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(Original Signature of Member)

115TH CONGRESS
2D SESSION

H. R. 6229

To authorize the programs of the National Institute of Standards and Technology, and for other purposes.

IN THE HOUSE OF REPRESENTATIVES

M._____ introduced the following bill; which was referred to the Committee on _____

A BILL

To authorize the programs of the National Institute of Standards and Technology, and for other purposes.

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled,

SECTION 1. SHORT TITLE.

This Act may be cited as the "National Institute of Standards and Technology Reauthorization Act of 2018".

SEC. 2. AUTHORIZATION OF APPROPRIATIONS.

(a) FISCAL YEAR 2018.—

(1) IN GENERAL.—There are authorized to be appropriated to the Secretary of Commerce

$1,198,500,000 for the National Institute of Standards and Technology for fiscal year 2018.

(2) SPECIFIC ALLOCATIONS.—Of the amount authorized by paragraph (1)—

(A) $724,500,000 shall be for scientific and technical research and services laboratory activities;

(B) $319,000,000 shall be for the construction and maintenance of facilities; and

(C) $155,000,000 shall be for industrial technology services activities, of which $140,000,000 shall be for the Manufacturing Extension Partnership program under sections 25 and 26 of the National Institute of Standards and Technology Act (15 U.S.C. 278k and 278l) and $15,000,000 shall be for the Network for Manufacturing Innovation Program under section 34 of the National Institute of Standards and Technology Act (15 U.S.C. 278s).

(b) FISCAL YEAR 2019.—

(1) IN GENERAL.—There are authorized to be appropriated to the Secretary of Commerce $1,115,000,000 for the National Institute of Standards and Technology for fiscal year 2019.

(2) SPECIFIC ALLOCATIONS.—Of the amount authorized by paragraph (1)—

(A) $850,000,000 shall be for scientific and technical research and services laboratory activities, of which—

(i) $109,900,000 shall be for the advanced communications, networks, and scientific data systems mission area;

(ii) $103,200,000 shall be for the cybersecurity and privacy mission area;

(iii) $234,000,000 shall be for the fundamental measurement, quantum science and measurement dissemination mission area; and

(iv) $89,800,000 shall be for the physical infrastructure and resilience mission area;

(B) $120,000,000 shall be for the construction and maintenance of facilities; and

(C) $145,000,000 shall be for industrial technology services activities, of which—

(i) $140,000,000 shall be for the Manufacturing Extension Partnership program under sections 25 and 26 of the National Institute of Standards and Tech-

nology Act (15 U.S.C. 278k and 278l); and

(ii) $5,000,000 shall be for the Network for Manufacturing Innovation Program under section 34 of the National Institute of Standards and Technology Act (15 U.S.C. 278s).

SEC. 3. QUANTUM INFORMATION SCIENCE.

(a) RESEARCH ACTIVITIES AND ENGAGEMENT.—The Secretary, acting through the Director, shall—

(1) continue to support and expand basic quantum information science and technology research and development of measurement and standards infrastructure necessary to advance commercial development of quantum applications;

(2) use the programs of the Institute, in collaboration with other relevant Federal agencies, as appropriate, to train scientists in quantum information science and technology to increase participation in the quantum fields;

(3) establish or expand collaborative ventures or consortia with other public or private sector entities, including other Federal agencies engaged in quantum information science research and development, institutions of higher education, National Labora-

tories, and industry, for the purpose of advancing the field of quantum information science and engineering; and

(4) have the authority to enter into and perform such contracts on such terms as the Secretary, acting through the Director, considers appropriate, 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 Institute with respect to quantum information science and technology.

(b) QUANTUM WORKSHOP.—

(1) IN GENERAL.—Not later than 1 year after the date of the enactment of this Act, the Secretary, acting through the Director, shall convene a workshop of stakeholders to discuss the future measurement, standards, cybersecurity, and other issues that relate to development of quantum information science in the United States. The goals of the workshop shall be—

(A) assessment of the Institute's quantum information science and technology research work, including areas that may need additional Institute investment in order to support devel-

opment of quantum information science and technology in the United States; and

(B) consideration of recommendations and priority issues for the Institute's participation in the proposed National Quantum Initiative Program.

(2) REPORT TO CONGRESS.—Not later than 2 years after the date of enactment of this Act, the Secretary, acting through the Director, shall transmit to the Committee on Science, Space, and Technology and the Committee on Appropriations of the House of Representatives and the Committee on Commerce, Science, and Transportation and the Committee on Appropriations of the Senate a summary report containing the findings of the workshop convened under this subsection.

(c) FUNDING.—The Secretary of Commerce shall devote $80,000,000 to carry out this section for fiscal year 2019, subject to the availability of appropriations, to come from amounts made available pursuant to section 2(b)2(A)(iii) of this Act. This section shall be carried out using funds otherwise appropriated by law after the date of enactment of this Act.

SEC. 4. CYBERSECURITY.

(a) ASSISTANCE TO FEDERAL AGENCIES.—The Secretary, acting through the Director, shall enhance and expand the Institute's guidance and assistance to Federal agencies to help such agencies effectively use the Framework, including by providing technical guidance and education and training of—

(1) agency staff responsible for cybersecurity, consultative services, and other assistance at such agencies; and

(2) individual inspectors general and staff of such agencies who are responsible for the annual independent evaluation required under section 3555 of title 44, United States Code.

(b) REPORT.—Not later than 12 months after the date of the enactment of this Act, the Secretary shall submit to the Committee on Science, Space, and Technology of the House of Representatives and the Committee on Commerce, Science, and Transportation of the Senate a report describing the implementation of the activities described in this section in as much detail as possible, including the identification of Federal agencies assisted pursuant to subsection (a) and the types of consultative services, education, guidance, assistance, and training provided to such agencies and inspectors general of such agencies pursuant to such subsection.

(c) RESEARCH.—The Secretary, acting through the Director, shall expand the fundamental and applied research carried out by the Institute to address key questions relating the measurement of privacy, security, and vulnerability of software tools and communications networks, including through—

(1) the development of research and engineering capabilities to provide practical solutions, including measurement techniques and engineering toolkits, to solve cybersecurity challenges such as human factors, identity management, network security, privacy, and software;

(2) investment in tools to help private and public sector organizations measure their cybersecurity, manage their risks and ensure workforce preparedness for new cybersecurity challenges; and

(3) investment in programs to prepare the United States with strong cybersecurity and encryption technologies to apply to emerging technologies such as artificial intelligence, the internet of things, and quantum computing.

(d) AUTHORITY.—The Secretary, acting through the Director, shall have the authority to enter into and perform such contracts on such terms as the Secretary considers to be appropriate, including cooperative research

and development arrangements, grants, and cooperative agreements or other transactions, as may be necessary in the conduct of the work of the Institute with respect to cybersecurity.

SEC. 5. COMPOSITES RESEARCH.

(a) RESEARCH.—The Secretary, acting through the Director, shall implement the recommendations contained in the December 2017 report entitled "Road Mapping Workshop Report on Overcoming Barriers to Adoption of Composites in Sustainable Infrastructure", as appropriate, to help facilitate the adoption of composite technology in infrastructure in the United States. In implementing such recommendations, the Secretary, acting through the Director shall, with respect to the use of composite technology in infrastructure—

(1) not later than 6 months after the date of enactment of this Act, establish a design data clearinghouse to identify, gather, validate, and disseminate existing design criteria, tools, guidelines, and standards; and

(2) develop methods and resources required for testing an evaluation of safe and appropriate uses of composite materials for infrastructure, including—

(A) conditioning protocols, procedures and models;

(B) screening and acceptance tools; and

(C) minimum allowable design data sets that can be converted into design tools.

(b) STANDARDS COORDINATION.—The Secretary, acting through the Director, shall assure that the appropriate Institute staff consult regularly with standards developers, members of the composites industry, institutions of higher education, and other stakeholders in order to facilitate the adoption of standards for use of composite materials in infrastructure that are based on the research and testing results and other information developed by the Institute.

(c) FUNDING.—The Secretary of Commerce shall devote $11,000,000 to carry out this section for fiscal year 2019, subject to the availability of appropriations, to come from amounts made available pursuant to section 2(b)(2)(A)(iv) of this Act. This section shall be carried out using funds otherwise appropriated by law after the date of enactment of this Act.

SEC. 6. ARTIFICIAL INTELLIGENCE AND DATA SCIENCE.

The Secretary, acting through the Director, shall continue to support the development of artificial intelligence and data science, including through—

(1) the expansion of the Institute's capabilities, including scientific staff and research infrastructure;

(2) the implementation of rigorous scientific testing to support the development of trustworthy and safe artificial intelligence and data systems; and

(3) the development of machine learning and other artificial intelligence applications to support measurement science research programs and take steps to modernize the Institute's research infrastructure.

SEC. 7. INTERNET OF THINGS.

The Secretary, acting through the Director, shall continue to conduct research with respect to and support the expanded connectivity, interoperability, and security of interconnected systems and other aspects of the internet of things, including through—

(1) the development of new tools and methodologies for cybersecurity of the internet of things;

(2) the development of technologies to address network congestion and device interference, such as the development of testing tools for next generation wireless communications, internet of things protocols, coexistence of wireless communications systems, and spectrum sharing;

(3) convening experts in the public and private sectors to develop recommendations for accelerating the adoption of sound interoperability standards,

guidelines, and best practices for the internet of things; and

(4) the development and publication of new cybersecurity tools, encryption methods, and best practices for internet of things security.

SEC. 8. HIRING AND MANAGEMENT.

(a) APPOINTMENTS.—The Secretary, acting through the Director shall have the authority to—

(1) make appointments of scientific, engineering, and professional personnel without regard to the civil service laws as the Secretary, acting through the Director determines necessary for carrying out research and development functions which require the services of specially qualified personnel relating to cybersecurity and quantum information science and technology and such other areas of national research priorities as the Secretary, acting through the Director may determine; and

(2) fix the basic pay of such personnel at a rate to be determined by the Secretary, acting through the Director at rates not in excess of the basic rate of pay of the Vice President under section 104 of title 3, United States Code, without regard to the civil service laws.

(b) LIMITATION.—The Director may appoint not more than 10 individuals under this section.

SEC. 9. DEFINITIONS.

In this Act:

(1) The term "Director" means the Director of the National Institute of Standards and Technology.

(2) The term "Framework" means the Framework for Improving Critical Infrastructure Cybersecurity developed by the National Institute of Standards and Technology and referred to in Executive Order 13800 issued on May 11, 2017 (82 Fed. Reg. 22391 et seq.).

(3) The term "Institute" means the National Institute of Standards and Technology.

(4) The term "institution of higher education" has the meaning given such term in section 101 of the Higher Education Act of 1965 (20 U.S.C. 1001).

(5) The term "Secretary" means the Secretary of Commerce.