classification of intelligence information.

(e) SUNSET.—The Initiative established in this division shall terminate on the date that is 10 years after the date of enactment of this Act.

³ As in the law; probably should have been a reference to section 3 of the National Security Act of 1947, (50 U.S.C. 3003).

SEC. 5102. [15 U.S.C. 9412] NATIONAL ARTIFICIAL INTELLIGENCE INITIATIVE OFFICE.

(a) IN GENERAL.—The Director of the Office of Science and Technology Policy shall establish or designate, and appoint a director of, an office to be known as the “National Artificial Intelligence Initiative Office” to carry out the responsibilities described in subsection (b) with respect to the Initiative. The Initiative Office shall have sufficient staff to carry out such responsibilities, including staff detailed from the Federal departments and agencies described in section 5103(c), as appropriate.

(b) RESPONSIBILITIES.—The Director of the Initiative Office shall—

(1) provide technical and administrative support to the Interagency Committee and the Advisory Committee;

(2) serve as the point of contact on Federal artificial intelligence activities for Federal departments and agencies, industry, academia, nonprofit organizations, professional societies, State governments, and such other persons as the Initiative Office considers appropriate to exchange technical and programmatic information;

(3) conduct regular public outreach to diverse stakeholders, including civil rights and disability rights organizations; and

(4) promote access to the technologies, innovations, best practices, and expertise derived from Initiative activities to agency missions and systems across the Federal Government.

(c) FUNDING ESTIMATE.—The Director of the Office of Science and Technology Policy, in coordination with each participating Federal department and agency, as appropriate, shall develop and annually update an estimate of the funds necessary to carry out the activities of the Initiative Coordination Office and submit such estimate with an agreed summary of contributions from each agency to Congress as part of the President’s annual budget request to Congress.

SEC. 5103. [15 U.S.C. 9413] COORDINATION BY INTERAGENCY COMMITTEE.

(a) INTERAGENCY COMMITTEE.—The Director of the Office of Science and Technology Policy, acting through the National Science and Technology Council, shall establish or designate an Interagency Committee to coordinate Federal programs and activities in support of the Initiative.

(b) Co-Chairs.—The Interagency Committee shall be co-chaired by the Director of the Office of Science and Technology Policy and, on an annual rotating basis, a representative from the Department of Commerce, the National Science Foundation, or the Department of Energy, as selected by the Director of the Office of Science and Technology Policy.

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(c) AGENCY PARTICIPATION.—The Committee shall include representatives from Federal agencies as considered appropriate by determination and agreement of the Director of the Office of Science and Technology Policy and the head of the affected agency.

(d) RESPONSIBILITIES.—The Interagency Committee shall—

(1) provide for interagency coordination of Federal artificial intelligence research, development, and demonstration activities and education and workforce training activities and programs of Federal departments and agencies undertaken pursuant to the Initiative;

(2) not later than 2 years after the date of the enactment of this Act, develop a strategic plan for artificial intelligence (to be updated not less than every 3 years) that establishes goals, priorities, and metrics for guiding and evaluating how the agencies carrying out the Initiative will—

(A) determine and prioritize areas of artificial intelligence research, development, and demonstration requiring Federal Government leadership and investment;

(B) support long-term funding for interdisciplinary artificial intelligence research, development, demonstration, and education;

(C) support research and other activities on ethical, legal, environmental, safety, security, bias, and other appropriate societal issues related to artificial intelligence;

(D) provide or facilitate the availability of curated, standardized, secure, representative, aggregate, and privacy-protected data sets for artificial intelligence research and development;

(E) provide or facilitate the necessary computing, networking, and data facilities for artificial intelligence research and development;

(F) support and coordinate Federal education and workforce training activities related to artificial intelligence; and

(G) support and coordinate the network of artificial intelligence research institutes described in section 5201(b)(7)(B);

(3) as part of the President's annual budget request to Congress, propose an annually coordinated interagency budget for the Initiative to the Office of Management and Budget that is intended to ensure that the balance of funding across the Initiative is sufficient to meet the goals and priorities established for the Initiative; and

(4) in carrying out this section, take into consideration the recommendations of the Advisory Committee, existing reports on related topics, and the views of academic, State, industry, and other appropriate groups.

(e) ANNUAL REPORT.—For each fiscal year beginning with fiscal year 2022, not later than 90 days after submission of the President’s annual budget request for such fiscal year, the Interagency Committee shall prepare and submit to the Committee on Science, Space, and Technology, the Committee on Energy and Commerce, the Committee on Transportation and Infrastructure, the Committee on Armed Services, the House Permanent Select Committee on Intelligence, the Committee on the Judiciary, and the Committee on Appropriations of the House of Representatives and the Committee on Commerce, Science, and Transportation, the Committee on Health, Education, Labor, and Pensions, the Committee on Energy and Natural Resources, the Committee on Homeland Security and Governmental Affairs, the Committee on Armed Services, the Senate Select Committee on Intelligence, the Committee on the Judiciary, and the Committee on Appropriations of the Senate a report that includes a summarized budget in support of the Initiative for such fiscal year and the preceding fiscal year, including a disaggregation of spending and a description of any Institutes established under section 5201 for the Department of Commerce, the Department of Defense, the Department of Energy, the Department of Agriculture, the Department of Health and Human Services, and the National Science Foundation.

SEC. 5104. [15 U.S.C. 9414] NATIONAL ARTIFICIAL INTELLIGENCE ADVISORY COMMITTEE.

(a) IN GENERAL.—The Secretary of Commerce shall, in consultation with the Director of the Office of Science and Technology Policy, the Secretary of Defense, the Secretary of Energy, the Secretary of State, the Attorney General, and the Director of National Intelligence establish an advisory committee to be known as the “National Artificial Intelligence Advisory Committee”.

(b) QUALIFICATIONS.—The Advisory Committee shall consist of members, appointed by the Secretary of Commerce, who are representing broad and interdisciplinary expertise and perspectives, including from academic institutions, companies across diverse sectors, nonprofit and civil society entities, including civil rights and disability rights organizations, and Federal laboratories, who are representing geographic diversity, and who are qualified to provide advice and information on science and technology research, development, ethics, standards, education, technology transfer, commercial application, security, and economic competitiveness related to artificial intelligence.

(c) MEMBERSHIP CONSIDERATION.—In selecting the members of the Advisory Committee, the Secretary of Commerce shall seek and give consideration to recommendations from Congress, industry, nonprofit organizations, the scientific community (including the National Academies of Sciences, Engineering, and Medicine, scientific professional societies, and academic institutions), the defense and law enforcement communities, and other appropriate organizations.

(d) DUTIES.—The Advisory Committee shall advise the President and the Initiative Office on matters related to the Initiative, including recommendations related to—

(1) the current state of United States competitiveness and leadership in artificial intelligence, including the scope and scale of United States investments in artificial intelligence research and development in the international context;

(2) the progress made in implementing the Initiative, including a review of the degree to which the Initiative has achieved the goals according to the metrics established by the Interagency Committee under section 5103(d)(2);

(3) the state of the science around artificial intelligence, including progress toward artificial general intelligence;

(4) issues related to artificial intelligence and the United States workforce, including matters relating to the potential for using artificial intelligence for workforce training, the possible consequences of technological displacement, and supporting workforce training opportunities for occupations that lead to economic self-sufficiency for individuals with barriers to employment and historically underrepresented populations, including minorities, Indians (as defined in 25 U.S.C. 5304)⁴, low-income populations, and persons with disabilities.⁵

(5) how to leverage the resources of the initiative to streamline and enhance operations in various areas of government operations, including health care, cybersecurity, infrastructure, and disaster recovery;

(6) the need to update the Initiative;

(7) the balance of activities and funding across the Initiative;

(8) whether the strategic plan developed or updated by the Interagency Committee established under section 5103(d)(2) is helping to maintain United States leadership in artificial intelligence;

(9) the management, coordination, and activities of the Initiative;

(10) whether ethical, legal, safety, security, and other appropriate societal issues are adequately addressed by the Initiative;

(11) opportunities for international cooperation with strategic allies on artificial intelligence research activities, standards development, and the compatibility of international regulations;

(12) accountability and legal rights, including matters relating to oversight of artificial intelligence systems using regulatory and nonregulatory approaches, the responsibility for

⁴ As in the law; probably should have been a reference to section 4 of the Indian Self-Determination and Education Assistance Act (25 U.S.C. 5304).

⁵ As in the law; the period should probably be a semi-colon.

any violations of existing laws by an artificial intelligence system, and ways to balance advancing innovation while protecting individual rights; and

(13) how artificial intelligence can enhance opportunities for diverse geographic regions of the United States, including urban, Tribal, and rural communities.

(e) SUBCOMMITTEE ON ARTIFICIAL INTELLIGENCE AND LAW ENFORCEMENT.—

(1) ESTABLISHMENT.—The chairperson of the Advisory Committee shall establish a subcommittee on matters relating to the development of artificial intelligence relating to law enforcement matters.

(2) ADVICE.—The subcommittee shall provide advice to the President on matters relating to the development of artificial intelligence relating to law enforcement, including advice on the following:

(A) Bias, including whether the use of facial recognition by government authorities, including law enforcement agencies, is taking into account ethical considerations and addressing whether such use should be subject to additional oversight, controls, and limitations.

(B) Security of data, including law enforcement’s access to data and the security parameters for that data.

(C) Adoptability, including methods to allow the United States Government and industry to take advantage of artificial intelligence systems for security or law enforcement purposes while at the same time ensuring the potential abuse of such technologies is sufficiently mitigated.

(D) Legal standards, including those designed to ensure the use of artificial intelligence systems are consistent with the privacy rights, civil rights and civil liberties, and disability rights issues raised by the use of these technologies.

(f) REPORTS.—Not later than 1 year after the date of the enactment of this Act, and not less frequently than once every 3 years thereafter, the Advisory Committee shall submit to the President, the Committee on Science, Space, and Technology, the Committee on Energy and Commerce, the House Permanent Select Committee on Intelligence, the Committee on the Judiciary, and the Committee on Armed Services of the House of Representatives, and the Committee on Commerce, Science, and Transportation, the Senate Select Committee on Intelligence, the Committee on Homeland Security and Governmental Affairs, the Committee on the Judiciary, and the Committee on Armed Services of the Senate, a report on the Advisory Committee’s findings and recommendations under subsection (d) and subsection (e).

(g) TRAVEL EXPENSES OF NON-FEDERAL MEMBERS.—Non-Federal members of the Advisory Committee, while attending meetings of the Advisory Committee or while otherwise serving at the request of the head of the Advisory Committee away from their homes or regular

places of business, may be allowed travel expenses, including per diem in lieu of subsistence, as authorized by section 5703 of title 5, United States Code, for individuals in the Government serving without pay. Nothing in this subsection shall be construed to prohibit members of the Advisory Committee who are officers or employees of the United States from being allowed travel expenses, including per diem in lieu of subsistence, in accordance with existing law.

(h) **FACA EXEMPTION.**—The Secretary of Commerce shall charter the Advisory Committee in accordance with the Federal Advisory Committee Act (5 U.S.C. App.), except that the Advisory Committee shall be exempt from section 14 of such Act.

SEC. 5105. NATIONAL ACADEMIES ARTIFICIAL INTELLIGENCE IMPACT STUDY ON WORKFORCE.

(a) **IN GENERAL.**—Not later than 90 days after the date of the enactment of this Act, the National Science Foundation shall enter into a contract with the National Research Council of the National Academies of Sciences, Engineering, and Medicine to conduct a study of the current and future impact of artificial intelligence on the workforce of the United States across sectors.

(b) **CONTENTS.**—The study shall address—

(1) workforce impacts across sectors caused by the increased adoption of artificial intelligence, automation, and other related trends;

(2) workforce needs and employment opportunities generated by the increased adoption of artificial intelligence across sectors;

(3) research gaps and data needed to better understand and track paragraphs (1) and (2); and (4) recommendations to address the challenges and opportunities described in paragraphs (1), (2), and (3).

(c) **STAKEHOLDERS.**—In conducting the study, the National Academies of Sciences, Engineering, and Medicine shall seek input from a wide range of stakeholders in the public and private sectors.

(d) **REPORT TO CONGRESS.**—The contract entered into under subsection (a) shall require the National Academies of Sciences, Engineering, and Medicine, not later than 2 years after the date of the enactment of this Act, to—

(1) submit to the Committee on Science, Space, and Technology and the Committee on Education and Labor of the House of Representatives and the Committee on Commerce, Science, and Transportation and the Committee on Health, Education, Pension, and Labor of the Senate a report containing the findings and recommendations of the study conducted under subsection (a); and

(2) make a copy of such report available on a publicly accessible website.

SEC. 5106. [15 U.S.C. 9415] NATIONAL AI RESEARCH RESOURCE TASK FORCE.

(a) ESTABLISHMENT OF TASK FORCE.—

(1) ESTABLISHMENT.—

(A) IN GENERAL.—The Director of the National Science Foundation, in coordination with the Office of Science and Technology Policy, shall establish a task force—

(i) to investigate the feasibility and advisability of establishing and sustaining a National Artificial Intelligence Research Resource; and

(ii) to propose a roadmap detailing how such resource should be established and sustained.

(B) DESIGNATION.—The task force established by subparagraph (A) shall be known as the “National Artificial Intelligence Research Resource Task Force” (in this section referred to as the “Task Force”).

(2) MEMBERSHIP.—

(A) COMPOSITION.—The Task Force shall be composed of 12 members selected by the co-chairpersons of the Task Force from among technical experts in artificial intelligence or related subjects, of whom—

(i) 4 shall be representatives from the Interagency Committee established in section 5103, including the co-chairpersons of the Task Force;

(ii) 4 shall be representatives from institutions of higher education; and

(iii) 4 shall be representatives from private organizations.

(B) APPOINTMENT.—Not later than 120 days after enactment of this Act, the co-chairpersons of the Task Force shall appoint members to the Task Force pursuant to subparagraph (A).

(C) TERM OF APPOINTMENT.—Members of the Task Force shall be appointed for the life of the Task Force.

(D) VACANCY.—Any vacancy occurring in the membership of the Task Force shall be filled in the same manner in which the original appointment was made.

(E) CO-CHAIRPERSONS.—The Director of the Office of Science and Technology Policy and the Director of the National Sciences Foundation,⁶ or their designees, shall be the co-chairpersons of the Task Force. If the role of the Director of the National Science Foundation is vacant, the Chair of the National Science Board shall act as a co-chairperson of the Task Force.

(F) EXPENSES FOR NON-FEDERAL MEMBERS.—

(i) Except as provided in clause (ii), non-Federal Members of the Task Force shall not receive compensation for their participation on the Task Force.

(ii) Non-Federal Members of the Task Force shall be allowed travel expenses, including per diem in lieu of subsistence, at rates authorized for employees under subchapter I of chapter 57 of title 5, United States Code, while away from their homes or regular places of business in the performance of services for the Task Force.

(b) ROADMAP AND IMPLEMENTATION PLAN.—

(1) IN GENERAL.—The Task Force shall develop a coordinated roadmap and implementation plan for creating and sustaining a National Artificial Intelligence Research Resource.

(2) CONTENTS.—The roadmap and plan required by paragraph (1) shall include the following:

(A) Goals for establishment and sustainment of a National Artificial Intelligence Research Resource and metrics for success.

(B) A plan for ownership and administration of the National Artificial Intelligence Research Resource, including—

(i) an appropriate agency or organization responsible for the implementation, deployment, and administration of the Resource; and

(ii) a governance structure for the Resource, including oversight and decision-making authorities.

(C) A model for governance and oversight to establish strategic direction, make programmatic decisions, and manage the allocation of resources;⁷

(D) Capabilities required to create and maintain a shared computing infrastructure to facilitate access to computing resources for researchers across the country, including scalability, secured access control, resident data engineering and curation expertise,

⁶ As in the law; probably should be “National Science Foundation”.

⁷ As in the law; the semi-colon should probably be a period.

provision of curated data sets, compute resources, educational tools and services, and a user interface portal.

(E) An assessment of, and recommended solutions to, barriers to the dissemination and use of high-quality government data sets as part of the National Artificial Intelligence Research Resource.

(F) An assessment of security requirements associated with the National Artificial Intelligence Research Resource and its research and a recommendation for a framework for the management of access controls.

(G) An assessment of privacy and civil rights and civil liberties requirements associated with the National Artificial Intelligence Research Resource and its research.

(H) A plan for sustaining the Resource, including through Federal funding and partnerships with the private sector.

(I) Parameters for the establishment and sustainment of the National Artificial Intelligence Research Resource, including agency roles and responsibilities and milestones to implement the Resource.

(c) CONSULTATIONS.—In conducting its duties required under subsection (b), the Task Force shall consult with the following:

- (1) The National Science Foundation.
- (2) The Office of Science and Technology Policy.
- (3) The National Academies of Sciences, Engineering, and Medicine.
- (4) The National Institute of Standards and Technology.
- (5) The Director of National Intelligence.
- (6) The Department of Energy.
- (7) The Department of Defense.
- (8) The General Services Administration.
- (9) The Department of Justice.
- (10) The Department of Homeland Security.
- (11) The Department of Health and Human Services.

(12) Private industry.

(13) Institutions of higher education.

(14) Civil and disabilities rights organizations.

(15) Such other persons as the Task Force considers appropriate.

(d) **STAFF.**—Staff of the Task Force shall comprise detailees with expertise in artificial intelligence, or related fields from the Office of Science and Technology Policy, the National Science Foundation, or any other agency the co-chairs deem appropriate, with the consent of the head of the agency.

(e) **TASK FORCE REPORTS.**—

(1) **INITIAL REPORT.**—Not later than 12 months after the date on which all of the appointments have been made under subsection (a)(2)(B), the Task Force shall submit to Congress and the President an interim report containing the findings, conclusions, and recommendations of the Task Force. The report shall include specific recommendations regarding steps the Task Force believes necessary for the establishment and sustainment of a National Artificial Intelligence Research Resource.

(2) **FINAL REPORT.**—Not later than 6 months after the submittal of the interim report under paragraph (1), the Task Force shall submit to Congress and the President a final report containing the findings, conclusions, and recommendations of the Task Force, including the specific recommendations required by subsection (b).

(f) **TERMINATION.**—

(1) **IN GENERAL.**—The Task Force shall terminate 90 days after the date on which it submits the final report under subsection (e)(2).

(2) **RECORDS.**—Upon termination of the Task Force, all of its records shall become the records of the National Archives and Records Administration.

(g) **DEFINITIONS.**—In this section:

(1) **NATIONAL ARTIFICIAL INTELLIGENCE RESEARCH RESOURCE AND RESOURCE.**—The terms “National Artificial Intelligence Research Resource” and “Resource” mean a system that provides researchers and students across scientific fields and disciplines with access to compute resources, co-located with publicly-available, artificial intelligence-ready government and non-government data sets and a research environment with appropriate educational tools and user support.

(2) OWNERSHIP.—The term “ownership” means responsibility and accountability for the implementation, deployment, and ongoing development of the National Artificial Intelligence Research Resource, and for providing staff support to that effort.

TITLE LII—NATIONAL ARTIFICIAL INTELLIGENCE RESEARCH INSTITUTES

SEC. 5201. [15 U.S.C. 9431] NATIONAL ARTIFICIAL INTELLIGENCE RESEARCH INSTITUTES.

(a) IN GENERAL.—Subject to the availability of funds appropriated for this purpose, the Director of the National Science Foundation shall establish a program to award financial assistance for the planning, establishment, and support of a network of Institutes (as described in subsection (b)(2)) in accordance with this section.

(b) FINANCIAL ASSISTANCE TO ESTABLISH AND SUPPORT NATIONAL ARTIFICIAL INTELLIGENCE RESEARCH INSTITUTES.—

(1) IN GENERAL.—Subject to the availability of funds appropriated for this purpose, the Secretary of Energy, the Secretary of Commerce, the Director of the National Science Foundation, and every other agency head may award financial assistance to an eligible entity, or consortia thereof, as determined by an agency head, to establish and support an Institute.

(2) ARTIFICIAL INTELLIGENCE INSTITUTES.—An Institute described in this subsection is an artificial intelligence research institute that—

(A) is focused on—

(i) a particular economic or social sector, including health, education, manufacturing, agriculture, security, energy, and environment, and includes a component that addresses the ethical, societal, safety, and security implications relevant to the application of artificial intelligence in that sector; or

(ii) a cross-cutting challenge for artificial intelligence systems, including trustworthiness, or foundational science;

(B) requires partnership among public and private organizations, including, as appropriate, Federal agencies, institutions of higher education, including community colleges, nonprofit research organizations, Federal laboratories, State, local, and Tribal governments, industry, including startup companies, and civil society organizations, including civil rights and disability rights organizations (or consortia thereof);

(C) has the potential to create an innovation ecosystem, or enhance existing ecosystems, to translate Institute research into applications and products, as appropriate to the topic of each Institute;

(D) supports interdisciplinary research and development across multiple institutions of higher education and organizations;

(E) supports interdisciplinary education activities, including curriculum development, research experiences, and faculty professional development across undergraduate, graduate, and professional academic programs; and

(F) supports workforce development in artificial intelligence related disciplines in the United States, including increasing participation of historically underrepresented communities.

(3) USE OF FUNDS.—Financial assistance awarded under paragraph (1) may be used by an Institute for—

(A) managing and making available to researchers accessible, curated, standardized, secure, and privacy protected data sets from the public and private sectors for the purposes of training and testing artificial intelligence systems and for research using artificial intelligence systems, pursuant to subsections (c), (e), and (f) of section 22A the National Institute of Standards and Technology Act (as added by section 5301 of this division);

(B) developing and managing testbeds for artificial intelligence systems, including sector-specific test beds, designed to enable users to evaluate artificial intelligence systems prior to deployment;

(C) conducting research and education activities involving artificial intelligence systems to solve challenges with social, economic, health, scientific, and national security implications;

(D) providing or brokering access to computing resources, networking, and data facilities for artificial intelligence research and development relevant to the Institute's research goals;

(E) providing technical assistance to users, including software engineering support, for artificial intelligence research and development relevant to the Institute's research goals;

(F) engaging in outreach and engagement to broaden participation in artificial intelligence research and the artificial intelligence workforce; and

(G) such other activities that an agency head, whose agency's missions contribute to or are affected by artificial intelligence, considers consistent with the purposes described in section 5101(a).

(4) DURATION.—

(A) INITIAL PERIODS.—An award of financial assistance under paragraph (1) shall be awarded for an initial period of 5 years.

(B) EXTENSION.—An established Institute may apply for, and the agency head may grant, extended funding for periods of 5 years on a merit-reviewed basis using the merit review criteria of the sponsoring agency.

(5) APPLICATION FOR FINANCIAL ASSISTANCE.—A person seeking financial assistance under paragraph (1) shall submit to an agency head an application at such time, in such manner, and containing such information as the agency head may require.

(6) COMPETITIVE, MERIT REVIEW.—In awarding financial assistance under paragraph (1), the agency head shall—

(A) use a competitive, merit review process that includes peer review by a diverse group of individuals with relevant expertise from both the private and public sectors; and

(B) ensure the focus areas of the Institute do not substantially and unnecessarily duplicate the efforts of any other Institute.

(7) COLLABORATION.—

(A) IN GENERAL.—In awarding financial assistance under paragraph (1), an agency head may collaborate with Federal departments and agencies whose missions contribute to or are affected by artificial intelligence systems.

(B) COORDINATING NETWORK.—The Director of the National Science Foundation shall establish a network of Institutes receiving financial assistance under this subsection, to be known as the “Artificial Intelligence Leadership Network”, to coordinate cross-cutting research and other activities carried out by the Institutes.

(8) LIMITATION.—No funds authorized in this title shall be awarded to Institutes outside of the United States. All awardees and subawardees for such Institute shall be based in the United States, in addition to any other eligibility criteria as established by each agency head.

TITLE LIII—DEPARTMENT OF COMMERCE ARTIFICIAL INTELLIGENCE ACTIVITIES

SEC. 5301. NATIONAL INSTITUTE OF STANDARDS AND TECHNOLOGY ACTIVITIES.

The National Institute of Standards and Technology Act (15 U.S.C. 271 et seq.) is amended by inserting after section 22 the following:

“SEC. 22A. [15 U.S.C. 278H-1] STANDARDS FOR ARTIFICIAL INTELLIGENCE

“(a) MISSION.—The Institute shall—

“(1) advance collaborative frameworks, standards, guidelines, and associated methods and techniques for artificial intelligence;

“(2) support the development of a risk-mitigation framework for deploying artificial intelligence systems;

“(3) support the development of technical standards and guidelines that promote trustworthy artificial intelligence systems; and

“(4) support the development of technical standards and guidelines by which to test for bias in artificial intelligence training data and applications.

“(b) SUPPORTING ACTIVITIES.—The Director of the National Institute of Standards and Technology may—

“(1) support measurement research and development of best practices and voluntary standards for trustworthy artificial intelligence systems, which may include—

“(A) privacy and security, including for datasets used to train or test artificial intelligence systems and software and hardware used in artificial intelligence systems;

“(B) advanced computer chips and hardware designed for artificial intelligence systems;

“(C) data management and techniques to increase the usability of data, including strategies to systematically clean, label, and standardize data into forms useful for training artificial intelligence systems and the use of common, open licenses;

“(D) safety and robustness of artificial intelligence systems, including assurance, verification, validation, security, control, and the ability for artificial intelligence systems to withstand unexpected inputs and adversarial attacks;

“(E) auditing mechanisms and benchmarks for accuracy, transparency, verifiability, and safety assurance for artificial intelligence systems;

“(F) applications of machine learning and artificial intelligence systems to improve other scientific fields and engineering;

“(G) model documentation, including performance metrics and constraints, measures of fairness, training and testing processes, and results;

“(H) system documentation, including connections and dependences within and between systems, and complications that may arise from such connections; and

“(I) all other areas deemed by the Director to be critical to the development and deployment of trustworthy artificial intelligence;

“(2) produce curated, standardized, representative, high-value, secure, aggregate, and privacy protected data sets for artificial intelligence research, development, and use;

“(3) support one or more institutes as described in section 5201(b) of the National Artificial Intelligence Initiative Act of 2020 for the purpose of advancing measurement science, voluntary consensus standards, and guidelines for trustworthy artificial intelligence systems;

“(4) support and strategically engage in the development of voluntary consensus standards, including international standards, through open, transparent, and consensus-based processes; and

“(5) enter into and perform such contracts, including cooperative research and development arrangements and grants and cooperative agreements or other transactions, as may be necessary in the conduct of the work of the National Institute of Standards and Technology and on such terms as the Director considers appropriate, in furtherance of the purposes of this division.

“(c) RISK MANAGEMENT FRAMEWORK.—Not later than 2 years after the date of the enactment of this Act, the Director shall work to develop, and periodically update, in collaboration with other public and private sector organizations, including the National Science Foundation and the Department of Energy, a voluntary risk management framework for trustworthy artificial intelligence systems. The framework shall—

“(1) identify and provide standards, guidelines, best practices, methodologies, procedures and processes for—

“(A) developing trustworthy artificial intelligence systems;

“(B) assessing the trustworthiness of artificial intelligence systems; and

“(C) mitigating risks from artificial intelligence systems;

“(2) establish common definitions and characterizations for aspects of trustworthiness, including explainability, transparency, safety, privacy, security, robustness, fairness, bias, ethics, validation, verification, interpretability, and other properties related to artificial intelligence systems that are common across all sectors;

“(3) provide case studies of framework implementation;

“(4) align with international standards, as appropriate;

“(5) incorporate voluntary consensus standards and industry best practices; and

“(6) not prescribe or otherwise require the use of specific information or communications technology products or services.

“(d) PARTICIPATION IN STANDARD SETTING ORGANIZATIONS.—

“(1) REQUIREMENT.—The Institute shall participate in the development of standards and specifications for artificial intelligence.

“(2) PURPOSE.—The purpose of this participation shall be to ensure—

“(A) that standards promote artificial intelligence systems that are trustworthy; and

“(B) that standards relating to artificial intelligence reflect the state of technology and are fit-for-purpose and developed in transparent and consensus-based processes that are open to all stakeholders.

“(e) DATA SHARING BEST PRACTICES.—Not later than 1 year after the date of enactment of this Act, the Director shall, in collaboration with other public and private sector organizations, develop guidance to facilitate the creation of voluntary data sharing arrangements between industry, federally funded research centers, and Federal agencies for the purpose of advancing artificial intelligence research and technologies, including options for partnership models between government entities, industry, universities, and nonprofits that incentivize each party to share the data they collected.

“(f) BEST PRACTICES FOR DOCUMENTATION OF DATA SETS.—Not later than 1 year after the date of enactment of this Act, the Director shall, in collaboration with other public and private sector organizations, develop best practices for datasets used to train artificial intelligence systems, including—

“(1) standards for metadata that describe the properties of datasets, including—

“(A) the origins of the data;

“(B) the intent behind the creation of the data;

“(C) authorized uses of the data;

“(D) descriptive characteristics of the data, including what populations are included and excluded from the datasets; and

“(E) any other properties as determined by the Director; and

“(2) standards for privacy and security of datasets with human characteristics.

“(g) AUTHORIZATION OF APPROPRIATIONS.—There are authorized to be appropriated to the National Institute of Standards and Technology to carry out this section—

“(1) \$64,000,000 for fiscal year 2021;

“(2) \$70,400,000 for fiscal year 2022;

“(3) \$77,440,000 for fiscal year 2023;

“(4) \$85,180,000 for fiscal year 2024; and

“(5) \$93,700,000 for fiscal year 2025.”.

SEC. 5302. [15 U.S.C. 9441] STAKEHOLDER OUTREACH.

In carrying out the activities under section 22A of the National Institute of Standards and Technology Act (15 U.S.C. 271 et seq.) as amended by title III of this Act, the Director shall—

(1) solicit input from university researchers, private sector experts, relevant Federal agencies, Federal laboratories, State, Tribal, and local governments, civil society groups, and other relevant stakeholders;

(2) solicit input from experts in relevant fields of social science, technology ethics, and law; and

(3) provide opportunity for public comment on guidelines and best practices developed as part of the Initiative, as appropriate.

SEC. 5303. [15 U.S.C. 9442] NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION ARTIFICIAL INTELLIGENCE CENTER.

(a) IN GENERAL.—The Administrator of the National Oceanic and Atmospheric Administration (hereafter referred to as “the Administrator”) shall establish,⁸ a Center for Artificial Intelligence (hereafter referred to as “the Center”).

(b) CENTER GOALS.—The goals of the Center shall be to—

(1) coordinate and facilitate the scientific and technological efforts related to artificial intelligence across the National Oceanic and Atmospheric Administration; and

⁸ As in the law; the comma probably should not appear.

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(2) expand external partnerships, and build workforce proficiency to effectively transition artificial intelligence research and applications to operations.

(c) **COMPREHENSIVE PROGRAM.**—Through the Center, the Administrator shall implement a comprehensive program to improve the use of artificial intelligence systems across the agency in support of the mission of the National Oceanic and Atmospheric Administration.

(d) **CENTER PRIORITIES.**—The priorities of the Center shall be to—

(1) coordinate and facilitate artificial intelligence research and innovation, tools, systems, and capabilities across the National Oceanic and Atmospheric Administration;

(2) establish data standards and develop and maintain a central repository for agency-wide artificial intelligence applications;

(3) accelerate the transition of artificial intelligence research to applications in support of the mission of the National Oceanic and Atmospheric Administration;

(4) develop and conduct training for the workforce of the National Oceanic and Atmospheric Administration related to artificial intelligence research and application of artificial intelligence for such agency;

(5) facilitate partnerships between the National Oceanic and Atmospheric Administration and other public sector organizations, private sector organizations, and institutions of higher education for research, personnel exchange, and workforce development with respect to artificial intelligence systems; and

(6) make data of the National Oceanic and Atmospheric Administration accessible, available, and ready for artificial intelligence applications.

(e) **STAKEHOLDER ENGAGEMENT.**—In carrying out the activities authorized in this section, the Administrator shall—

(1) collaborate with a diverse set of stakeholders including private sector entities and institutions of higher education;

(2) leverage the collective body of research on artificial intelligence and machine learning; and

(3) engage with relevant Federal agencies, research communities, and potential users of data and methods made available through the Center.

(f) **AUTHORIZATION OF APPROPRIATIONS.**—There are authorized to be appropriated to the Administrator to carry out this section \$10,000,000 for fiscal year 2021.

(g) **PROTECTION OF NATIONAL SECURITY INTERESTS.**—

(1) **IN GENERAL.**—Notwithstanding any other provision of this section, the Administrator, in consultation with the Secretary of Defense as appropriate, may withhold models or data used by the Center if the Administrator determines doing so to be necessary to protect the national security interests of the United States.

(2) **RULE OF CONSTRUCTION.**—Nothing in this section shall be construed to supersede any other provision of law governing the protection of the national security interests of the United States.

TITLE LIV—NATIONAL SCIENCE FOUNDATION ARTIFICIAL INTELLIGENCE ACTIVITIES

SEC. 5401. [15 U.S.C. 9451] ARTIFICIAL INTELLIGENCE RESEARCH AND EDUCATION.

(a) **IN GENERAL.**—the Director of the National Science Foundation shall fund research and education activities in artificial intelligence systems and related fields, including competitive awards or grants to institutions of higher education or eligible nonprofit organizations (or consortia thereof).

(b) **USES OF FUNDS.**—In carrying out the activities under subsection (a), the Director of the National Science Foundation shall—

(1) support research, including interdisciplinary research, on artificial intelligence systems and related areas, including fields and research areas that will contribute to the development and deployment of trustworthy artificial intelligence systems, and fields and research areas that address the application of artificial intelligence systems to scientific discovery and societal challenges;

(2) use the existing programs of the National Science Foundation, in collaboration with other Federal departments and agencies, as appropriate to—

(A) improve the teaching and learning of topics related to artificial intelligence systems in K-12 education and postsecondary educational programs, including workforce training and career and technical education programs, undergraduate and graduate education programs, and in informal settings; and

(B) increase participation in artificial intelligence related fields, including by individuals identified in sections 33 and 34 of the Science and Engineering Equal Opportunity Act (42 U.S.C. 1885a, 1885b);

(3) support partnerships among institutions of higher education, Federal laboratories, nonprofit organizations, State, local, and Tribal governments, industry, and potential users of artificial intelligence systems that facilitate collaborative research, personnel exchanges,

and workforce development and identify emerging research needs with respect to artificial intelligence systems;

(4) ensure adequate access to research and education infrastructure with respect to artificial intelligence systems, which may include the development of new computing resources and partnership with the private sector for the provision of cloud-based computing services;

(5) conduct prize competitions, as appropriate, pursuant to section 24 of the Stevenson-Wydler Technology Innovation Act of 1980 (15 U.S.C. 3719);

(6) coordinate research efforts funded through existing programs across the directorates of the National Science Foundation;

(7) provide guidance on data sharing by grantees to public and private sector organizations consistent with the standards and guidelines developed under section 22A(e) of the National Institute of Standards and Technology Act (as added by section 5301 of this division); and

(8) evaluate opportunities for international collaboration with strategic allies on artificial intelligence research and development.

(c) ENGINEERING SUPPORT.—In general, the Director shall permit applicants to include in their proposed budgets funding for software engineering support to assist with the proposed research.

(d) ETHICS.—

(1) SENSE OF CONGRESS.—It is the sense of Congress that—

(A) a number of emerging areas of research, including artificial intelligence, have potential ethical, social, safety, and security risks that might be apparent as early as the basic research stage;

(B) the incorporation of ethical, social, safety, and security considerations into the research design and review process for Federal awards may help mitigate potential harms before they happen;

(C) the National Science Foundation's agreement with the National Academies of Sciences, Engineering, and Medicine to conduct a study and make recommendations with respect to governance of research in computing and computing technologies is a positive step toward accomplishing this goal; and

(D) the National Science Foundation should continue to work with stakeholders to understand and adopt policies that promote best practices for governance of research in emerging technologies at every stage of research.

(2) REPORT ON ETHICS STATEMENTS.—No later than 6 months after publication of the study described in paragraph (1)(C), the Director shall report to Congress on options for requiring an ethics or risk statement as part of all or a subset of applications for research funding to the National Science Foundation.

(e) EDUCATION.—

(1) IN GENERAL.—The Director of the National Science Foundation shall award grants for artificial intelligence education research, development and related activities to support K-12 and postsecondary education programs and activities, including workforce training and career and technical education programs and activities, undergraduate, graduate, and postdoctoral education, and informal education programs and activities that—

(A) support the development of a diverse workforce pipeline for science and technology with respect to artificial intelligence systems;

(B) increase awareness of potential ethical, social, safety, and security risks of artificial intelligence systems;

(C) promote curriculum development for teaching topics related to artificial intelligence, including in the field of technology ethics;

(D) support efforts to achieve equitable access to K-12 artificial intelligence education in diverse geographic areas and for populations historically underrepresented in science, engineering, and artificial intelligence fields; and

(E) promote the widespread understanding of artificial intelligence principles and methods to create an educated workforce and general public able to use products enabled by artificial intelligence systems and adapt to future societal and economic changes caused by artificial intelligence systems.

(2) ARTIFICIAL INTELLIGENCE FACULTY FELLOWSHIPS.—

(A) FACULTY RECRUITMENT FELLOWSHIPS.—

(i) IN GENERAL.—The Director of the National Science Foundation shall establish a program to award grants to eligible institutions of higher education to recruit and retain tenure-track or tenured faculty in artificial intelligence and related fields.

(ii) USE OF FUNDS.—An institution of higher education shall use grant funds provided under clause (i) for the purposes of—

(I) recruiting new tenure-track or tenured faculty members that conduct research and teaching in artificial intelligence and related fields and research areas, including technology ethics; and

(II) paying salary and benefits for the academic year of newly recruited tenure-track or tenured faculty members for a duration of up to three years.

(iii) ELIGIBLE INSTITUTIONS OF HIGHER EDUCATION.—For purposes of this subparagraph, an eligible institution of higher education is—

(I) a Historically Black College and University (within the meaning of the term “part B institution” under section 322 of the Higher Education Act of 1965), Tribal College or University, or other minority-serving institution, as defined in section 371(a) of the Higher Education Act of 1965;

(II) an institution classified under the Carnegie Classification of Institutions of Higher Education as a doctorate-granting university with a high level of research activity; or

(III) an institution located in a State jurisdiction eligible to participate in the National Science Foundation’s Established Program to Stimulate Competitive Research.

(B) FACULTY TECHNOLOGY ETHICS FELLOWSHIPS.—

(i) IN GENERAL.—The Director of the National Science Foundation shall establish a program to award fellowships to tenure-track and tenured faculty in social and behavioral sciences, ethics, law, and related fields to develop new research projects and partnerships in technology ethics.

(ii) PURPOSES.—The purposes of such fellowships are to enable researchers in social and behavioral sciences, ethics, law, and related fields to establish new research and education partnerships with researchers in artificial intelligence and related fields; learn new techniques and acquire systematic knowledge in artificial intelligence and related fields; and mentor and advise graduate students and postdocs pursuing research in technology ethics.

(iii) USES OF FUNDS.—A fellowship may include salary and benefits for up to one academic year, expenses to support coursework or equivalent training in artificial intelligence systems, and additional such expenses that the Director deems appropriate.

(C) UPDATE TO ROBERT NOYCE TEACHER SCHOLARSHIP PROGRAM.—Section 10(i)(5) of the National Science Foundation Authorization Act of 2002 (42 U.S.C. 1862n-1(i)(5)) is amended by inserting “and artificial intelligence” after “computer science”.

(3) UPDATE TO ADVANCED TECHNOLOGICAL EDUCATION PROGRAM.—

National Artificial Intelligence Initiative Act of 2020 (Pub. L. 116-283)

(A) **IN GENERAL.**—Section 3(b) of the Scientific and Advanced-Technology Act of 1992 (42 U.S.C. 1862(i)) is amended by striking “10” and inserting “12”.

(B) **ARTIFICIAL INTELLIGENCE CENTERS OF EXCELLENCE.**—The Director of the National Science Foundation shall establish national centers of scientific and technical education to advance education and workforce development in areas related to artificial intelligence pursuant to section 3 of the Scientific and Advanced-Technology Act of 1992 (42 U.S.C. 1862(i)). Activities of such centers may include—

(i) the development, dissemination, and evaluation of curriculum and other educational tools and methods in artificial intelligence related fields and research areas, including technology ethics;

(ii) the development and evaluation of artificial intelligence related certifications for 2-year programs; and

(iii) interdisciplinary science and engineering research in employment-based adult learning and career retraining related to artificial intelligence fields.

(f) **NATIONAL SCIENCE FOUNDATION PILOT PROGRAM OF GRANTS FOR RESEARCH IN RAPIDLY EVOLVING, HIGH PRIORITY TOPICS.**—

(1) **PILOT PROGRAM REQUIRED.**—The Director of the National Science Foundation shall establish a pilot program to assess the feasibility and advisability of awarding grants for the conduct of research in rapidly evolving, high priority topics using funding mechanisms that require brief project descriptions and internal merit review, and that may include accelerated external review.

(2) **DURATION.**—

(A) **IN GENERAL.**—The Director shall carry out the pilot program required by paragraph (1) during the 5-year period beginning on the date of the enactment of this Act.

(B) **ASSESSMENT AND CONTINUATION AUTHORITY.**—After the period set forth in paragraph (2)(A)—

(i) the Director shall assess the pilot program; and

(ii) if the Director determines that it is both feasible and advisable to do so, the Director may continue the pilot program.

(3) **GRANTS.**—In carrying out the pilot program, the Director shall award grants for the conduct of research in topics selected by the Director in accordance with paragraph (4).

(4) TOPIC SELECTION.—The Director shall select topics for research under the pilot program in accordance with the following:

(A) The Director shall select artificial intelligence as the initial topic for the pilot program.

(B) The Director may select additional topics that the Director determines are—

(i) rapidly evolving; and

(ii) of high importance to the economy and security of the United States.

(g) AUTHORIZATION OF APPROPRIATIONS.—There are authorized to be appropriated to the National Science Foundation to carry out this section—

(1) \$868,000,000 for fiscal year 2021;

(2) \$911,400,000 for fiscal year 2022;

(3) \$956,970,000 for fiscal year 2023;

(4) \$1,004,820,000 for fiscal year 2024; and

(5) \$1,055,060,000 for fiscal year 2025.

TITLE LV—DEPARTMENT OF ENERGY ARTIFICIAL INTELLIGENCE RESEARCH PROGRAM

SEC. 5501. [15 U.S.C. 9461] DEPARTMENT OF ENERGY ARTIFICIAL INTELLIGENCE RESEARCH PROGRAM.

(a) IN GENERAL.—The Secretary shall carry out a cross-cutting research and development program to advance artificial intelligence tools, systems, capabilities, and workforce needs and to improve the reliability of artificial intelligence methods and solutions relevant to the mission of the Department. In carrying out this program, the Secretary shall coordinate across all relevant offices and programs at the Department, including the Office of Science, the Office of Energy Efficiency and Renewable Energy, the Office of Nuclear Energy, the Office of Fossil Energy, the Office of Electricity, the Office of Cybersecurity, Energy Security, and Emergency Response, the Advanced Research Projects Agency-Energy, and any other relevant office determined by the Secretary.

(b) RESEARCH AREAS.—In carrying out the program under subsection (a), the Secretary shall award financial assistance to eligible entities to carry out research projects on topics including—

(1) the application of artificial intelligence systems to improve large-scale simulations of natural and other phenomena;

(2) the study of applied mathematics, computer science, and statistics, including foundations of methods and systems of artificial intelligence, causal and statistical inference, and the development of algorithms for artificial intelligence systems;

(3) the analysis of existing large-scale datasets from science and engineering experiments and simulations, including energy simulations and other priorities at the Department as determined by the Secretary using artificial intelligence tools and techniques;

(4) the development of operation and control systems that enhance automated, intelligent decisionmaking capabilities;

(5) the development of advanced computing hardware and computer architecture tailored to artificial intelligence systems, including the codesign of networks and computational hardware;

(6) the development of standardized datasets for emerging artificial intelligence research fields and applications, including methods for addressing data scarcity; and

(7) the development of trustworthy artificial intelligence systems, including—

(A) algorithmic explainability;

(B) analytical methods for identifying and mitigating bias in artificial intelligence systems; and

(C) safety and robustness, including assurance, verification, validation, security, and control.

(c) TECHNOLOGY TRANSFER.—In carrying out the program under subsection (a), the Secretary shall support technology transfer of artificial intelligence systems for the benefit of society and United States economic competitiveness.

(d) FACILITY USE AND UPGRADES.—In carrying out the program under subsection (a), the Secretary shall—

(1) make available high-performance computing infrastructure at national laboratories;

(2) make any upgrades necessary to enhance the use of existing computing facilities for artificial intelligence systems, including upgrades to hardware;

(3) establish new computing capabilities necessary to manage data and conduct high performance computing that enables the use of artificial intelligence systems; and

(4) maintain and improve, as needed, networking infrastructure, data input and output mechanisms, and data analysis, storage, and service capabilities.

(e) REPORT ON ETHICS STATEMENTS.—Not later than 6 months after publication of the study described in section 5401(d)(1)(C), the Secretary shall report to Congress on options for requiring an ethics or risk statement as part of all or a subset of applications for research activities funded by the Department of Energy and performed at Department of Energy national laboratories and user facilities.

(f) RISK MANAGEMENT.—The Secretary shall review agency policies for risk management in artificial intelligence related projects and issue as necessary policies and principles that are consistent with the framework developed under section 22A(c) of the National Institute of Standards and Technology Act (as added by section 5301 of this division).

(g) DATA PRIVACY AND SHARING.—The Secretary shall review agency policies for data sharing with other public and private sector organizations and issue as necessary policies and principles that are consistent with the standards and guidelines submitted under section 22A(e) of the National Institute of Standards and Technology Act (as added by section 5301 of this division). In addition, the Secretary shall establish a streamlined mechanism for approving research projects or partnerships that require sharing sensitive public or private data with the Department.

(h) PARTNERSHIPS WITH OTHER FEDERAL AGENCIES.—The Secretary may request, accept, and provide funds from other Federal departments and agencies, State, United States territory, local, or Tribal government agencies, private sector for-profit entities, and nonprofit entities, to be available to the extent provided by appropriations Acts, to support a research project or partnership carried out under this section. The Secretary may not give any special consideration to any agency or entity in return for a donation.

(i) STAKEHOLDER ENGAGEMENT.—In carrying out the activities authorized in this section, the Secretary shall—

(1) collaborate with a range of stakeholders including small businesses, institutes of higher education, industry, and the National Laboratories;

(2) leverage the collective body of knowledge from existing artificial intelligence and machine learning research; and

(3) engage with other Federal agencies, research communities, and potential users of information produced under this section.

(j) DEFINITIONS.—In this section:

(1) SECRETARY.—The term “Secretary” means the Secretary of Energy.

(2) DEPARTMENT.—The term “Department” means the Department of Energy.

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(3) NATIONAL LABORATORY.—The term “national laboratory” has the meaning given such term in section 2 of the Energy Policy Act of 2005 (42 U.S.C. 15801).

(4) ELIGIBLE ENTITIES.—The term “eligible entities” means—

(A) an institution of higher education;

(B) a National Laboratory;

(C) a Federal research agency;

(D) a State research agency;

(E) a nonprofit research organization;

(F) a private sector entity; or

(G) a consortium of 2 or more entities described in subparagraphs (A) through (F).

(k) AUTHORIZATION OF APPROPRIATIONS.—There are authorized to be appropriated to the Department to carry out this section—

(1) \$200,000,000 for fiscal year 2021;

(2) \$214,000,000 for fiscal year 2022;

(3) \$228,980,000 for fiscal year 2023;

(4) \$245,000,000 for fiscal year 2024; and

(5) \$262,160,000 for fiscal year 2025.