AMENDMENT NO._____ Calendar No._____

Purpose: In the nature of a substitute.

IN THE SENATE OF THE UNITED STATES—114th Cong., 2d Sess.

S. 3084

To invest in innovation through research and development, and to improve the competitiveness of the United States.

Referred to the Committee on _____ and ordered to be printed

Ordered to lie on the table and to be printed

AMENDMENT IN THE NATURE OF A SUBSTITUTE intended to be proposed by Mr. GARDNER (for himself and Mr. PETERS)

Viz:

Strike all after the enacting clause and insert the following:

SECTION 1. SHORT TITLE; TABLE OF CONTENTS.

(a) SHORT TITLE.—This Act may be cited as the "American Innovation and Competitiveness Act".

(b) TABLE OF CONTENTS.—The table of contents of this Act is as follows:

SEC. 2. DEFINITIONS.

In this Act, unless expressly provided otherwise:

(1) APPROPRIATE COMMITTEES OF CONGRESS.—The term ''appropriate committees of Congress'' means the Committee on Commerce, Science, and Transportation of the Senate and the Committee on Science, Space, and Technology of the House of Representatives.

(2) FEDERAL SCIENCE AGENCY.—The term ''Federal science agency'' has the meaning given the term in section 103 of the America COMPETES Reauthorization Act of 2010 (42 U.S.C. 6623).

(3) FOUNDATION.—The term ''Foundation'' means the National Science Foundation.

(4) INSTITUTION OF HIGHER EDUCATION.—The term ''institution of higher education'' has the meaning given the term in section 101(a) of the Higher Education Act of 1965 920 U.S.C. 1001(a)).

(5) NIST.—The term ''NIST'' means the National Institute of Standards and Technology.

(6) STEM.—The term ''STEM'' has the meaning given the term in section 2 of the American COMPETES Reauthorization Act of 2010 (42 U.S.C. 6621 note).

(7) STEM EDUCATION.—The term ''STEM education'' has the meaning given the term in sec-

tion 2 of the STEM Education Act of 2015 (42 U.S.C. 6621 note).

SEC. 3. AUTHORIZATION OF APPROPRIATIONS.

(a) FISCAL YEAR 2017.—

(1) NATIONAL INSTITUTE OF STANDARDS AND TECHNOLOGY.—There is authorized to be appropriated to the Secretary of Commerce $974,000,000 for NIST for fiscal year 2017.

(2) NATIONAL SCIENCE FOUNDATION.—There is authorized to be appropriated to the Foundation $7,510,000,000 for fiscal year 2017.

(b) FISCAL YEAR 2018.—

(1) NATIONAL INSTITUTE OF STANDARDS AND TECHNOLOGY.—There is authorized to be appropriated to the Secretary of Commerce $1,013,000,000 for NIST for fiscal year 2018.

(2) NATIONAL SCIENCE FOUNDATION.—There is authorized to be appropriated to the Foundation $7,810,000,000 for fiscal year 2018.

TITLE I—MAXIMIZING BASIC RESEARCH

SEC. 101. REAFFIRMATION OF MERIT-BASED PEER REVIEW.

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

(1) the Foundation's intellectual merit and broader impacts criteria remain appropriate for evaluating grant proposals, as concluded by the 2011 National Science Board Task Force on Merit Review;

(2) evaluating proposals on the basis of the Foundation's intellectual merit and broader impacts criteria assures that—

(A) proposals funded by the Foundation are of high quality and advance scientific knowledge; and

(B) the Foundation's overall funding portfolio addresses societal needs through research findings or through related activities; and

(3) as evidenced by the Foundation's contributions to scientific advancement, economic development, human health, and national security, its peer review and merit review processes have successfully identified and funded scientifically and societally relevant research and should be preserved.

(b) MERIT REVIEW CRITERIA.—The Foundation shall maintain the intellectual merit and broader impacts criteria, among other specific criteria as appropriate, as the basis for evaluating grant proposals in the merit review process.

(c) UPDATES.—If after the date of enactment of this Act a change is made to the merit-review process, the Director shall submit a report to the appropriate committees of Congress not later than 30 days after the date of the change.

SEC. 102. TRANSPARENCY AND ACCOUNTABILITY.

(a) FINDINGS.—Congress finds that the Foundation has improved transparency and accountability of the outcomes made through the merit review process.

(b) GUIDANCE.—

(1) IN GENERAL.—The Director of the Foundation shall issue and periodically update, as appropriate, policy guidance for both Foundation staff and other Foundation merit review process participants, clarifying the importance of transparency and accountability of the outcomes made through the merit review process.

(2) REQUIREMENTS.—The guidance under paragraph (1) shall require that each abstract for a Foundation-funded research project—

(A) provide a clear justification for any Federal funds that will be expended, including by—

(i) describing how the project—

(I) reflects the mission statement of the Foundation; and

(II) addresses both of the National Science Board-approved merit review criteria; and

(ii) clearly identifying the research priorities of the project in a manner that can be easily understood by both technical and non-technical audiences; and

(B) be publicly available at the time of award.

(c) EXAMINATION.—Not later than 180 days after the date of enactment of this Act, the National Science Board shall—

(1) examine the efforts by the Foundation to improve transparency and accountability in the merit-review process; and

(2) submit to the appropriate committees of Congress a report on the examination, including any recommendations for how to further improve transparency and accountability of the outcomes made through the merit-review process.

SEC. 103. EPSCOR REAFFIRMATION AND UPDATE.

(a) FINDINGS.—Section 517(a) of the America COMPETES Reauthorization Act of 2010 (42 U.S.C. 1862p–9(a)) is amended—

(1) in paragraph (1)—

(A) by striking ''The National'' and inserting ''the National''; and

(B) by striking ''education,'' and inserting ''education'';

(2) in paragraph (2), by striking ''with 27 States'' and all that follows through the semicolon at the end and inserting ''with 28 States and jurisdictions, taken together, receiving only about 12 percent of all National Science Foundation research funding;'';

(3) by striking paragraph (3) and inserting the following:

''(3) each of the States described in paragraph (2) receives only a fraction of 1 percent of the Foundation's research dollars each year;''; and

(4) by adding at the end the following:

''(4) first established at the National Science Foundation in 1979, the Experimental Program to Stimulate Competitive Research (referred to in this section as 'EPSCoR') assists States and jurisdictions historically underserved by Federal research

and development funding in strengthening their research and innovation capabilities;

''(5) the EPSCoR structure requires each participating State to develop a science and technology plan suited to State and local research, education, and economic interests and objectives;

''(6) EPSCoR has been credited with advancing the research competitiveness of participating States, improving awareness of science, promoting policies that link scientific investment and economic growth, and encouraging partnerships between government, industry, and academia;

''(7) EPSCoR proposals are evaluated through a rigorous and competitive merit-review process to ensure that awarded research and development efforts meet high scientific standards; and

''(8) according to the National Academy of Sciences, EPSCoR has strengthened the national research infrastructure and enhanced the educational opportunities needed to develop the science and engineering workforce.''.

(b) SENSE OF CONGRESS.—

(1) IN GENERAL.—It is the sense of Congress that—

(A) since maintaining the Nation's scientific and economic leadership requires the participation of talented individuals nationwide, EPSCoR investments into State research and education capacities are in the Federal interest and should be sustained; and

(B) EPSCoR should maintain its experimental component by supporting innovative methods for improving research capacity and competitiveness.

(2) DEFINITION OF EPSCOR.—In this subsection, the term ''EPSCoR'' has the meaning given the term in section 502 of the America COMPETES Reauthorization Act of 2010 (42 U.S.C. 1862p note).

(c) AWARD STRUCTURE UPDATES.—Section 517 of the America COMPETES Reauthorization Act of 2010 (42 U.S.C. 1862p–9) is amended by adding at the end the following:

''(g) AWARD STRUCTURE UPDATES.—In implementing the mandate to maximize the impact of Federal EPSCoR support on building competitive research infrastructure, and based on the inputs and recommendations of previous EPSCoR reviews, the head of each Federal agency administering an EPSCoR program shall—

''(1) consider modifications to EPSCoR proposal solicitation, award type, and project evaluation—

''(A) to more closely align with current agency priorities and initiatives;

''(B) to focus EPSCoR funding on achieving critical scientific, infrastructure, and educational needs of that agency;

''(C) to encourage collaboration between EPSCoR-eligible institutions and researchers, including with institutions and researchers in other States and jurisdictions;

''(D) to improve communication between State and Federal agency proposal reviewers; and

''(E) to continue to reduce administrative burdens associated with EPSCoR;

''(2) consider modifications to EPSCoR award structures—

''(A) to emphasize long-term investments in building research capacity, potentially through the use of larger, renewable funding opportunities; and

"(B) to allow the agency, States, and jurisdictions to experiment with new research and development funding models; and

"(3) consider modifications to the mechanisms used to monitor and evaluate EPSCoR awards—

"(A) to increase collaboration between EPSCoR-funded researchers and agency staff, including by providing opportunities for mentoring young researchers and for the use of Federal facilities;

"(B) to identify and disseminate best practices; and

"(C) to harmonize metrics across participating Federal agencies, as appropriate.".

(d) REPORTS.—

(1) CONGRESSIONAL REPORTS.—Section 517 of the America COMPETES Reauthorization Act of 2010 (42 U.S.C. 1862p–9), as amended, is further amended—

(A) by striking subsection (c);

(B) by redesignating subsections (d) through (g) as subsections (c) through (f), respectively;

(C) in subsection (c), as redesignated—

(i) in paragraph (1), by striking ''Experimental Programs to Stimulate Competitive Research'' and inserting ''EPSCoR''; and

(ii) in paragraph (2)—

(I) in subparagraphs (A), (D), and (E), by striking ''EPSCoR and Federal EPSCoR-like programs'' and inserting ''each EPSCoR'';

(II) in subparagraph (E), by striking ''EPSCoR or Federal EPSCoR-like programs'' and inserting ''each EPSCoR''; and

(III) in subparagraph (G), by striking ''EPSCoR programs'' and inserting ''each EPSCoR''; and

(D) by amending subsection (d), as redesignated, to read as follows:

''(d) FEDERAL AGENCY REPORTS.—Each Federal agency that administers an EPSCoR shall submit to Congress, as part of its Federal budget submission—

''(1) a description of the program strategy and objectives;

''(2) a description of the awards made in the previous fiscal year, including—

"(A) the total amount made available, by State, under EPSCoR;

"(B) the total amount of agency funding made available to all institutions and entities within each EPSCoR State;

"(C) the efforts and accomplishments to more fully integrate the EPSCoR States in major agency activities and initiatives;

"(D) the percentage of EPSCoR reviewers from EPSCoR States; and

"(E) the number of programs or large collaborator awards involving a partnership of organizations and institutions from EPSCoR and non-EPSCoR States; and

"(3) an analysis of the gains in academic research quality and competitiveness, and in science and technology human resource development, achieved by the program over the last 5 fiscal years."; and

(E) in subsection (e)(1), as redesignated, by striking "Experimental Program to Stimulate Competitive Research or a program similar to the Experimental Program to Stimulate Competitive Research" and inserting "EPSCoR".

(2) RESULTS OF AWARD STRUCTURE PLAN.—Not later than 1 year after the date of enactment of this Act, the EPSCoR Interagency Coordinating Committee shall brief the appropriate committees of Congress on the updates made to the award structure under 517(f) of the America COMPETES Reauthorization Act of 2010 (42 U.S.C. 1862p–9(f)), as amended by this subsection.

(e) DEFINITION OF EPSCOR.—

(1) IN GENERAL.—Section 502 of the America COMPETES Reauthorization Act of 2010 (42 U.S.C. 1862p note) is amended by amending paragraph (2) to read as follows:

''(2) EPSCOR.—The term 'EPSCoR' means—

''(A) the Established Program to Stimulate Competitive Research established by the Foundation; or

''(B) a program similar to the Established Program to Stimulate Competitive Research at another Federal agency.''.

(2) TECHNICAL AND CONFORMING AMENDMENTS.—Section 113 of the National Science Foundation Authorization Act of 1988 (42 U.S.C. 1862g) is amended—

(A) in the heading, by striking ''**EXPERIMENTAL**'' and inserting ''**ESTABLISHED**'';

(B) in subsection (a), by striking ''an Experimental Program to Stimulate Competitive Research'' and inserting ''a program to stimulate competitive research (known as the 'Established Program to Stimulate Competitive Research')''; and

(C) in subsection (b), by striking ''the program'' and inserting ''the Program''.

SEC. 104. CYBERSECURITY RESEARCH.

(a) FOUNDATION CYBERSECURITY RESEARCH.—Section 4(a)(1) of the Cyber Security Research and Development Act, as amended (15 U.S.C. 7403(a)(1)) is amended—

(1) in subparagraph (O), by striking ''and'' at the end;

(2) in subparagraph (P), by striking the period at the end and inserting a semicolon; and

(3) by adding at the end the following:

''(Q) security of election-dedicated voting system software and hardware; and

''(R) role of the human factor in cybersecurity and the interplay of computers and humans and the physical world.''.

(b) NIST CYBERSECURITY PRIORITIES.—

(1) CRITICAL INFRASTRUCTURE AWARENESS.—The Director of NIST, in coordination with the Secretary of Homeland Security, shall continue to raise public awareness of the voluntary, industry-led cybersecurity standards and best practices for critical infrastructure developed under section 2(c)(15) of the National Institute of Standards and Technology Act (15 U.S.C. 272(c)(15)).

(2) QUANTUM COMPUTING.—Under section 2(b) of the National Institute of Standards and Technology Act (15 U.S.C. 272(b)) and section 20 of that Act (15 U.S.C. 278g-3), the Director of NIST shall—

(A) research information systems for future cybersecurity needs; and

(B) coordinate with relevant stakeholders to develop a process—

(i) to research and identify or, if necessary, develop cryptography standards and guidelines for future cybersecurity needs, including quantum-resistant cryptography standards; and

(ii) to provide recommendations to Congress, Federal agencies, and industry

for a secure and smooth transition to the standards under clause (i).

(3) VOTING.—Section 2(c) of the National Institute of Standards and Technology Act (15 U.S.C. 272(c)) is amended—

(A) by redesignating paragraphs (16) through (23) as paragraphs (17) through (24), respectively; and

(B) by inserting after paragraph (15) the following:

''(16) perform research to support the development of voluntary, consensus-based, industry-led standards and recommendations on the security of computers, computer networks, and computer data storage used in voting systems to ensure voters can vote securely and privately.''.

SEC. 105. NETWORKING AND INFORMATION TECHNOLOGY RESEARCH AND DEVELOPMENT UPDATE.

(a) NETWORKING AND INFORMATION TECHNOLOGY RESEARCH AND DEVELOPMENT.—Section 101(a)(1) of the High-Performance Computing Act of 1991 (15 U.S.C. 5511(a)(1)) is amended—

(1) in the matter preceding subparagraph (A), by inserting ''IN GENERAL.—'' before ''The President'';

(2) in subparagraph (H), by striking ''and'' at the end;

(3) in subparagraph (I), by striking the period at the end and inserting a semicolon; and

(4) by adding at the end the following:

''(J) provide for research on the interplay of computing and people, including social computing and human-robot interaction;

''(K) provide for research on cyber-physical systems and improving the methods available for the design, development, and operation of those systems that are characterized by high reliability, safety, and security;

''(L) provide for the understanding of the science, engineering, policy, and privacy protection related to networking and information technology;

''(M) provide for the understanding of the human facets of cyber threats and secure cyber systems;

''(N) provide for the transition of high-performance computing in hardware, system software, development tools, and applications into development and operations; and

''(O) foster public-private collaboration with government, industry research laboratories, academia, and nonprofit organizations to maximize research and development efforts and the benefits of networking and information technology, including high-performance computing.''.

(b) REVIEW AND PLAN.—Section 101 of the High-Performance Computing Act of 1991 (15 U.S.C. 5511) is amended by adding at the end the following:

''(d) PERIODIC REVIEWS.—The heads of the applicable agencies and departments working through the National Science and Technology Council and the Networking and Information Technology Research and Development Program shall—

''(1) not later than 1 year after the date the advisory committee submits a report under subsection (b)(2), assess the structure of the Program, including the Program Component Areas and associated contents and funding levels, taking into consideration any relevant recommendations of the advisory committee; and

''(2) ensure that the Program includes foundational and interdisciplinary information technology research and development activities.

''(e) STRATEGIC PLANS.—

''(1) IN GENERAL.—The heads of the applicable agencies and departments, working through the National Science and Technology Council and the Networking and Information Technology Research and Development Program shall develop and implement strategic plans to guide emerging activities in specific Program Component Areas, as the advisory committee determines relevant under subsection (b), of Federal networking and information technology research and development, and to guide the activities described in subsection (a)(1).

''(2) UPDATES.—The heads of the applicable agencies and departments shall update the strategic plans as appropriate.

''(3) CONTENTS.—Each strategic plan shall—

''(A) specify near-term and long-term objectives for the Program, the anticipated schedule for achieving the near-term and long-term objectives, and the metrics to be used for assessing progress toward the near-term and long-term objectives;

''(B) specify how the near-term and long-term objectives complement research and devel-

opment areas in which academia and the private sector is actively engaged;

"(C) describe how the heads of the applicable agencies and departments will support mechanisms for foundational and interdisciplinary research and development in networking and information technology, including through collaborations—

"(i) across Federal agencies and departments;

"(ii) across Program Component Areas; and

"(iii) with industry, Federal and private research laboratories, research entities, universities, institutions of higher education, relevant nonprofit organizations, and international partners of the United States;

"(D) describe how the heads of the applicable agencies and departments will foster the rapid transfer of research and development results into new technologies and applications;

"(E) describe how the Program will address long-term challenges for which solutions

require large-scale, long-term, foundational and interdisciplinary research and development; and

"(F) place emphasis on innovative and high-risk projects having the potential for substantial societal returns on the research investment.

"(4) PRIVATE SECTOR EFFORTS.—In developing, implementing, and updating strategic plans, the heads of the applicable agencies and departments, working through the National Science and Technology Council and Networking and Information Technology Research and Development Program, shall coordinate with industry, academia, and other interested stakeholders to ensure, to the extent practicable, that the Federal networking and information technology research and development activities carried out under this section do not duplicate the efforts of the private sector.

"(5) RECOMMENDATIONS.—In developing and updating strategic plans, the heads of the applicable agencies and departments shall solicit recommendations and advice from—

"(A) the advisory committee under subsection (b); and

''(B) a wide range of stakeholders, including industry, academia, including representatives of minority serving institutions and community colleges, National Laboratories, and other relevant organizations and institutions.

''(f) REPORTS.—The heads of the applicable agencies and departments, working through the National Science and Technology Council and the Networking and Information Technology Research and Development Program, shall submit to the advisory committee, the Committee on Commerce, Science, and Transportation of the Senate, and the Committee on Science, Space, and Technology of the House of Representatives—

''(1) the strategic plans developed under subsection (e)(1); and

''(2) each update under subsection (e)(2).

''(g) DEFINITION OF APPLICABLE AGENCIES AND DEPARTMENTS.—In this section, the term 'applicable agencies and departments' means the Federal agencies and departments identified in subsection (a)(3)(B) or designated under clause (xii) of that subsection.''.

(c) RESEARCH COORDINATION.—Section 101(a)(2) of the High-Performance Computing Act of 1991 (15 U.S.C. 5511(a)(2)) is amended—

(1) in the matter preceding subparagraph (A), by inserting ''REQUIREMENTS.—'' before ''The Director''; and

(2) by amending subparagraph (C) to read as follows:

''(C) provide for the coordination of Federal networking and information technology research, development, networking, and other activities—

''(i) among the applicable agencies and departments under the Program; and

''(ii) to the extent practicable, with other Federal agencies not identified in subsection (a)(3)(B), other Federal and private research laboratories, industry, research entities, universities, institutions of higher education, relevant nonprofit organizations, and international partners of the United States;''.

(d) BUDGET.—Section 101(a)(3) of the High-Performance Computing Act of 1991 (15 U.S.C. 5511(a)(3)) is amended—

(1) in the matter preceding subparagraph (A), by inserting ''CONTENTS OF ANNUAL REPORTS.—'';

(2) in subparagraph (B), by striking clauses (i) through (xi) and inserting the following—

''(i) the Department of Commerce;

''(ii) the Department of Defense;

''(iii) the Department of Education;

''(iv) the Department of Energy;

''(v) the Department of Health and Human Services;

''(vi) the Department of Homeland Security;

''(vii) the Department of Justice;

''(viii) the Environmental Protection Agency;

''(ix) the National Aeronautics and Space Administration;

''(x) the National Archives and Records Administration;

''(xi) the National Science Foundation; and

''(xii) such other agencies and departments as the President or the Director considers appropriate;'';

(3) in subparagraph (C), by striking ''is submitted,'' and inserting ''is submitted, the levels for the previous fiscal year,'';

(4) in subparagraph (D)—

(A) by striking ''is submitted,'' and inserting ''is submitted, the levels for the previous fiscal year,''; and

(B) by striking ''and'' after the semicolon;

(5) by redesignating subparagraph (E) as subparagraph (F); and

(6) by inserting after subparagraph (D) the following:

''(E) include a description of how the objectives for each Program Component Area, and the objectives for activities that involve multiple Program Component Areas, relate to the objectives of the Program identified in the strategic plan under subsection (e);''.

(e) CONFORMING AMENDMENTS TO HIGH-PERFORMANCE COMPUTING ACT OF 1991.—The High-Performance Computing Act of 1991 (15 U.S.C. 5501 et seq.) is amended—

(1) in section 2 (15 U.S.C. 5501)—

(A) in paragraphs (2) and (5), by striking ''high-performance computing'' and inserting ''networking and information technology, including high-performance computing,''; and

(B) in paragraph (3), by striking ''high-performance computing'' and inserting ''networking and information technology, including high-performance computing'';

(2) in section 3 (15 U.S.C. 5502)—

(A) in the matter preceding paragraph (1) and paragraph (1), by striking ''high-performance computing'' and inserting ''networking and information technology'' each place it appears; and

(B) in paragraph (2)—

(i) by striking ''high-performance computing and'' and inserting ''networking and information technology and''; and

(ii) by striking ''high-performance computing network'' and inserting ''networking and information technology'';

(3) in section 4 (15 U.S.C. 5503)—

(A) in paragraphs (2) and (3), by striking ''high-performance computing'' and inserting ''networking and information technology'';

(B) by striking paragraph (5);

(C) in paragraph (6), by striking ''National High-Performance Computing'' and in-

serting ''Networking and Information Technology Research and Development''; and

(D) by redesignating paragraphs (3), (4), (6), and (7) as paragraphs (4), (3), (5), and (6), respectively;

(4) in section 101 (15 U.S.C. 5511)—

(A) in the heading, by striking ''**NATIONAL HIGH-PERFORMANCE COMPUTING**'' and inserting ''**NETWORKING AND INFORMATION TECHNOLOGY RESEARCH AND DEVELOPMENT**'';

(B) in subsection (a)—

(i) in the heading, by striking ''NATIONAL HIGH-PERFORMANCE COMPUTING'' and inserting ''NETWORKING AND INFORMATION TECHNOLOGY RESEARCH AND DEVELOPMENT'';

(ii) in paragraph (1)—

(I) in the matter preceding subparagraph (A), by striking ''National High-Performance Computing'' and inserting ''Networking and Information Technology Research and Development'';

(II) in subparagraph (A), by striking ''high-performance computing, including networking'' and inserting ''networking and information technology'';

(III) in subparagraphs (B) and (C), by striking ''high-performance computing'' and inserting ''high-end computing, including high-performance computing,''; and

(IV) in subparagraph (G), by striking ''high-performance computing'' and inserting ''networking and information technology, including high-performance computing,''; and

(iii) in paragraph (2)—

(I) in subparagraph (A), by striking ''high-performance computing research, development, networking'' and inserting ''networking and information technology research and development'';

(II) in subparagraph (E), by striking ''high-performance computing and networking systems'' and insert-

ing ''high-end computing and networking systems''; and

(III) in subparagraph (F), by striking ''high-performance computing'' and inserting ''high-end, including high-performance, computing'';

(C) in subsection (b)(1), in the matter preceding subparagraph (A), by striking ''high-performance computing'' each place it appears and inserting ''networking and information technology'';

(D) in subsection (b)(2), by striking ''Committee on Science and Technology'' and inserting ''Committee on Science, Space, and Technology''; and

(E) in subsection (c)(1)(A), by striking ''high-performance computing'' and inserting ''networking and information technology'';

(5) in section 201(a) (15 U.S.C. 5521(a)), by striking ''high-performance computing and advanced high-speed computer networking'' and inserting ''networking and information technology'';

(6) in section 202(a) (15 U.S.C. 5522(a)), by striking ''high-performance computing'' and inserting ''networking and information technology'';

(7) in section 203 (15 U.S.C. 5523(a))—

(A) by striking ''high-performance computing and networking'' and inserting ''networking and information technology''; and

(B) by striking ''high-performance computing systems'' and inserting ''high-end, including high-performance, computing systems'';

(8) in section 204 (15 U.S.C. 5524)—

(A) in subsection (a)(1)—

(i) in subparagraph (A), by striking ''high-performance computing systems and networks'' and inserting ''networking and information technology systems'';

(ii) in subparagraph (B), by striking ''high-performance computing systems in networks'' and inserting ''networking and information technology systems''; and

(iii) in subparagraph (C), by striking ''high-performance computing systems'' and inserting ''networking and information technology''; and

(B) in subsection (b)—

(i) in the heading, by striking ''HIGH-PERFORMANCE COMPUTING AND NETWORK'' and inserting ''NETWORK AND INFORMATION TECHNOLOGY SECURITY''; and

(ii) by striking ''sensitive information in Federal computer systems'' and inserting ''agency information and information systems''; and

(9) in section 207 (15 U.S.C. 5527)—

(A) in subsection (a)(2), by striking ''section 2315(a) of title 10'' and inserting ''section 3552(b)(6)(A) of title 44''; and

(B) in subsection (b), by striking ''high-performance computing systems'' and inserting ''networking and information technology''.

(f) ADDITIONAL TECHNICAL AND CONFORMING AMENDMENTS.—

(1) NATIONAL NETWORKING AND INFORMATION TECHNOLOGY PROGRAM.—Section 101 of the High-Performance Computing Act of 1991 (15 U.S.C. 5511), as amended, is further amended—

(A) in subsection (b)—

(i) in paragraph (1), by inserting ''ADVISORY COMMITTEE.—'' before ''The President shall'';

(ii) in paragraph (2), by inserting ''ADDITIONAL DUTIES.—'' before ''In addition to''; and

(iii) in paragraph (3), by inserting ''FACA.—'' before ''Section 14''; and

(B) in subsection (c)—

(i) in paragraph (1), by inserting ''REPORTS.—'' before ''Each Federal''; and

(ii) in paragraph (2), by inserting ''OMB REVIEW.—'' before ''The Office''.

(2) MISCELLANEOUS.—

(A) NATIONAL SCIENCE FOUNDATION RESEARCH.—Section 4(b)(5)(K) of the Cyber Security Research and Development Act (15 U.S.C. 7403(b)(5)(K)) is amended by striking ''high-performance computing'' and inserting ''networking and information technology''.

(B) NATIONAL INFORMATION TECHNOLOGY RESEARCH AND DEVELOPMENT PROGRAM.—Section 13202(b) of the America Recovery and Reinvestment Act of 2009 (42 U.S.C. 17912(b)) is amended by striking ''National High-Performance Computing Program'' and inserting ''Networking and Information

Technology Research and Development Program''.

(C) FEDERAL CYBERSECURITY RESEARCH AND DEVELOPMENT.—Section 201(a)(4) of the Cybersecurity Enhancement Act of 2014 (15 U.S.C. 7431(a)(4)) is amended by striking ''clauses (i) through (x) of section 101(a)(3)(B) of the High-Performance Computing Act of 1991 (15 U.S.C. 5511(a)(3)(B)) or designated under clause (xi) of that section'' and inserting ''clauses (i) through (xi) of section 101(a)(3)(B) of the High-Performance Computing Act of 1991 (15 U.S.C. 5511(a)(3)(B)) or designated under clause (xii) of that section''.

(D) NATIONAL RESEARCH AND EDUCATION NETWORK.—Section 102 of the High-Performance Computing Act of 1991 (15 U.S.C. 5512) is repealed.

(E) NEXT GENERATION INTERNET.—Section 103 of the High-Performance Computing Act of 1991 (15 U.S.C. 5513) is repealed.

(F) FOSTERING UNITED STATES COMPETITIVENESS IN HIGH-PERFORMANCE COMPUTING AND RELATED ACTIVITIES.—Section 208 of the

High-Performance Computing Act of 1991 (15 U.S.C. 5528) is repealed.

SEC. 106. HIGH-ENERGY PHYSICS COORDINATION.

(a) IN GENERAL.—The Physical Science Subcommittee of the National Science and Technology Council shall define and continue to coordinate Federal efforts, including activities of relevant advisory committees, related to high-energy physics research to maximize the efficiency and effectiveness of United States investment in high-energy physics.

(b) PURPOSES.—The purposes of the Physical Science Subcommittee include—

(1) to advise and assist the Committee on Science and the National Science and Technology Council on United States policies, procedures, and plans in the physical sciences, including high-energy physics; and

(2) to identify emerging opportunities, stimulate international cooperation, and foster the development of the physical sciences in the United States, including—

(A) in high-energy physics research, including related underground science and engineering research;

(B) in physical infrastructure and facilities;

(C) in information and analysis; and

(D) in coordination activities.

(c) RESPONSIBILITIES.—In regard to coordinating Federal efforts related to high-energy physics research, the Physical Science Subcommittee shall—

(1) provide recommendations on planning for construction and stewardship of large facilities participating in high-energy physics;

(2) provide recommendations on research coordination and collaboration among the programs and activities of Federal agencies;

(3) establish goals and priorities for high-energy physics, related underground science, and research and development that will strengthen United States competitiveness in high-energy physics;

(4) propose methods for engagement with international, Federal, and State agencies and Federal laboratories not represented on the National Science and Technology Council to identify and reduce regulatory, logistical, and fiscal barriers that inhibit United States leadership in high-energy physics and related underground science; and

(5) develop, and update as necessary, a strategic plan to guide Federal programs and activities in support of high-energy physics research, including—

(A) the efforts taken in support of subsection (b) since the last strategic plan;

(B) an evaluation of the current research needs for maintaining United States leadership in high-energy physics; and

(C) an identification of future priorities in the area of high-energy physics.

SEC. 107. LABORATORY PROGRAM IMPROVEMENTS.

(a) IN GENERAL.—The Director of NIST, acting through the Associate Director for Laboratory Programs, shall develop and implement a comprehensive strategic plan for laboratory programs that expands—

(1) interactions with academia, international researchers, and industry; and

(2) commercial and industrial applications.

(b) OPTIMIZING COMMERCIAL AND INDUSTRIAL APPLICATIONS.—In accordance with the purpose under section 1(b)(3) of the National Institute of Standards and Technology Act (15 U.S.C. 271(b)(3)), the comprehensive strategic plan shall—

(1) include performance metrics for the dissemination of fundamental research results, measurements, and standards research results to industry, including manufacturing, and other interested parties;

(2) document any positive benefits of research on the competitiveness of the parties described in paragraph (1); and

(3) clarify the current approach to the technology transfer activities of NIST.

SEC. 108. INTERNATIONAL ACTIVITIES.

Section 17(a) of the National Institute of Standards and Technology Act (15 U.S.C. 278g(a)) is amended to read as follows:

''(a) FINANCIAL ASSISTANCE TO FOREIGN NATIONALS.—The Secretary is authorized, notwithstanding any other provision of law, to expend such sums, within the limit of appropriated funds, through direct support for activities of international organizations and foreign national metrology institutes with which the Institute cooperates to advance measurement methods, standards, and related basic technologies and, as the Secretary may deem desirable, through the grant of fellowships or any other form of financial assistance, to defray the expenses of foreign nationals not in service to the Government of the United

States while they are performing scientific or engineering work at the Institute or participating in the exchange of scientific or technical information at the Institute.''.

SEC. 109. STANDARD REFERENCE DATA ACT UPDATE.

Section 2 of the Standard Reference Data Act (15 U.S.C. 290a) is amended to read as follows:

''SEC. 2. DEFINITIONS.

''For the purposes of this Act:

''(1) STANDARD REFERENCE DATA.—The term 'standard reference data' means data that is—

''(A) either—

''(i) quantitative information related to a measurable physical or chemical property of a substance or system of substances of known composition and structure;

''(ii) measurable characteristics of a physical artifact or artifacts;

''(iii) engineering properties or performance characteristics of a system; or

''(iv) 1 or more digital data objects that serve—

''(I) to calibrate or characterize the performance of a detection or measurement system; or

"(II) to interpolate or extrapolate, or both, data described in subparagraph (A) through (C); and

"(B) that is critically evaluated as to its reliability under section 3 of this Act.

"(2) SECRETARY.—The term 'Secretary' means the Secretary of Commerce.".

SEC. 110. NSF MID-SCALE PROJECT INVESTMENTS.

(a) FINDINGS.—Congress makes the following findings:

(1) The Foundation funds major research facilities, infrastructure, and instrumentation that provide unique capabilities at the frontiers of science and engineering.

(2) Modern and effective research infrastructure is critical to maintaining United States leadership in science and engineering.

(3) Many proposed instruments, equipment, or upgrades to major research facilities fall between programs currently funded by the Foundation, creating a gap between Major Research Instrumentation and Major Research Equipment and Facilities Construction, including projects that have been identified as cost-effective additions of high priority to the advancement of scientific understanding.

(4) The 2010 Astronomy and Astrophysics Decadal Survey recommended a vigorous mid-scale innovations program.

(b) SENSE OF CONGRESS.—It is the sense of Congress that the addition of a competitive mid-scale funding opportunity that includes research, instruments, and infrastructure is essential to the portfolio of the Foundation and advancing scientific understanding.

(c) MID-SCALE PROJECTS.—

(1) IN GENERAL.—The Foundation shall evaluate the existing and future needs, across all disciplines supported by the Foundation, for mid-scale projects.

(2) STRATEGY.—The Director of the Foundation shall develop a strategy to meet the needs identified in paragraph (1).

(3) BRIEFING.—Not later than 180 days after the date of enactment of this Act, the Director of the Foundation shall provide a briefing to the appropriate committees of Congress on the evaluation under paragraph (1) and the strategy under paragraph (2).

(4) DEFINITION OF MID-SCALE PROJECTS.—In this subsection, the term ''mid-scale projects'' means research, instrumentation, and infrastructure invest-

ments that fall between the instrumentation funded by the major research instrumentation program and the very large projects funded by the major research equipment and facilities construction program as described in section 507 of the AMERICA Competes Reauthorization Act of 2010 (Public Law 111–358; 124 Stat. 4008).

SEC. 111. OVERSIGHT OF NSF LARGE-SCALE RESEARCH FACILITY PROJECTS.

(a) FACILITIES OVERSIGHT.—

(1) IN GENERAL.—The Director of the Foundation shall strengthen oversight and accountability over the full life-cycle of large-scale research facility projects, including planning, development, procurement, construction, operations, and support, and shut-down of such facilities, in order to maximize research investment.

(2) REQUIREMENTS.—In carrying out paragraph (1), the Director shall—

(A) prioritize the scientific outcomes of large-scale research facility projects and the internal management and financial oversight of the projects;

(B) clarify the roles and responsibilities of all organizations, including offices, panels, com-

mittees, and directorates, involved in supporting large-scale research facility projects, including the role of the Major Research Equipment and Facilities Construction Panel;

(C) establish policies and procedures for the planning, management, and oversight of large-scale research facility projects at each phase of the life-cycle of the project;

(D) ensure that policies for estimating and managing costs and schedules are consistent with the best practices described in the Government Accountability Office Cost Estimating and Assessment Guide, the Government Accountability Office Schedule Assessment Guide, and the Office of Management and Budget Uniform Guidance (2 C.F.R. Part 200);

(E) establish the appropriate project management and financial management expertise required for Foundation staff to oversee large-scale research facility projects effectively, including by improving project management training and certification; and

(F) coordinate the sharing of the best management practices and lessons learned from large-scale research facility projects.

(b) FACILITIES FULL LIFE-CYCLE COSTS.—

(1) IN GENERAL.—Subject to subsection (c)(1), the Director of the Foundation shall require that any pre-award analysis of a large-scale research facility includes the development and consideration of the full life-cycle cost (as defined in section 2 of the National Science Foundation Authorization Act of 1998 (42 U.S.C. 1862k note)) in accordance with section 14 of the National Science Foundation Authorization Act of 2002 (42 U.S.C. 1862n-4).

(2) CRITERIA.—Section 14(a)(3)(D) of the National Science Foundation Authorization Act of 2002 (42 U.S.C. 1862n-4(a)(3)(D)) is amended to read as follows:

''(D) readiness of plans for construction and operation, including confidence in the estimates of the full life-cycle cost (as defined in section 2 of the National Science Foundation Authorization Act of 1998 (42 U.S.C. 1862k note)) and the proposed schedule of completion;''.

(3) IMPLEMENTATION.—Based on the pre-award analysis described in paragraph (1), the Director shall include projected operational costs with-

in the Foundation's out years as part of the President's yearly budget submissions to Congress.

(c) COST OVERSIGHT.—

(1) PRE-AWARD ANALYSIS.—

(A) IN GENERAL.—The Director of the Foundation and the National Science Board may not approve any proposed large-scale research facility project unless—

(i) an analysis of the proposed budget has been conducted to ensure the proposal is complete and reasonable;

(ii) the analysis under clause (i) follows the Government Accountability Office Cost Estimating and Assessment Guide;

(iii) except as provided under subparagraph (C), an analysis of the accounting systems has been conducted;

(iv) an independent cost estimate of the construction of the project has been conducted using the same detailed technical information as the project proposal estimate to determine whether the estimate is well-supported and realistic; and

(v) the Foundation and the National Science Board has considered the analyses

under clauses (i) and (iii) and the independent cost estimate under clause (iv) and resolved any major issues identified therein.

(B) AUDITS.—A Foundation analysis under subparagraph (A)(i) may include an audit.

(C) EXCEPTION.—The Director, at the Director's discretion, may waive the requirement under subparagraph (A)(iii) if a similar analysis of the accounting systems was conducted in the prior years.

(2) CONSTRUCTION OVERSIGHT.—The Director shall require for each large-scale research facility project—

(A) periodic external reviews on project management and performance;

(B) adequate internal controls, policies, and procedures, and reliable accounting systems in preparation for the incurred cost audits under subparagraph (D);

(C) annual incurred cost submissions of financial expenditures; and

(D) an incurred cost audit of the project—

(i) at least once during construction at a time determined based on risk analysis and length of the award, except that the length of time between audits may not exceed 3 years; and

(ii) at the completion of the construction phase.

(3) OPERATIONS COST ESTIMATE.—The Director shall require an independent cost estimate of the operational proposal for each large-scale research facility project.

(d) CONTINGENCY.—

(1) IN GENERAL.—The Foundation shall strengthen internal controls to improve oversight of contingency on a large-scale research facility project.

(2) REQUIREMENTS.—In carrying out paragraph (1), not later than 180 days after the date of enactment of this Act, the Foundation shall—

(A) retain control over a portion of the budget contingency funds of each awardee;

(B) distribute the retained funds with other incremental funds as needed; and

(C) track contingency use.

(e) OVERSIGHT IMPLEMENTATION PROGRESS.—The Director of the Foundation shall—

(1) not later than 90 days after the date of enactment of this Act, and periodically thereafter until the completion date, provide a briefing to the appropriate committees of Congress on the response to or progress made toward implementation of—

(A) this section;

(B) all of the issues and recommendations identified in cooperative agreement audit reports and memoranda issued by the Inspector General of the National Science Foundation in the last 5 years; and

(C) all of the issues and recommendations identified by a panel of the National Academy of Public Administration in the December 2015 report entitled ''National Science Foundation: Use of Cooperative Agreements to Support Large Scale Investment in Research''; and

(2) not later than 1 year after the date of enactment of this Act, notify the appropriate committees of Congress when the Foundation has implemented the recommendations identified in a panel of the National Academy of Public Administration report issued December 2015.

(f) DEFINITIONS.—In this section:

(1) APPROPRIATE COMMITTEES OF CONGRESS.—The term ''appropriate committees of Congress'' means the Committee on Commerce, Science, and Transportation and the Committee on Appropriations of the Senate and the Committee on Science, Space, and Technology and the Committee on Appropriations of the House of Representatives.

(2) LARGE-SCALE RESEARCH FACILITY PROJECT.—The term '' 'large-scale research facility project' '' means a science and engineering facility project funded by the major research equipment and facilities construction account, or any successor thereto.

SEC. 112. CONFLICTS OF INTEREST.

The Director of the Foundation shall update the policy and procedure of the Foundation relating to conflicts of interest to improve documentation and management of any known conflict of interest of an individual on temporary assignment at the Foundation, including an individual on assignment under the Intergovernmental Personnel Act of 1970 (42 U.S.C. 4701 et seq.).

SEC. 113. MANAGEMENT OF THE NSF ANTARCTIC PROGRAM.

(a) REVIEW.—

(1) IN GENERAL.—The Director of the Foundation shall continue to review the efforts by the Foundation to sustain and strengthen scientific efforts in the face of logistical challenges for the United States Antarctic Program.

(2) ISSUES TO BE EXAMINED.—In conducting the review, the Director shall examine, at a minimum, the following:

(A) Implementation by the Foundation of issues and recommendations identified by—

(i) the Inspector General of the National Science Foundation in audit reports and memoranda on the United States Antarctic Program in the last 4 years;

(ii) the U.S. Antarctic Program Blue Ribbon Panel report, More and Better Science in Antarctica through Increased Logistical Effectiveness, issued July 23, 2012; and

(iii) the National Research Council report, Future Science Opportunities in Antarctica and the Southern Ocean, issued September 2011.

(B) Efforts by the Foundation to track its progress in addressing the issues and recommendations under subparagraph (A).

(C) Efforts by the Foundation to address other opportunities and challenges, including efforts on scientific research, coordination with other Federal agencies and international partners, logistics and transportation, health and safety of participants, oversight and financial management of awardees and contractors, and resources and policy challenges.

(b) BRIEFING.—Not later than 180 days after the date of enactment of this Act, the Director shall brief the appropriate committees of Congress on the ongoing review, including findings and any recommendations.

SEC. 114. NIST CAMPUS SECURITY.

(a) SUPERVISORY AUTHORITY.—Consistent with the enforcement authority delegated by the Secretary of Homeland Security under section 1315 of title 40, United States Code, the Department of Commerce Office of Security shall directly manage the law enforcement and security programs of NIST through an assigned Director of Security for NIST.

(b) REPORTS.—The Director of Security for NIST shall provide an activities and security report on a quar-

terly basis for the first year after the date of enactment of this Act, and on an annual basis thereafter, to the Under Secretary for Standards and Technology.

TITLE II—ADMINISTRATIVE AND REGULATORY BURDEN REDUCTION

SEC. 201. INTERAGENCY WORKING GROUP ON RESEARCH REGULATION.

(a) FINDINGS.—Congress makes the following findings:

(1) Scientific and technological advancement have been the largest drivers of economic growth in the last 50 years, with the Federal Government being the largest investor in basic research.

(2) Federally funded grants are increasingly competitive, with the Foundation funding only approximately 1 in every 5 grant proposals.

(3) Researchers spend as much as 42 percent of their time complying with Federal regulations, including administrative tasks such as applying for grants or meeting reporting requirements.

(4) The time spent on the activities described in paragraph (3) affects efficiency and reduces valuable research time.

(b) SENSE OF CONGRESS.—It is the sense of Congress that administrative burdens faced by researchers may be reducing the return on investment of federally funded research and development.

(c) ESTABLISHMENT.—The Director of the Office of Management and Budget, in coordination with the Office of Science and Technology Policy, shall establish an interagency working group (referred to in this section as the ''Working Group'') to reduce administrative burdens on federally funded researchers while protecting the public interest in the transparency of and accountability for federally funded activities.

(d) RESPONSIBILITIES.—

(1) IN GENERAL.—The Working Group shall—

(A) regularly review relevant, administration-related regulations imposed on federally funded researchers; and

(B) recommend those regulations or processes that may be eliminated, streamlined, or otherwise improved for the purpose described in subsection (c).

(2) GRANT REVIEW.—

(A) IN GENERAL.—The Working Group, in consultation with the Office of Management and Budget, shall—

(i) conduct a comprehensive review of Federal science agency grant proposal documents; and

(ii) develop, to the extent practicable, a simplified, uniform grant format to be used by all Federal science agencies.

(B) CONSIDERATIONS.—In developing the uniform grant format, the Working Group shall consider whether to implement—

(i) procedures for preliminary project proposals in advance of peer-review selection;

(ii) increased use of ''Just-In-Time'' procedures for documentation that does not bear directly on the scientific merit of a proposal;

(iii) simplified initial budget proposals in advance of peer review selection; and

(iv) detailed budget proposals for applicants that peer review selection identifies as likely to be funded.

(3) CENTRALIZED RESEARCHER PROFILE DATABASE.—

(A) ESTABLISHMENT.—The Working Group shall establish, to the extent practicable,

a secure, centralized database for investigator biosketches, curriculum vitae, licenses, publications, and other documents considered relevant by the Working Group.

(B) CONSIDERATIONS.—In establishing the centralized database under subparagraph (A), the Working Group shall consider incorporating existing investigator databases.

(C) GRANT PROPOSALS.—To the extent practicable, all grant proposals shall utilize the centralized researcher profile database established under subparagraph (A).

(D) REQUIREMENTS.—Each investigator shall—

(i) be responsible for ensuring the investigator's profile is current and accurate; and

(ii) be assigned a unique identifier linked to the database and accessible to all Federal funding agencies.

(4) CENTRALIZED ASSURANCES REPOSITORY.—The Working Group shall—

(A) establish a central repository for all of the assurances required for Federal research grants; and

(B) provide guidance to universities and Federal science agencies on the use of the centralized assurances repository.

(5) COMPREHENSIVE REVIEW.—

(A) IN GENERAL.—The Working Group, in consultation with the Office of Management and Budget, shall—

(i) conduct a comprehensive review of the mandated progress reports for federally funded research; and

(ii) develop a strategy to simplify investigator progress reports.

(B) CONSIDERATIONS.—In developing the strategy, the Working Group shall consider limiting progress reports to performance outcomes.

(e) CONSULTATION.—In carrying out its responsibilities under subsection (d)(1), the Working Group shall consult with academic researchers outside the Federal Government, including—

(1) federally funded researchers;

(2) non-federally funded researchers;

(3) institutions of higher education and their representative associations;

(4) scientific and engineering disciplinary societies and associations;

(5) nonprofit research institutions;

(6) industry, including small businesses;

(7) federally funded research and development centers; and

(8) members of the public with a stake in ensuring effectiveness, efficiency, and accountability in the performance of scientific research.

(f) REPORTS.—Not later than 1 year after the date of enactment of this Act, and periodically thereafter, the Working Group shall submit to the appropriate committees of Congress an annual report on its responsibilities under this section, including recommendations under subsection (d)(1)(B).

SEC. 202. SCIENTIFIC AND TECHNICAL COLLABORATION.

(a) DEFINITION OF SCIENTIFIC AND TECHNICAL WORKSHOP.—In this section, the term ''scientific and technical workshop'' means a symposium, seminar, or any other organized, formal gathering where scientists or engineers working in STEM research and development fields assemble to coordinate, exchange and disseminate information or to explore or clarify a defined subject, problem or area of knowledge in the STEM fields.

(b) POLICY.—It is the policy of the United States to encourage broad dissemination of Federal research find-

ings and engagement of Federal researchers with the scientific and technical community.

(c) AUTHORITY.—Laboratory, test center, and field center directors and other similar heads of offices may approve scientific and technical workshop attendance if—

(1) that attendance would meet the mission of the laboratory or test center; and

(2) sufficient laboratory or test center funds are available for that purpose.

(d) ATTENDANCE POLICIES.—

(1) IN GENERAL.—Not later than 180 days after the date of enactment of this Act, the Director of the Office of Management and Budget, in consultation with the Director of the Office of Science and Technology Policy and the heads of other relevant Federal science agencies, shall revise current policies and streamline processes, in accordance with the policy under subsection (b), for attendance at scientific and technical workshops while ensuring appropriate oversight, accountability, and transparency.

(2) CONSIDERATIONS.—In revising the policy under paragraph (1), the Director of the Office of Management and Budget shall consider the goal of adjudicating a request to attend a scientific and

technical workshop not later than 30 days after the date of the request.

(3) IMPLEMENTATION.—Not later than 90 days after the date the Director of the Office of Management and Budget revises the policies under paragraph (1), the head of each Federal science agency shall update that agency's policies for attendance at scientific and technical workshops.

(e) NIST WORKSHOPS.—Section 2(c) of the National Institute of Standards and Technology Act (15 U.S.C. 272(c)), as amended by section 104 of this Act, is further amended—

(1) by redesignating paragraphs (19) through (24) as paragraphs (22) through (27), respectively; and

(2) by inserting after paragraph (18) the following:

''(19) host, participate in, and support scientific and technical workshops (as defined in section 202 of the American Innovation and Competitiveness Act);

''(20) collect and retain any fees charged by the Secretary for hosting a scientific and technical workshop described in paragraph (19);

''(21) notwithstanding title 31 of the United States Code, use the fees described in paragraph (20) to pay for any related expenses, including subsistence expenses for participants;''.

SEC. 203. NIST GRANTS AND COOPERATIVE AGREEMENTS UPDATE.

Section 8(a) of the Stevenson-Wydler Technology Innovation Act of 1980 (15 U.S.C. 3706(a)) is amended by striking ''The total amount of any such grant or cooperative agreement may not exceed 75 percent of the total cost of the program.''.

SEC. 204. REPEAL OF CERTAIN OBSOLETE REPORTS.

(a) REPEAL OF CERTAIN OBSOLETE REPORTS.—

(1) NIST REPORTS.—

(A) REPORT ON DONATION OF EDUCATIONALLY USEFUL FEDERAL EQUIPMENT TO SCHOOLS.—Section 6(b) of the Technology Administration Act of 1998 (15 U.S.C. 272 note) is amended—

(i) in paragraph (1), by striking ''(1) IN GENERAL.—'' and indenting appropriately; and

(ii) by striking paragraph (2).

(B) THREE-YEAR PROGRAMMATIC PLANNING DOCUMENT.—

(i) IN GENERAL.—Section 23 of the National Institute of Standards and Technology Act (15 U.S.C. 278i) is amended by striking subsections (c) and (d).

(ii) CONFORMING AMENDMENT.—Section 10(h)(1) of the National Institute of Standards and Technology Act (15 U.S.C. 278(h)(1)) is amended by striking the last sentence.

(2) MULTIAGENCY REPORT ON INNOVATION ACCELERATION RESEARCH.—Section 1008 of the America COMPETES Act (42 U.S.C. 6603) is amended—

(A) by striking subsection (c); and

(B) by redesignating subsection (d) as subsection (c).

(3) NSF REPORTS.—

(A) FUNDING FOR SUCCESSFUL STEM EDUCATION PROGRAMS; REPORT TO CONGRESS.—Section 7012 of the America COMPETES Act (42 U.S.C. 1862o-4) is amended by striking subsection (c).

(B) ENCOURAGING PARTICIPATION; EVALUATION AND REPORT.—Section 7031 of the

America COMPETES Act (42 U.S.C. 1862o-11) is amended by striking subsection (b).

(C) MATH AND SCIENCE PARTNERSHIPS PROGRAM COORDINATION REPORT.—Section 9(c) of the National Science Foundation Authorization Act of 2002 (42 U.S.C. 1862n(c)) is amended—

(i) by striking paragraph (4); and

(ii) by redesignating paragraph (5) as paragraph (4).

(b) NATIONAL NANOTECHNOLOGY INITIATIVE REPORTS.—The 21st Century Nanotechnology Research and Development Act (15 U.S.C. 7501 et seq.) is amended—

(1) by amending section 2(c)(4) (15 U.S.C. 7501(c)(4)) to read as follows:

''(4) develop, not later than 5 years after the date of the release of the most-recent strategic plan, and update every 5 years thereafter, a strategic plan to guide the activities described under subsection (b) that describes—

''(A) the near-term and long-term objectives for the Program;

''(B) the anticipated schedule for achieving the near-term objectives; and

''(C) the metrics that will be used to assess progress toward the near-term and long-term objectives;

''(D) how the Program will move results out of the laboratory and into application for the benefit of society;

''(E) the Program's support for long-term funding for interdisciplinary research and development in nanotechnology; and

''(F) the allocation of funding for interagency nanotechnology projects;'';

(2) by amending section 4(d) (15 U.S.C. 7503(d)) to read as follows:

''(d) REPORTS.—Not later than 4 years after the date of the most recent assessment under subsection (c), and quadrennially thereafter, the Advisory Panel shall submit to the President, the Committee on Commerce, Science, and Transportation of the Senate, and the Committee on Science, Space, and Technology of the House of Representatives a report its assessments under subsection (c) and its recommendations for ways to improve the Program.''; and

(3) in section 5 (15 U.S.C. 7504)—

(A) in the heading, by striking ''**TRIENNIAL**'' and inserting ''**QUADRENNIAL**'';

(B) in subsection (a), in the matter preceding paragraph (1), by striking ''triennial'' and inserting ''quadrennial'';

(C) in subsection (b), by striking ''triennial'' and inserting ''quadrennial'';

(D) in subsection (c), by striking ''triennial'' and inserting ''quadrennial''; and

(E) by amending subsection (d) to read as follows:

''(d) REPORT.—

''(1) IN GENERAL.—Not later than 30 days after the date the first evaluation under subsection (a) is received, and quadrennially thereafter, the Director of the National Nanotechnology Coordination Office shall report to the President its assessments under subsection (c) and its recommendations for ways to improve the Program.

''(2) CONGRESS.—Not later than 30 days after the date the President receives the report under paragraph (1), the Director of the Office of Science and Technology Policy shall transmit a copy of the report to Congress.''.

(c) MAJOR RESEARCH EQUIPMENT AND FACILITIES CONSTRUCTION.—Section 14 of the National Science

Foundation Authorization Act of 2002 (42 U.S.C. 1862n-4) is amended—

(1) by amending subsection (a) to read as follows:

''(a) PRIORITIZATION OF PROPOSED MAJOR RESEARCH EQUIPMENT AND FACILITIES CONSTRUCTION.—

''(1) DEVELOPMENT OF PRIORITIES.—The Director shall—

''(A) develop a list indicating by number the relative priority for funding under the major research equipment and facilities construction account that the Director assigns to each project the Board has approved for inclusion in a future budget request; and

''(B) submit the list described in subparagraph (A) to the Board for approval.

''(2) UPDATES.—The Director shall update the list prepared under paragraph (1) each time the Board approves a new project that would receive funding under the major research equipment and facilities construction account and periodically submit any updated list to the Board for approval.'';

(2) by striking subsection (e);

(3) by redesignating subsections (c) and (d) as subsections (b) and (c), respectively; and

(4) by amending subsection (c), as redesignated, to read as follows:

''(c) BOARD APPROVAL OF MAJOR RESEARCH EQUIPMENT AND FACILITIES PROJECTS.—The Board shall explicitly approve any project to be funded out of the major research equipment and facilities construction account before any funds may be obligated from such account for such project.''.

SEC. 205. REPEAL OF CERTAIN PROVISIONS.

(a) TECHNOLOGY INNOVATION PROGRAM.—

(1) IN GENERAL.—Section 28 of the National Institute of Standards and Technology Act (15 U.S.C. 278n) is repealed.

(2) CONFORMING AMENDMENTS.—

(A) ADDITIONAL AWARD CRITERIA.—Section 4226(b) of the Small Business Act of 2010 (15 U.S.C. 278n note) is repealed.

(B) MANAGEMENT COSTS.—Section 2(f) of the National Institute of Standards and Technology Act (15 U.S.C. 272(f)) is amended by striking ''sections 25, 26, and 28'' and inserting ''sections 25 and 26''.

(C) ANNUAL AND OTHER REPORTS TO SECRETARY AND CONGRESS.—Section 10(h)(1) of the National Institute of Standards and

Technology Act (15 U.S.C. 278(h)(1)) is amended by striking ", including the Program established under section 28,".

(b) TEACHERS FOR A COMPETITIVE TOMORROW.—Sections 6111 through 6116 of the America COMPETES Act (20 U.S.C. 9811, 9812, 9813, 9814, 9815, 9816) and the items relating to those sections in the table of contents under section 2 of that Act (Public Law 110-69; 121 Stat. 572) are repealed.

TITLE III—SCIENCE, TECHNOLOGY, ENGINEERING, AND MATH EDUCATION

SEC. 301. ROBERT NOYCE TEACHER SCHOLARSHIP PROGRAM UPDATE.

Section 10A of the National Science Foundation Authorization Act of 2002 (42 U.S.C. 1862n–1a) is amended by adding at the end the following:

"(k) STEM TEACHER SERVICE AND RETENTION.—

"(1) IN GENERAL.—The Director shall develop and implement practices for increasing the proportion of individuals receiving fellowships under this section who—

"(A) fulfill the service obligation required under subsection (h); and

''(B) remain in the teaching profession in a high need local educational agency beyond the service obligation.

''(2) PRACTICES.—The practices described under paragraph (1) may include—

''(A) partnering with nonprofit or professional associations or with other government entities to provide individuals receiving fellowships under this section with opportunities for professional development, including mentorship programs that pair those individuals with currently employed and recently retired science, technology, engineering, or mathematics professionals;

''(B) increasing recruitment from high need districts;

''(C) establishing a system to better collect, track, and respond to data on the career decisions of individuals receiving fellowships under this section;

''(D) conducting research to better understand factors relevant to teacher service and retention; and

''(E) conducting pilot programs to improve teacher service and retention.''.

SEC. 302. SPACE GRANTS.

(a) SENSE OF CONGRESS.—It is the sense of Congress that the National Space Grant College and Fellowship Program has been an important program by which the Federal Government has partnered with universities, colleges, industry, and other organizations to provide hands-on STEM experiences, fostering of multidisciplinary space research, and supporting graduate fellowships in space-related fields, among other purposes.

(b) ADMINISTRATIVE COSTS.—Section 40303 of title 51, United States Code, is amended by adding at the end the following:

''(d) PROGRAM ADMINISTRATION COSTS.—In carrying out the provisions of this chapter, the Administrator—

''(1) shall maximize appropriated funds for grants and contracts made under section 40304 in each fiscal year; and

''(2) in each fiscal year, the Administrator shall limit its program administration costs to no more than 5 percent of funds appropriated for this program for that fiscal year.

''(e) REPORTS.—For any fiscal year in which the Administrator cannot meet the administration cost target under subsection (d)(2), if the Administration is unable to limit program costs under subsection (b), the Adminis-

trator shall submit to the appropriate committees of Congress a report, including—

''(1) a description of why the Administrator did not meet the cost target under subsection (d); and

''(2) the measures the Administrator will take in the next fiscal year to meet the cost target under subsection (d) without drawing upon other Federal funding.''.

SEC. 303. STEM EDUCATION ADVISORY PANEL.

(a) ESTABLISHMENT.—Not later than 180 days after the date of enactment this Act, Director of the Foundation, the Secretary of Education, the Administrator of the National Aeronautics and Space Administration, and the Administrator of the National Oceanic and Atmospheric Administration shall jointly establish an advisory panel (referred to in this section as the ''STEM Education Advisory Panel'') to advise the Committee on STEM Education of the National Science and Technology Council (referred to in this section as ''CoSTEM'') on matters relating to STEM education.

(b) MEMBERS.—

(1) IN GENERAL.—The STEM Education Advisory Panel shall be composed of not less than 11 members.

(2) APPOINTMENT.—

(A) IN GENERAL.—Subject to subparagraph (B), the Director of the Foundation, in consultation with the Secretary of Education and the heads of the Federal science agencies, shall appoint the members of the STEM Education Advisory Panel.

(B) CONSIDERATION.—In selecting individuals to appoint under subparagraph (A), the Director of the Foundation shall seek and give consideration to recommendations from Congress, industry, the scientific community, including the National Academy of Sciences, scientific professional societies, academia, State and local governments, and such other organizations as the Director considers appropriate.

(C) QUALIFICATIONS.—Members shall—

(i) primarily be individuals from academic institutions, nonprofit organizations, and industry, including in-school, out-of-school, and informal education practitioners; and

(ii) be individuals who are qualified to provide advice and information on STEM education research, development, training, implementation, interventions, professional

development, or workforce needs or concerns.

(c) RESPONSIBILITIES.—

(1) ASSESSMENT.—

(A) IN GENERAL.—The STEM Education Advisory Panel shall advise CoSTEM and periodically assess its progress in carrying out its responsibilities under section 101(b) of the America COMPETES Reauthorization Act of 2010 (42 U.S.C. 6621(b)).

(B) CONSIDERATIONS.—In its advisory role, the STEM Education Advisory Panel shall consider—

(i) the appropriateness of criteria used by Federal agencies to evaluate the effectiveness of Federal STEM education programs and activities;

(ii) ways to leverage private and nonprofit STEM investments and encourage public-private partnerships to strengthen STEM education and help build the STEM workforce pipeline; and

(iii) how Federal agencies incentivize colleges and universities to improve retention of STEM students.

(2) RECOMMENDATIONS.—The STEM Education Advisory Panel shall make recommendations to improve Federal STEM education programs and activities based on the assessment under paragraph (1).

(d) FUNDING.—The Director of the Foundation, the Secretary of Education, the Administrator of the National Aeronautics and Space Administration, and the Administrator of the National Oceanic and Atmospheric Administration shall jointly make funds available on an annual basis to support the activities of the STEM Education Advisory Panel.

(e) REPORTS.—Not later than 1 year after the date of enactment of this Act, and every 3 years thereafter, the STEM Education Advisory Panel shall submit to the appropriate committees of Congress, and CoSTEM a report on its assessment under subsection (c)(1) and recommendations under subsection (c)(2).

(f) TRAVEL EXPENSES OF NON-FEDERAL MEMBERS.—

(1) IN GENERAL.—Non-Federal members of the STEM Education Advisory Panel, while attending meetings of the panel or while otherwise serving at the request of a co-chairperson 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.

(2) RULE OF CONSTRUCTION.—Nothing in this subsection shall be construed to prohibit members of the STEM Advisory Panel 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.

SEC. 304. COMMITTEE ON STEM EDUCATION.

(a) RESPONSIBILITIES.—Section 101(b) of the America COMPETES Reauthorization Act of 2010 (42 U.S.C. 6621(b)) is amended—

(1) in paragraph (5)(D), by striking ''; and'' and inserting a semicolon;

(2) in paragraph (6), by striking the period at the end and inserting a semicolon; and

(3) by adding at the end the following:

''(7) collaborate with the STEM Education Advisory Panel established under section 303 of the American Innovation and Competitiveness Act and other outside stakeholders to ensure the engagement of the STEM education community;

''(8) review the measures used by a Federal agency to evaluate its STEM education activities and programs;

''(9) request and review feedback from States on how the States are utilizing Federal STEM education programs and activities; and

''(10) recommend the reform, termination, or consolidation of Federal STEM education activities and programs, taking into consideration the recommendations of the STEM Education Advisory Panel.''.

(b) REPORTS.—Section 101 of the America COMPETES Reauthorization Act of 2010 (42 U.S.C. 6621) is amended—

(1) by striking ''(c) REPORT.—'' and inserting ''(d) REPORTS.—'';

(2) by striking ''(b) RESPONSIBILITIES OF OSTP.—'' and inserting ''(c) RESPONSIBILITIES OF OSTP.—''; and

(3) in subsection (d), as redesignated—

(A) in paragraph (4), by striking ''; and'' and inserting a semicolon;

(B) in paragraph (5), by striking the period at the end and inserting ''; and''; and

(C) by adding at the end the following:

''(6) a description of all consolidations and terminations of Federal STEM education programs and activities implemented in the previous fiscal year, including an explanation for the consolidations and terminations;

''(7) recommendations for reforms, consolidations, and terminations of STEM education programs or activities in the upcoming fiscal year; and

''(8) a description of any significant new STEM education public-private partnerships.''.

SEC. 305. GRANT PROGRAMS TO EXPAND STEM OPPORTUNITIES.

(a) FINDINGS.—Congress makes the following findings:

(1) Economic projections by the Bureau of Labor Statistics indicate that by 2018, there could be 2.4 million unfilled STEM jobs.

(2) Women represent slightly more than half the United States population, and projections indicate that 54 percent of the population will be a member of a racial or ethnic minority group by 2050.

(3) Despite representing half the population, women comprise only about 30 percent of STEM

workers according to a 2015 report by the National Center for Science and Engineering Statistics.

(4) A 2014 National Center for Education Statistics study found that women and underrepresented minorities leave the STEM fields at higher rates than their counterparts.

(5) The representation of women in STEM drops significantly at the faculty level. Overall, women hold only 25 percent of all tenured and tenure-track positions and 17 percent of full professor positions in STEM fields in our Nation's universities and 4-year colleges.

(6) Black and Hispanic faculty together hold about 6.5 percent of all tenured and tenure-track positions and 5 percent of full professor positions.

(7) Many of the numbers in the American Indian or Alaskan Native and Native Hawaiian or Other Pacific Islander categories for different faculty ranks were too small for the National Science Foundation to report publicly without potentially compromising confidential information about the individuals being surveyed.

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

(1) it is critical to our Nation's economic leadership and global competitiveness that we educate, train, and retain more scientists and engineers;

(2) there is currently a disconnect between the availability of and growing demand for STEM-skilled workers;

(3) women, minorities, and persons with disabilities are the largest untapped STEM talent pools in the United States; and

(4) given the shifting demographic landscape, the United States should encourage full participation of individuals described in paragraph (3) in STEM fields.

(c) REAFFIRMATION.—The Director of the Foundation shall continue to support existing programs designed to broaden participation of women, minorities, and persons with disabilities in STEM fields.

(d) PROGRAM TO BROADEN PARTICIPATION IN STEM FIELDS.—

(1) IN GENERAL.—The Director of the Foundation shall award grants on a competitive, merit-reviewed basis, to eligible entities to increase the participation of women and groups underrepresented in STEM fields.

(2) APPLICATIONS.—An applicant seeking a grant under this section shall submit an application to the Director at such time, in such manner, and containing such information as the Director may require.

(3) USE OF FUNDS.—Activities supported by grants under this section may include the following:

(A) Online workshops.

(B) Mentoring programs that partner science, technology, engineering, or mathematics professionals with applicable students.

(C) Internships for applicable undergraduate and graduate students in STEM fields.

(D) Conducting outreach programs that provide applicable elementary school and secondary school students with opportunities to increase their exposure to STEM fields.

(E) Programs to increase the recruitment and retention of underrepresented faculty.

(F) Such additional programs as the Director of the Foundation may consider appropriate.

(e) GRANT PROGRAM FOR GRADES K THROUGH 8.—

(1) IN GENERAL.—The Director of the Foundation shall award grants to be used for research to advance the engagement of students in grades kindergarten through 8 in STEM that are designed to encourage interest, engagement, and skills development of students in STEM fields, particularly those who are members of groups underrepresented in STEM fields.

(2) USE OF FUNDS.—Activities supported by grants under this section may include—

(A) development and implementation of programming described in paragraph (1) for the purpose of research;

(B) use of a variety of engagement methods, including cooperative and hands-on learning;

(C) exposure of students who are members of groups underrepresented in STEM fields to role models, including near-peers, in STEM fields;

(D) mentors;

(E) training of informal learning educators and youth-serving professionals using evidence-based methods consistent with the target student population being served;

(F) education of students on the relevance and significance of STEM careers, provision of academic advice and assistance, and activities designed to help students make real-world connections to STEM content activities;

(G) attendance of underrepresented students at events, competitions, and academic programs to provide content expertise and encourage career exposure in STEM;

(H) activities designed to engage parents of underrepresented students;

(I) innovative strategies to engage underrepresented students, such as using leadership skill outcome measures to encourage youth with the confidence to pursue STEM course work and academic study;

(J) coordination with STEM-rich environments, including other nonprofit, nongovernmental organizations, classroom and out-of classroom settings, institutions of higher education, vocational facilities, corporations, museums, or science centers; and

(K) acquisition of instructional materials or technology-based tools to conduct applicable grant activity.

(3) APPLICATIONS.—

(A) IN GENERAL.—Subject to subparagraph (B), an applicant seeking a grant under the section shall submit an application to the Director at such time, in such manner, and containing such information as the Director may require.

(B) REQUIREMENTS.—The application shall include, at a minimum, the following:

(i) A description of the target audience to be served by the program.

(ii) A description of the process for recruitment and selection of students, as appropriate.

(iii) A description of how such research activity may inform programming that engages underrepresented students in grades kindergarten through 8 in STEM.

(iv) A description of how such research activity may inform programming that promotes student academic achievement in STEM.

(v) An evaluation plan to determine the impact and efficacy of activities being researched.

(4) CONSIDERATION.—In awarding grants under this section, the Director shall give consideration to applicants which, for the purpose of grant activity, include or partner with an organization that has extensive experience and expertise in increasing the participation of underrepresented students in STEM.

(f) ACCOUNTABILITY AND DISSEMINATION.—

(1) EVALUATION.—

(A) IN GENERAL.—Not later than 5 years after the date of enactment of this Act, the Director shall evaluate the grants provided under this section.

(B) REQUIREMENTS.—In conducting the evaluation under subparagraph (A), the Director shall—

(i) use a common set of benchmarks and assessment tools to identify best practices and materials developed or demonstrated by the research; and

(ii) to the extent practicable, combine the research resulting from the grant activity under subsection (e) with the current research on serving underrepresented students in grades kindergarten through 8.

(2) REPORT ON EVALUATIONS.—Not later than 180 days after the completion of the evaluation under paragraph (1), the Director shall submit to the appropriate committees of Congress and make widely available to the public a report that includes—

(A) the results of the evaluation; and

(B) any recommendations for administrative and legislative action that could optimize the effectiveness of the program.

(g) COORDINATION.—In carrying out this section, the Director shall consult, cooperate, and coordinate, to enhance program effectiveness and to avoid duplication, with the programs and policies of other relevant Federal agencies.

(h) DEFINITION OF GROUPS UNDERREPRESENTED IN STEM FIELDS.—In this section, the term ''groups underrepresented in STEM fields'' has the meaning given the term ''underrepresented in science and engineering'' in section 637.4(b) of title 34, Code of Federal Regulations.

SEC. 306. CENTERS OF EXCELLENCE FOR INCLUSION IN STEM.

(a) ESTABLISHMENT.—The Director of the Foundation shall carry out a program to award merit-reviewed,

competitive grants to institutions of higher education, or consortia thereof, to establish not less than 1 Center of Excellence, (referred to in this section as the ''Center'') to collect, maintain, and disseminate information to increase participation of women and groups underrepresented in STEM fields (as defined in section 305(d)(4)).

(b) PURPOSE.—The purpose of the Center is to promote diversity in STEM fields by building on the success of the INCLUDES programs, providing technical assistance, maintaining best practices, and providing related training at federally-funded academic institutions.

(c) PROGRAM.—The Director of the Foundation shall establish each Center through a merit-reviewed, competitive award to an eligible entity for at least 3, but not more than to 5 years.

(d) PUBLIC DOMAIN.—All program information developed, collected, or maintained by a Center, except for personally identifiable information, is and shall remain part of the public domain.

(e) APPLICATION.—To be eligible to receive a grant under this section, an eligible institution shall prepare and submit to the Director an application at such a time, in such form, and containing such information as the Director may require.

(f) ACTIVITIES.—Activities of a Center may include—

(1) conducting and disseminating research on—

(A) systemic factors and institutional policies that impede or facilitate the recruitment, retention, and success of underrepresented groups in STEM fields; and

(B) best practices for mitigating the systemic factors and institutional policies that impede inclusion of underrepresented groups in STEM fields;

(2) collaborating with institutions of higher education, Federal agencies, industry, and relevant stakeholders to develop policies and practices to facilitate the recruitment, retention, and success of underrepresented groups in STEM;

(3) providing educational opportunities for STEM faculty members, staff, students, trainees, fellows, and administrators to learn about inclusion in STEM and to improve STEM mentoring;

(4) developing and hosting intra- or inter-institutional workshops, and providing ongoing support to workshop participants, to propagate best practices in recruiting, retaining, and advancing STEM faculty members, staff, students, trainees, fellows, and

administrators from underrepresented groups at institutions of higher education;

(5) assessing the effectiveness of efforts funded by a Center or related efforts designed to increase inclusion in STEM;

(6) assessing how modern STEM learning environments can increase the inclusion, engagement, and retention of students in STEM fields, particularly for women and groups underrepresented in STEM fields; and

(7) such other actions as a Center determines are necessary to further the inclusion of underrepresented groups in STEM.

SEC. 307. NIST EDUCATION AND OUTREACH.

(a) REPEALS.—The National Institute of Standards and Technology Act (15 U.S.C. 271 et seq.) is amended—

(1) by striking section 18 (15 U.S.C. 278g-1); and

(2) by striking section 19A (15 U.S.C. 278g-2a).

(b) EDUCATION AND OUTREACH.—The National Institute of Standards and Technology Act (15 U.S.C. 271 et seq.), as amended, is further amended by inserting after section 17, the following:

"SEC. 18. EDUCATION AND OUTREACH.

''(a) IN GENERAL.—The Director is authorized to expend funds appropriated for activities of the Institute in any fiscal year, to support, promote, and coordinate activities and efforts to enhance public awareness and understanding of measurement sciences, standards and technology at the national measurement laboratories and otherwise in fulfillment of the mission of the Institute. The Director may carry out activities under this subsection, including education and outreach activities to the general public, industry and academia in support of the Institute's mission.

''(b) HIRING.—The Director, in coordination with the Director of the Office of Personnel Management, may revise the procedures the Director applies when making appointments to laboratory positions within the competitive service—

''(1) to ensure corporate memory of and expertise in the fundamental ongoing work, and on developing new capabilities in priority areas;

''(2) to maintain high overall technical competence;

''(3) to improve staff diversity;

''(4) to balance emphases on the noncore and core areas; or

''(5) to improve the ability of the Institute to compete in the marketplace for qualified personnel.

''(c) VOLUNTEERS.—

''(1) IN GENERAL.—The Director may establish a program to use volunteers in carrying out the programs of the Institute.

''(2) ACCEPTANCE OF PERSONNEL.—The Director may accept, subject to regulations issued by the Office of Personnel Management, voluntary service for the Institute for such purpose if the service—

''(A) is to be without compensation; and

''(B) will not be used to displace any current employee or act as a substitute for any future full-time employee of the Institute.

''(3) FEDERAL EMPLOYEE STATUS.—Any individual who provides voluntary service under this subsection shall not be considered a Federal employee, except for purposes of chapter 81 of title 5, United States Code (relating to compensation for injury), and sections 2671 through 2680 of title 28, United States Code (relating to tort claims).

''(d) RESEARCH FELLOWSHIPS.—

''(1) IN GENERAL.—The Director may expend funds appropriated for activities of the Institute in any fiscal year, as the Director considers appro-

priate, for awards of research fellowships and other forms of financial and logistical assistance, including direct stipend awards to—

"(A) students at institutions of higher learning within the United States who show promise as present or future contributors to the mission of the Institute; and

"(B) United States citizens for research and technical activities of the Institute, including programs.

"(2) SELECTION CRITERIA.—The selection of persons to receive such fellowships and assistance shall be made on the basis of ability and of the relevance of the proposed work to the mission and programs of the Institute.

"(3) FINANCIAL AND LOGISTICAL ASSISTANCE.—Notwithstanding section 1345 of title 31, United States Code, or any other law to the contrary, the Director may include as a form of financial or logistical assistance under this subsection temporary housing and transportation to and from Institute facilities.

"(e) EDUCATIONAL OUTREACH ACTIVITIES.—The Director may—

''(1) facilitate education programs for undergraduate and graduate students, postdoctoral researchers, and academic and industry employees;

''(2) sponsor summer internships for STEM high school teachers as appropriate;

''(3) develop programs for graduate student internships and visiting faculty researchers;

''(4) document publications, presentations, and interactions with visiting researchers and sponsoring interns as performance metrics for improving and continuing interactions with those individuals; and

''(5) facilitate laboratory tours and provide presentations for educational, industry, and community groups.''.

(c) POST-DOCTORAL FELLOWSHIP PROGRAM.—Section 19 of the National Institute of Standards and Technology Act (15 U.S.C. 278g-2) is amended to read as follows:

''SEC. 19. POST-DOCTORAL FELLOWSHIP PROGRAM.

''(a) IN GENERAL.—The Institute and the National Academy of Sciences, jointly, shall establish and conduct a post-doctoral fellowship program, subject to the availability of appropriations.

''(b) ORGANIZATION.—The post-doctoral fellowship program shall include not less than 20 nor more than 120 new fellows per fiscal year.

''(c) EVALUATIONS.—In evaluating applications for post-doctoral fellowships under this section, the Director of the Institute and the President of the National Academy of Sciences shall give consideration to the goal of promoting the participation of underrepresented minorities in research areas supported by the Institute.''.

(d) SAVINGS CLAUSES.—

(1) RESEARCH FELLOWSHIPS AND OTHER FINANCIAL ASSISTANCE TO STUDENTS AT INSTITUTES OF HIGHER EDUCATION.—The repeal made by subsection (a)(1) of this section shall not affect any award of a research fellowship or other form of financial assistance made under section 18 of the National Institute of Standards and Technology Act (15 U.S.C. 278g-1) before the date of enactment of this Act. Such award shall continue to be subject to the requirements to which such funds were subject under that section before the date of enactment of this Act.

(2) POST-DOCTORAL FELLOWSHIP PROGRAM.—The amendment made by subsection (c) of this section shall not affect any award of a post-doctoral fel-

lowship or other form of financial assistance made under section 19 of the National Institute of Standards and Technology Act (15 U.S.C. 278g-2) before the date of enactment of this Act. Such awards shall continue to be subject to the requirements to which such funds were subject under that section before the date of enactment of this Act.

SEC. 308. PRESIDENTIAL AWARDS FOR EXCELLENCE IN STEM MENTORING.

(a) IN GENERAL.—The Director of the Foundation shall continue to administer awards on behalf of the Office of Science and Technology Policy to recognize outstanding mentoring in STEM fields.

(b) ANNUAL AWARD RECIPIENTS.—The Director of the Foundation shall provide Congress with a list of award recipients, including the name, institution, and a brief synopsis of the impact of the mentoring efforts.

SEC. 309. WORKING GROUP ON INCLUSION IN STEM FIELDS.

(a) ESTABLISHMENT.—The Office of Science and Technology Policy, in collaboration with Federal departments and agencies, shall establish an interagency working group to compile and summarize available research and best practices on how to promote diversity and inclusions in STEM fields and examine whether barriers exist

to promoting diversity and inclusion within Federal agencies employing scientists and engineers.

(b) RESPONSIBILITIES.—The working group shall be responsible for reviewing and assessing research, best practices, and policies across Federal science agencies related to the inclusion of underrepresented groups in the Federal STEM workforce, including available research and best practices on how to promote diversity and inclusion in STEM fields, including—

(1) policies providing flexibility for scientists and engineers that are also caregivers, particularly on the timing of research grants;

(2) policies to address the proper handling of claims of sexual harassment;

(3) policies to minimize the effects of implicit bias and other systemic factors in hiring, promotion, evaluation and the workplace in general; and

(4) other evidence-based strategies that the working group considers effective for promoting diversity and inclusion in the STEM fields.

(c) STAKEHOLDER INPUT.—In carrying out the responsibilities under section (b), the working group shall solicit and consider input and recommendations from non-Federal stakeholders, including—

(1) the Council of Advisors on Science and Technology;

(2) federally funded and non-federally funded researchers, institutions of higher education, scientific disciplinary societies, and associations;

(3) nonprofit research institutions;

(4) industry, including small businesses;

(5) federally funded research and development centers;

(6) non-governmental organizations; and

(7) such other members of the public interested in promoting a diverse and inclusive Federal STEM workforce.

(d) PUBLIC REPORTS.—Not later than 1 year after the date of enactment of this Act, and periodically thereafter, the working group shall publish a report on the review and assessment under subsection (b), including a summary of available research and best practices, any recommendations for Federal actions to promote a diverse and inclusive Federal STEM workforce, and updates on the implementation of previous recommendations for Federal actions.

(e) TERMINATION OF EFFECTIVENESS.—The authority provided by subsection (a) terminates effective on the

date that is 10 years after the date that the working group is established.

SEC. 310. IMPROVING UNDERGRADUATE STEM EXPERIENCES.

(a) SENSE OF CONGRESS.—It is the sense of Congress that each Federal science agency should invest in and expand research opportunities for undergraduate students attending institutions of higher education during the undergraduate student's first 2 academic years of postsecondary education.

(b) IDENTIFICATION OF RESEARCH PROGRAMS.—Not later than 1 year after the date of enactment of this Act, the head of each Federal agency shall submit to the President recommendations regarding how the agency could best fulfill the goals described in subsection (a).

(c) BROADER IMPACTS.—Section 526(a)(6) of the America COMPETES Act of 2010 (Public Law 111–358; 124 Stat. 4019) is amended to read as follows:

"(6) Improved undergraduate STEM education and instruction.".

SEC. 311. COMPUTER SCIENCE EDUCATION RESEARCH.

(a) FINDINGS.—Congress finds that as the lead Federal agency for building the research knowledge base for computer science education, the Foundation is well positioned to make investments that will accelerate ongoing

efforts to enable rigorous and engaging computer science throughout the Nation.

(b) GRANT PROGRAM.—

(1) IN GENERAL.—The Director of the Foundation shall award grants to eligible entities to research computer science education and computational thinking.

(2) RESEARCH.—The research described in paragraph (1) may include the development or adaptation, piloting or full implementation, and testing of—

(A) models of preservice preparation for teachers who will teach computer science and computational thinking;

(B) scalable and sustainable models of professional development and ongoing support for the teachers described in subparagraph (A);

(C) tools and models for teaching and learning aimed at supporting student success and inclusion in computing within and across diverse populations, particularly poor, rural, and tribal populations and other populations that have been traditionally underrepresented in computer science and STEM fields; and

(D) instructional materials and high-quality learning opportunities for teaching computer science and, especially in poor, rural, or tribal schools at the elementary school and middle school levels, for integrating computational thinking into STEM teaching and learning.

(c) COLLABORATIONS.—In carrying out the grants established in subsection (b), eligible entities may collaborate and partner with local or remote schools to support the integration of computing and computational thinking within pre-kindergarten through grade 12 STEM curricula and instruction.

(d) METRICS.—The Director of the Foundation shall develop metrics to measure the success of the grant program funded under this section in achieving program goals.

(e) REPORT.—The Director of the Foundation shall report, in the annual budget submission to Congress, on the success of the program as measured by the metrics in subsection (d).

(f) DEFINITION OF ELIGIBLE ENTITY.—In this section, the term ''eligible entity'' means an institution of higher education or a nonprofit research organization.

TITLE IV—LEVERAGING THE PRIVATE SECTOR

SEC. 401. PRIZE COMPETITION AUTHORITY UPDATE.

Section 24 of the Stevenson-Wydler Technology Innovation Act of 1980 (15 U.S.C. 3719) is amended—

(1) in subsection (c)—

(A) in the subsection heading, by striking ''PRIZES'' and by inserting ''PRIZE COMPETITIONS'';

(B) in the matter preceding paragraph (1), by striking ''prize may be one or more of the following'' and inserting ''prize competition may be 1 or more of the following types of activities'';

(C) in paragraph (2), by inserting ''competition'' after ''prize''; and

(D) in paragraphs (3) and (4), by striking ''prizes'' and inserting ''prize competitions'';

(2) in subsection (f)—

(A) in the matter preceding paragraph (1), by striking ''in the Federal Register'' and inserting ''on a publicly accessible Government website, such as www.challenge.gov,'';

(B) in paragraphs (1), (2), and (3), by inserting ''prize'' before ''competition'' each place it appears; and

(C) in paragraph (4), by striking ''prize'' and inserting ''cash prize purse or non-cash prize award'';

(3) in subsection (g)—

(A) in the matter preceding paragraph (1), by striking ''prize'' and inserting ''cash prize purse''; and

(B) in paragraph (1), by inserting ''prize'' before ''competition'';

(4) in subsection (h), by inserting ''prize'' before ''competition'' each place it appears;

(5) in subsection (i)—

(A) in paragraph (1)(B), by inserting ''prize'' before ''competition'';

(B) in paragraph (2)(A), by inserting ''prize'' before ''competition'' each place it appears;

(C) by redesignating paragraph (3) as paragraph (4); and

(D) by inserting after paragraph (2) the following:

''(3) WAIVERS.—

''(A) IN GENERAL.—An agency may waive the requirement under paragraph (2).

''(B) LIST.—The Director shall include a list of all of the waivers granted under this paragraph during the preceding fiscal year, including a detailed explanation of the reason for granting the waiver.'';

(6) in subsection (j)—

(A) in paragraph (1), by inserting ''prize'' before ''competition'';

(B) by amending paragraph (2) to read as follows:

''(2) LICENSES.—As appropriate and to further the goals of a prize competition, the Federal Government may—

''(A) negotiate a license for the use of intellectual property developed by a registered participant in a prize competition; or

''(B) require a registered participant in a prize competition to provide an open license to the public for the use of the intellectual property if that requirement is disclosed prior to registration.''; and

(C) by adding at the end the following:

''(3) ELECTRONIC CONSENT.—The Federal Government may obtain consent to the intellectual property and licensing terms of a prize competition from participants during the online registration for the prize competition.'';

(7) in subsection (k)—

(A) in paragraph (1), by striking ''each competition'' and inserting ''each prize competition'' each place it appears;

(B) in paragraph (2)(A), by inserting ''prize'' before ''competition''; and

(C) in paragraph (3), by inserting ''prize'' before ''competitions'' each place it appears;

(8) in subsection (l), by striking ''an agreement with'' and all that follows through the period at the end and inserting ''a grant, contract, cooperative agreement, or other agreement with a private sector for-profit or nonprofit entity or State or local government agency to administer the prize competition, subject to the provisions of this section.'';

(9) in subsection (m)—

(A) by amending paragraph (1) to read as follows:

''(1) IN GENERAL.—Support for a prize competition under this section, including financial sup-

port for the design and administration of a prize competition or funds for a cash prize purse, may consist of Federal appropriated funds and funds provided by private sector for-profit and nonprofit entities. The head of an agency may request and accept funds from other Federal 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 such prize competitions. The head of an agency may not give any special consideration to any agency or entity in return for a donation.'';

(B) in paragraph (2), by striking ''prize awards'' and inserting ''cash prize purses or non-cash prize awards'';

(C) in paragraph (3)—

(i) by amending subparagraph (A) to read as follows:

''(A) ANNOUNCEMENT.—No prize competition may be announced under subsection (f) until all the funds needed to pay out the announced amount of the cash prize purse have been appropriated or committed in writing by a

private or State, United States territory, local, or tribal government source.''; and

(ii) in subparagraph (B)—

(I) in the matter preceding clause (i), by striking ''a prize'' and inserting ''a cash prize purse or non-cash prize award'';

(II) in clause (i), by inserting ''competition'' after ''prize''; and

(III) in clause (ii), by inserting ''or State, United States territory, local, or tribal government'' after ''private'';

(D) in paragraph (4)—

(i) in subparagraph (A)—

(I) by striking ''a prize'' and inserting ''a cash prize purse or a non-cash prize award''; and

(II) by striking ''Science and Technology'' and inserting ''Science, Space, and Technology''; and

(ii) in subparagraph (B), by striking ''cash prizes'' and inserting ''cash prize purses or non-cash prize awards'';

(10) in subsection (n)—

(A) in the heading, by striking ''SERVICE'' and inserting ''SERVICES'';

(B) by striking ''the date of the enactment of the America COMPETES Reauthorization Act of 2010'' and inserting ''the date of enactment of the American Innovation and Competitiveness Act,''; and

(C) by inserting ''for both for-profit and nonprofit entities and State, United States territory, local, and tribal government entities,'' after ''contract vehicle'';

(11) in subsection (o)(1), by striking ''or providing a prize'' and inserting ''a prize competition or providing a cash prize purse or non-cash prize award''; and

(12) in subsection (p)—

(A) in the heading, by striking ''ANNUAL'' and inserting ''BIENNIAL'';

(B) in paragraph (1)—

(i) by striking ''each year'' and inserting ''every other year'';

(ii) by striking ''Science and Technology'' and inserting ''Science, Space, and Technology''; and

(iii) by striking ''fiscal year'' and inserting ''2 fiscal years''; and

(C) in paragraph (2)—

(i) by striking ''The report for a fiscal year'' and inserting ''A report'';

(ii) in subparagraph (C)—

(I) in the heading, by striking ''PRIZES'' and inserting ''PRIZE PURSES OR NON-CASH PRIZE AWARDS''; and

(II) by striking ''cash prizes'' each place it appears and inserting ''cash prize purses or non-cash prize awards''; and

(iii) by adding at the end the following:

''(G) PLAN.—A description of crosscutting topical areas and agency-specific mission needs that may be the strongest opportunities for prize competitions during the upcoming 2 fiscal years.''.

SEC. 402. CROWDSOURCING AND CITIZEN SCIENCE.

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

(1) the authority granted to Federal agencies under the America COMPETES Reauthorization Act of 2010 (Public Law 111–358; 124 Stat. 3982) to pursue the use of incentive prizes and challenges has yielded numerous benefits;

(2) crowdsourcing and citizen science projects have a number of additional unique benefits, including accelerating scientific research, increasing cost effectiveness to maximize the return on taxpayer dollars, addressing societal needs, providing hands-on learning in STEM, and connecting members of the public directly to Federal agency missions and to each other; and

(3) granting Federal agencies the direct, explicit authority to use crowdsourcing and citizen science will encourage its appropriate use to advance agency missions and stimulate and facilitate broader public participation in the innovation process, yielding numerous benefits to the Federal Government and citizens who participate in such projects.

(b) DEFINITIONS.—In this section:

(1) CITIZEN SCIENCE.—The term ''citizen science'' means a form of open collaboration in which individuals or organizations participate volun-

tarily in the scientific process in various ways, including—

(A) enabling the formulation of research questions;

(B) creating and refining project design;

(C) conducting scientific experiments;

(D) collecting and analyzing data;

(E) interpreting the results of data;

(F) developing technologies and applications;

(G) making discoveries; and

(H) solving problems.

(2) CROWDSOURCING.—The term ''crowdsourcing'' means a method to obtain needed services, ideas, or content by soliciting voluntary contributions from a group of individuals or organizations, especially from an online community.

(3) PARTICIPANT.—The term ''participant'' means any individual or other entity that has volunteered in a crowdsourcing or citizen science project under this section.

(c) CROWDSOURCING AND CITIZEN SCIENCE.—

(1) IN GENERAL.—The head of each Federal agency, or the heads of multiple Federal agencies working cooperatively, may utilize crowdsourcing

and citizen science to conduct activities designed to advance the mission of the respective Federal agency or the joint mission of Federal agencies, as applicable.

(2) VOLUNTARY SERVICES.—Notwithstanding section 1342 of title 31, United States Code, the head of a Federal agency may accept, subject to regulations issued by the Director of the Office of Personnel Management, services from participants under this section if such services—

(A) are performed voluntarily as a part of a crowdsourcing or citizen science project authorized under paragraph (1);

(B) are not financially compensated for their time; and

(C) will not be used to displace any employee of the Federal Government.

(3) OUTREACH.—The head of each Federal agency engaged in a crowdsourcing or citizen science project under this section shall make public and promote such project to encourage broad participation.

(4) CONSENT, REGISTRATION, AND TERMS OF USE.—

(A) IN GENERAL.—Each Federal agency is authorized to determine the appropriate level of

consent, registration, or acknowledgment of the terms of use that are required from participants in crowdsourcing or citizen science projects under this section on a per-project basis.

(B) DISCLOSURES.—In seeking consent, conducting registration, or developing terms of use for a project under this subsection, a Federal agency shall disclose the privacy, intellectual property, data ownership, compensation, service, program, and other terms of use to the participant in a clear and reasonable manner.

(C) MODE OF CONSENT.—A Federal agency or Federal agencies, as applicable, may obtain consent electronically or in written form from participants under this section.

(5) PROTECTIONS FOR HUMAN SUBJECTS.—Any crowdsourcing or citizen science project under this section that involves research involving human subjects shall be subject to part 46 of title 28, Code of Federal Regulations (or any successor regulation).

(6) DATA.—

(A) IN GENERAL.—A Federal agency shall, where appropriate and to the extent practicable, make data collected through a crowdsourcing or citizen science project under this section avail-

able to the public, in a machine readable format, unless prohibited by law.

(B) NOTICE.—As part of the consent process, the Federal agency shall notify all participants—

(i) of the expected uses of the data compiled through the project;

(ii) if the Federal agency will retain ownership of such data;

(iii) if and how the data and results from the project would be made available for public or third party use; and

(iv) if participants are authorized to publish such data.

(7) TECHNOLOGIES AND APPLICATIONS.—Federal agencies shall endeavor to make technologies, applications, code, and derivations of such intellectual property developed through a crowdsourcing or citizen science project under this section available to the public.

(8) LIABILITY.—Each participant in a crowdsourcing or citizen science project under this section shall agree—

(A) to assume any and all risks associated with such participation; and

(B) to waive all claims against the Federal Government and its related entities, except for claims based on willful misconduct, for any injury, death, damage, or loss of property, revenue, or profits (whether direct, indirect, or consequential) arising from participation in the project.

(9) SCIENTIFIC INTEGRITY.—Federal agencies coordinating crowdsourcing or citizen science projects under this section shall make all practicable efforts to ensure that participants adhere to all relevant scientific integrity or other applicable ethics policies.

(10) MULTI-SECTOR PARTNERSHIPS.—The head of each Federal agency engaged in crowdsourcing or citizen science under this section, or the heads of multiple Federal agencies working cooperatively, may enter into a contract or other agreement to share administrative duties for such activities with—

(A) a for profit or nonprofit private sector entity, including a private institution of higher education;

(B) a State, tribal, local, or foreign government agency, including a public institution of higher education; or

(C) a public-private partnership.

(11) FUNDING.—In carrying out crowdsourcing and citizen science projects under this section, the head of a Federal agency, or the heads of multiple Federal agencies working cooperatively—

(A) may use funds appropriated by Congress;

(B) may publicize projects and solicit and accept funds or in-kind support for such activities from—

(i) other Federal agencies;

(ii) for profit or nonprofit private sector entities, including private institutions of higher education; or

(iii) State, tribal, local, or foreign government agencies, including public institutions of higher education; and

(C) may not give any special consideration to any entity described in subparagraph (ii) in return for such funds or in-kind support.

(12) FACILITATION.—

(A) GENERAL SERVICES ADMINISTRATION ASSISTANCE.—The Administrator of the General Services Administration, in coordination with the Director of the Office of Personnel Management, shall, at no cost to Federal agencies, identify and develop relevant products, training, and services to facilitate the use of crowdsourcing and citizen science projects under this section, including by specifying the appropriate contract vehicles and technology and organizational platforms to enhance the ability of Federal agencies to carry out the activities under this section.

(B) ADDITIONAL GUIDANCE.—The head of each Federal agency engaged in crowdsourcing or citizen science under this section is encouraged—

(i) to consult any guidance provided by the Director of the Office of Science and Technology Policy, including the Federal Crowdsourcing and Citizen Science Toolkit;

(ii) to designate a coordinator for that Federal agency's crowdsourcing and citizen science projects; and

(iii) to share best practices with other Federal agencies, including participation of staff in the Federal Community of Practice for Crowdsourcing and Citizen Science.

(d) REPORT.—

(1) IN GENERAL.—Not later than 2 years after the date of the enactment of this Act, the Director of the Office of Science and Technology Policy shall include, as a component of a report required under section 24(p) of the Stevenson-Wydler Technology Innovation Act of 1980 (15 U.S.C. 3719(p)), a report on the activities carried out under this section.

(2) INFORMATION INCLUDED.—The report required under paragraph (1) shall include—

(A) a summary of each crowdsourcing and citizen science project conducted by a Federal agency during the most recently completed 2 fiscal years, including a description of the proposed goals of each crowdsourcing and citizen science project;

(B) the participation rates, submission levels, number of consents, or any other statistic that might be considered relevant in each crowdsourcing and citizen science project;

(C) a description of—

(i) the resources (including personnel and funding) that were used in the execution of each crowdsourcing and citizen science project;

(ii) the activities for which such resources were used; and

(iii) how the obligations and expenditures relating to the project's execution were allocated among the accounts of the Federal agency;

(D) a summary of the use of crowdsourcing and citizen science by all Federal agencies, including interagency and multi-sector partnerships; and

(E) any other information that the Director of the Office of Science and Technology Policy considers relevant.

(e) SAVINGS PROVISION.—Nothing in this section may be construed—

(1) to affect the authority to conduct crowdsourcing and citizen science authorized by any other provision of law; or

(2) to displace Federal Government resources allocated to the Federal agencies that use

crowdsourcing or citizen science authorized under this section to carry out a project.

SEC. 403. NIST OTHER TRANSACTION AUTHORITY UPDATE.

Section 2(b)(4) of the National Institute of Standards and Technology Act (15 U.S.C. 272(b)(4)) is amended to read as follows:

''(4) to enter into and perform such contracts, including cooperative research and development arrangements, grants, cooperative agreements, real property leases, or other transactions, as may be necessary in furtherance of the purposes of this Act and on such terms as the Director considers appropriate;''.

SEC. 404. NIST VISITING COMMITTEE ON ADVANCED TECHNOLOGY UPDATE.

Section 10(a) of the National Institute of Standards and Technology Act (15 U.S.C. 278(a)) is amended—

(1) in the second sentence, by striking ''15 members appointed by the Director, at least 10 of whom'' and ''not fewer than 9 members appointed by the Director, a majority of whom''; and

(2) in the third sentence, by striking ''National Bureau of Standards'' and inserting ''National Institute of Standards and Technology''.

TITLE V—MANUFACTURING

SEC. 501. HOLLINGS MANUFACTURING EXTENSION PARTNERSHIP IMPROVEMENTS.

(a) IN GENERAL.—Section 25 of the National Institute of Standards and Technology Act (15 U.S.C. 278k) is amended to read as follows:

"SEC. 25. HOLLINGS MANUFACTURING EXTENSION PARTNERSHIP.

''(a) DEFINITIONS.—In this section:

''(1) APPROPRIATE COMMITTEES OF CONGRESS.—The term 'appropriate committees of Congress' means—

''(A) the Committee on Commerce, Science, and Transportation of the Senate; and

''(B) the Committee on Science, Space, and Technology of the House of Representatives.

''(2) AREA CAREER AND TECHNICAL EDUCATION SCHOOL.—The term 'area career and technical education school' has the meaning given the term in section 3 of the Vocational Education Act of 1963 (20 U.S.C. 2302).

''(3) CENTER.—The term 'Center' means a manufacturing extension center that—

''(A) is created under subsection (b); and

"(B) is affiliated with an eligible entity that applies for and is awarded financial support under subsection (e).

"(4) COMMUNITY COLLEGE.—The term 'community college' means an institution of higher education (as defined under section 101(a) of the Higher Education Act of 1965 (20 U.S.C. 1001(a))) at which the highest degree that is predominately awarded to students is an associate's degree.

"(5) ELIGIBLE ENTITY.—The term 'eligible entity' means a United States-based nonprofit institution, or consortium thereof, an institution of higher education, or a State, United States territory, local, or tribal government.

"(6) HOLLINGS MANUFACTURING EXTENSION PARTNERSHIP OR PROGRAM.—The term 'Hollings Manufacturing Extension Partnership' or 'Program' means the program established under subsection (b).

"(7) MEP ADVISORY BOARD.—The term 'MEP Advisory Board' means the Manufacturing Extension Partnership Advisory Board established under subsection (n).

"(b) ESTABLISHMENT AND PURPOSE.—The Secretary, acting through the Director and, if appropriate, through other Federal officials, shall establish a program

to provide assistance for the creation and support of manufacturing extension centers for the transfer of manufacturing technology and best business practices.

''(c) OBJECTIVE.—The objective of the Program shall be to enhance competitiveness, productivity, and technological performance in United States manufacturing through—

''(1) the transfer of manufacturing technology and techniques developed at the Institute to Centers and, through them, to manufacturing companies throughout the United States;

''(2) the participation of individuals from industry, institutions of higher education, State governments, other Federal agencies, and, when appropriate, the Institute in cooperative technology transfer activities;

''(3) efforts to make new manufacturing technology and processes usable by United States-based small and medium-sized companies;

''(4) the active dissemination of scientific, engineering, technical, and management information about manufacturing to industrial firms, including small and medium-sized manufacturing companies;

''(5) the utilization, when appropriate, of the expertise and capability that exists in Federal agen-

cies, other than the Institute, and federally-sponsored laboratories;

''(6) the provision to community colleges and area career and technical education schools of information about the job skills needed in manufacturing companies, including small and medium-sized manufacturing businesses in the regions they serve;

''(7) the promotion and expansion of certification systems offered through industry, associations, and community colleges, when appropriate; and

''(8) the growth in employment and wages at United States-based small and medium-sized companies.

''(d) ACTIVITIES.—The activities of a Center shall include—

''(1) the establishment of automated manufacturing systems and other advanced production technologies, based on Institute-supported research, for the purpose of demonstrations and technology transfer;

''(2) the active transfer and dissemination of research findings and Center expertise to a wide range of companies and enterprises, particularly small and medium-sized manufacturers; and

''(3) the facilitation of collaborations and partnerships between small and medium-sized manufacturing companies , community colleges, and area career and technical education schools, to help those entities better understand the specific needs of manufacturers and to help manufacturers better understand the skill sets that students learn in the programs offered by such colleges and schools.

''(e) FINANCIAL ASSISTANCE.—

''(1) AUTHORIZATION.—Except as provided in paragraph (2), the Secretary may provide financial assistance for the creation and support of a Center through a cooperative agreement with an eligible entity.

''(2) COST SHARING.—The Secretary may not provide more than 50 percent of the capital and annual operating and maintenance funds required to establish and support a Center.

''(3) RULE OF CONSTRUCTION.—For purposes of paragraph (2), any amount received by an eligible entity for a Center under a provision of law other than paragraph (1) shall not be considered an amount provided under paragraph (1).

''(f) APPLICATIONS.—

''(1) IN GENERAL.—An eligible entity shall submit an application to the Secretary at such time, in such manner, and containing such information as the Secretary may require.

''(2) PROGRAM DESCRIPTION.—The Secretary shall establish and update, as necessary—

''(A) a description of the Program;

''(B) the application procedures;

''(C) performance metrics;

''(D) criteria for determining qualified applicants; and

''(E) criteria for choosing recipients of financial assistance from among the qualified applicants.

''(F) procedures for determining allowable cost share contributions; and

''(G) such other program policy objectives and operational procedures as the Secretary considers necessary.

''(3) COST SHARING.—

''(A) IN GENERAL.—To be considered for financial assistance under this section, an applicant shall provide adequate assurances that the applicant and if applicable, the applicant's partnering organizations, will obtain funding

for not less than 50 percent of the capital and annual operating and maintenance funds required to establish and support the Center from sources other than the financial assistance provided under subsection (e).

''(B) AGREEMENTS WITH OTHER ENTITIES.—In meeting the cost-sharing requirement under subparagraph (A), an eligible entity may enter into an agreement with 1 or more other entities, such as a private industry, an institution of higher education, or a State, United States territory, local, or tribal government for the contribution by that other entity of funding if the Secretary determines the agreement—

''(i) is programmatically reasonable;

''(ii) will help accomplish programmatic objectives; and

''(iii) is allocable under Program procedures under subsection (f)(2).

''(4) LEGAL RIGHTS.—Each applicant shall include in the application a proposal for the allocation of the legal rights associated with any intellectual property which may result from the activities of the Center.

''(5) MERIT REVIEW OF APPLICATIONS.—

''(A) IN GENERAL.—The Secretary shall subject each application to merit review.

''(B) CONSIDERATIONS.—In making a decision whether to approve an application and provide financial assistance under subsection (e), the Secretary shall consider, at a minimum—

''(i) the merits of the application, particularly those portions of the application regarding technology transfer, training and education, and adaptation of manufacturing technologies to the needs of particular industrial sectors;

''(ii) the quality of service to be provided;

''(iii) the geographical diversity and extent of the service area; and

''(iv) the type and percentage of funding from other sources under paragraph (3).

''(g) EVALUATIONS.—

''(1) THIRD AND EIGHTH YEAR EVALUATIONS BY PANEL.—

''(A) IN GENERAL.—The Secretary shall ensure that each Center is evaluated during its

third and eighth years of operation by an evaluation panel appointed by the Secretary.

''(B) COMPOSITION.—The Secretary shall ensure that each evaluation panel appointed under subparagraph (A) is composed of—

''(i) private experts, none of whom are connected with the Center evaluated by the panel; and

''(ii) Federal officials.

''(C) CHAIRPERSON.—For each evaluation panel appointed under subparagraph (B), the Secretary shall appoint a chairperson who is an official of the Institute.

''(2) FIFTH YEAR EVALUATIONS BY SECRETARY.—In the fifth year of operation of a Center, the Secretary shall conduct a review of the Center.

''(3) PERFORMANCE MEASUREMENT.—In evaluating a Center an evaluation panel or the Secretary, as applicable, shall measure the performance of the Center against—

''(A) the objective specified in subsection (c);

''(B) the performance metrics under subsection (f)(2)(C); and

"(C) such other criterion as considered appropriate by the Secretary.

"(4) POSITIVE EVALUATIONS.—If an evaluation of a Center is positive, the Secretary may continue to provide financial assistance for the Center—

"(A) in the case of an evaluation occurring in the third year of a Center, through the fifth year of the Center;

"(B) in the case of an evaluation occurring in the fifth year of a Center, through the eighth year of the Center; and

"(C) in the case of an evaluation occurring in the eighth year of a Center, through the tenth year of the Center.

"(5) OTHER THAN POSITIVE EVALUATIONS.—

"(A) PROBATION.—If an evaluation of a Center is other than positive, the Secretary shall put the Center on probation during the period beginning on the date that the Center receives notice under subparagraph (B)(i) and ending on the date that the reevaluation is complete under subparagraph (B)(iii).

"(B) NOTICE AND REEVALUATION.—If a Center receives an evaluation that is other than

positive, the evaluation panel or Secretary, as applicable, shall—

"(i) notify the Center of the reason, including any deficiencies in the performance of the Center identified during the evaluation;

"(ii) assist the Center in remedying the deficiencies by providing the Center, not less frequently than once every 3 months, an analysis of the Center, if considered appropriate by the panel or Secretary, as applicable; and

"(iii) reevaluate the Center not later than 1 year after the date of the notice under clause (i).

"(C) CONTINUED SUPPORT DURING PERIOD OF PROBATION.—The Secretary may continue to provide financial assistance under subsection (e) for a Center during the probation period.

"(6) FAILURE TO REMEDY.—

"(A) IN GENERAL.—If a Center fails to remedy a deficiency or to show significant improvement in performance before the end of the probation period under paragraph (5), the Sec-

retary shall conduct a competition to select an operator for the Center under subsection (h).

''(B) TREATMENT OF CENTERS SUBJECT TO NEW COMPETITION.—Upon the selection of an operator for a Center under subsection (h), the Center shall be considered a new Center and the calculation of the years of operation of that Center for purposes of paragraphs (1) through (5) of this subsection and subsection (h)(1) shall start anew.

''(h) REAPPLICATION COMPETITION FOR FINANCIAL ASSISTANCE AFTER 10 YEARS.—

''(1) IN GENERAL.—If an eligible entity has operated a Center under this section for a period of 10 consecutive years, the Secretary shall conduct a competition to select an eligible entity to operate the Center in accordance with the process plan under subsection (i).

''(2) INCUMBENT ELIGIBLE ENTITIES.—An eligible entity that has received financial assistance under this section for a period of 10 consecutive years and that the Secretary determines is in good standing shall be eligible to compete in the competition under paragraph (1).

''(3) TREATMENT OF CENTERS SUBJECT TO REAPPLICATION COMPETITION.—Upon the selection of an operator for a Center under paragraph (1), the Center shall be considered a new Center and the calculation of the years of operation of that Center for purposes of paragraphs (1) through (5) of subsection (g) shall start anew.

''(i) PROCESS PLAN.—Not later than 180 days after the date of the enactment of the American Innovation and Competitiveness Act, the Secretary shall implement and submit to Congress a plan for how the Institute will conduct an evaluation, competition, and reapplication competition under this section.

''(j) OPERATIONAL REQUIREMENTS.—

''(1) PROTECTION OF CONFIDENTIAL INFORMATION OF CENTER CLIENTS.—The following information, if obtained by the Federal Government in connection with an activity of a Center or the Program, shall be exempt from public disclosure under section 552 of title 5, United States Code:

''(A) Information on the business operation of any participant in the Program or of a client of a Center.

''(B) Trade secrets of any client of a Center.

''(k) OVERSIGHT BOARDS.—

''(1) IN GENERAL.—As a condition on receipt of financial assistance for a Center under subsection (e), an eligible entity shall establish a board to oversee the operations of the Center.

''(2) STANDARDS.—

''(A) IN GENERAL.—The Director shall establish appropriate standards for each board described under paragraph (1).

''(B) CONSIDERATIONS.—In establishing the standards, the Director shall take into account the type and organizational structure of an eligible entity.

''(C) REQUIREMENTS.—The standards shall address, at a minimum—

''(i) membership;

''(ii) composition;

''(iii) term limits;

''(iv) conflicts of interest; and

''(v) whether to limit board members serving on multiple boards under this section.

''(3) MEMBERSHIP.—

"(A) IN GENERAL.—Each board established under paragraph (1) shall be composed of members as follows:

"(i) The membership of each board shall be representative of stakeholders in the region in which the Center is located.

"(ii) A majority of the members of the board shall be selected from among individuals who own or are employed by small or medium-sized manufacturers.

"(B) LIMITATION.—A member of a board established under paragraph (1) may not serve on more than 1 board established under that paragraph.

"(4) BYLAWS.—

"(A) IN GENERAL.—Each board established under paragraph (1) shall adopt and submit to the Director bylaws to govern the operation of the board.

"(B) CONFLICTS OF INTEREST.—Bylaws adopted under subparagraph (A) shall include policies to minimize conflicts of interest, including such policies relating to disclosure of relationships and recusal as may be necessary to minimize conflicts of interest.

''(l) ACCEPTANCE OF FUNDS.—In addition to such sums as may be appropriated to the Secretary and Director to operate the Program, the Secretary and Director may also accept funds from other Federal departments and agencies and from the private sector under section 2(c)(7) of this Act (15 U.S.C. 272(c)(7)), to be available to the extent provided by appropriations Acts, for the purpose of strengthening United States manufacturing.

''(m) MEP ADVISORY BOARD.—

''(1) ESTABLISHMENT.—There is established within the Institute a Manufacturing Extension Partnership Advisory Board.

''(2) MEMBERSHIP.—

''(A) COMPOSITION.—

''(i) IN GENERAL.—The MEP Advisory Board shall consist of not fewer than 10 members appointed by the Director and broadly representative of stakeholders.

''(ii) REQUIREMENTS.—Of the members appointed under clause (i)—

''(I) at least 2 members shall be employed by or on an advisory board for a Center; and

''(II) at least 5 other members shall be from United States small

businesses in the manufacturing sector.

''(iii) LIMITATION.—No member of the MEP Advisory Board shall be an employee of the Federal Government.

''(B) TERM.—Except as provided in subparagraph (C), the term of office of each member of the MEP Advisory Board shall be 3 years.

''(C) VACANCIES.—Any member appointed to fill a vacancy occurring prior to the expiration of the term for which his predecessor was appointed shall be appointed for the remainder of such term.

''(D) SERVING CONSECUTIVE TERMS.—Any person who has completed 2 consecutive full terms of service on the MEP Advisory Board shall thereafter be ineligible for appointment during the 1-year period following the expiration of the second such term.

''(3) MEETINGS.—The MEP Advisory Board shall—

''(A) meet not less than biannually; and

''(B) provide to the Director—

"(i) advice on the activities, plans, and policies of the Program;

"(ii) assessments of the soundness of the plans and strategies of the Program; and

"(iii) assessments of current performance against the plans of the Program.

"(4) FACA APPLICABILITY.—

"(A) IN GENERAL.—In discharging its duties under this subsection, the MEP Advisory Board shall function solely in an advisory capacity, in accordance with the Federal Advisory Committee Act (5 U.S.C. App.).

"(B) EXCEPTION.—Section 14 of the Federal Advisory Committee Act shall not apply to the MEP Advisory Board.

"(5) ANNUAL REPORT.—

"(A) IN GENERAL.—At a minimum, the MEP Advisory Board shall transmit an annual report to the Secretary for transmittal to Congress not later than 30 days after the submission to Congress of the President's annual budget request in each year.

"(B) CONTENTS.—The report shall address the status of the Program and describe

the relevant sections of the programmatic planning document and updates thereto transmitted to Congress by the Director under subsections (c) and (d) of section 23 (15 U.S.C. 278i).

''(n) SMALL MANUFACTURERS.—

''(1) EVALUATION OF OBSTACLES.—As part of the Program, the Director shall—

''(A) identify obstacles that prevent small manufacturers from effectively competing in the global market;

''(B) implement a comprehensive plan to train the Centers to address the obstacles identified in paragraph (2); and

''(C) facilitate improved communication between the Centers to assist such manufacturers in implementing appropriate, targeted solutions to the obstacles identified in paragraph (2).

''(2) DEVELOPMENT OF OPEN ACCESS RESOURCES.—As part of the Program, the Secretary shall develop open access resources that address best practices related to inventory sourcing, supply chain management, manufacturing techniques, available Federal resources, and other topics to further the competitiveness and profitability of small manufacturers.''.

(b) COMPETITIVE AWARDS PROGRAM.—The National Institute of Standards and Technology Act (15 U.S.C. 271 et seq.) is amended by inserting after section 25 the following:

"SEC. 25A. COMPETITIVE AWARDS PROGRAM.

''(a) ESTABLISHMENT.—The Director shall establish within the Hollings Manufacturing Extension Partnership under section 25 (15 U.S.C. 278k) and section 26 (15 U.S.C. 278l) a program of competitive awards among participants described in subsection (b) of this section for the purposes described in subsection (c).

''(b) PARTICIPANTS.—Participants receiving awards under this section shall be Centers, or a consortium of Centers.

''(c) PURPOSE, THEMES, AND REIMBURSEMENT.—

''(1) PURPOSE.—The purpose of the program established under subsection (a) is to add capabilities to the Hollings Manufacturing Extension Partnership, including the development of projects to solve new or emerging manufacturing problems as determined by the Director, in consultation with the Director of the Hollings Manufacturing Extension Partnership, the MEP Advisory Board, other Federal agencies, and small and medium-sized manufacturers.

''(2) THEMES.—The Director may identify 1 or more themes for a competition carried out under this section, which may vary from year to year, as the Director considers appropriate after assessing the needs of manufacturers and the success of previous competitions.

''(3) REIMBURSEMENT.—Centers may be reimbursed for costs incurred by the Centers under this section.

''(d) APPLICATIONS.—Applications for awards under this section shall be submitted in such manner, at such time, and containing such information as the Director shall require in consultation with the MEP Advisory Board.

''(e) SELECTION.—

''(1) PEER REVIEW AND COMPETITIVELY AWARDED.—The Director shall ensure that awards under this section are peer reviewed and competitively awarded.

''(2) GEOGRAPHIC DIVERSITY.—The Director shall endeavor to have broad geographic diversity among selected proposals.

''(3) CRITERIA.—The Director shall select applications to receive awards that the Director determines will achieve 1 or more of the following:

"(A) Improve the competitiveness of industries in the region in which the Center or Centers are located.

"(B) Create jobs or train newly hired employees.

"(C) Promote the transfer and commercialization of research and technology from institutions of higher education, national laboratories or other Federally-funded research programs, and nonprofit research institutes.

"(D) Recruit a diverse manufacturing workforce, including through outreach to women and minorities.

"(E) Such other result as the Director determines will advance the objective set forth in section 25(c) (15 U.S.C. 278k) or in section 26 (15 U.S.C. 278l).

"(f) PROGRAM CONTRIBUTION.—Recipients of awards under this section shall not be required to provide a matching contribution.

"(g) GLOBAL MARKETPLACE PROJECTS.—In making an award under this section, the Director, in consultation with the MEP Advisory Board and the Secretary, may take into consideration whether an application has significant potential for enhancing the competitiveness of small

and medium-sized United States manufacturers in the global marketplace.

''(h) DURATION.—The duration of an award under this section shall be for not more than 3 years.

''(i) DEFINITIONS.—The terms used in this section have the meanings given the terms in section 25 (15 U.S.C. 278k).''.

(c) GAO REPORT.—Not later than 2 years after the date of enactment of this Act, the Comptroller General of the United States, in consultation with the MEP Advisory Board (as defined in section 25 of the National Institute of Standards and Technology Act (15 U.S.C. 278k), shall submit to the Committee on Commerce, Science, and Transportation of the Senate and the Committee on Science, Space, and Technology of the House of Representatives a report analyzing—

(1) the effectiveness of the changes in the cost share to Centers under section 25 of the National Institute of Standards and Technology Act (15 U.S.C. 278k);

(2) the engagement in services and the characteristics of services provided by 2 types of Centers, including volume and type of service; and

(3) whether the cost-sharing ratio has any effect on the services provided by either type of Center.

(d) CONFORMING AMENDMENTS.—

(1) DEFINITIONS.—Section 2199(3) of title 10, United States Code, is amended—

(A) by striking ''regional center'' and inserting ''manufacturing extension center'';

(B) by inserting ''and best business practices'' before ''referred''; and

(C) by striking ''25(a)'' and inserting ''25(b)''.

(2) ENTERPRISE INTEGRATION INITIATIVE.—Section 3(a) of the Enterprise Integration Act of 2002 (15 U.S.C. 278g-5(a)) is amended by inserting ''Hollings'' before ''Manufacturing Extension Partnership''.

(3) ASSISTANCE TO STATE TECHNOLOGY PROGRAMS.—Section 26(a) of the National Institute of Standards and Technology Act (15 U.S.C. 278l(a)) is amended by striking ''Centers program created'' and inserting ''Hollings Manufacturing Extension Partnership''.

(e) SAVINGS PROVISIONS.—Notwithstanding the amendments made by subsections (a) and (b) of this sec-

tion, the Secretary of Commerce may carry out section 25 of the National Institute of Standards and Technology Act (15 U.S.C. 278k) as that section was in effect on the day before the date of enactment of this Act, with respect to existing grants, agreements, cooperative agreements, or contracts, and with respect to applications for such items that are received by the Secretary prior to the date of enactment of this Act.

SEC. 502. FEDERAL LOAN GUARANTEES FOR INNOVATIVE TECHNOLOGIES IN MANUFACTURING.

Section 26(o) of the Stevenson-Wydler Technology Innovation Act of 1980 (15 U.S.C. 3721(o)) is amended—

(1) by inserting ''(1) IN GENERAL.—'' before ''To the maximum'' and indenting appropriately; and

(2) by adding at the end the following:

''(2) ACCESS TO CAPITAL.—The Secretary, in coordination with the Small Business Administration and the National Institute of Standards and Technology, shall identify any gaps in the access of small- or medium-sized manufacturers to capital for the use or production of innovative technologies that the program could fill, and develop marketing materials and conduct outreach to target those gaps.''.

TITLE VI—INNOVATION, COMMERCIALIZATION, AND TECHNOLOGY TRANSFER

SEC. 601. INNOVATION CORPS.

(a) FINDINGS.—Congress makes the following findings:

(1) The National Science Foundation Innovation Corps (referred to in this section as the ''I-Corps'') was established to foster a national innovation ecosystem by encouraging institutions, scientists, engineers, and entrepreneurs to identify and explore the innovation and commercial potential of National Science Foundation-funded research well beyond the laboratory.

(2) Through I-Corps, the Foundation invests in entrepreneurship and commercialization education, training, and mentoring that can ultimately lead to the practical deployment of technologies, products, processes, and services that improve the Nation's competitiveness, promote economic growth, and benefit society.

(3) By building networks of entrepreneurs, educators, mentors, institutions, and collaborations, and supporting specialized education and training, I-

Corps is at the leading edge of a strong, lasting foundation for an American innovation ecosystem.

(4) By translating federally funded research to a commercial stage more quickly and efficiently, programs like the I-Corps create new jobs and companies, help solve societal problems, and provide taxpayers with a greater return on their investment in research.

(5) The I-Corps program model has a strong record of success that should be replicated at all Federal science agencies.

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

(1) commercialization of federally-funded research can improve the Nation's competitiveness, grow the economy, and benefit society;

(2) I-Corps is a useful tool in promoting the commercialization of federally-funded research by training researchers funded by the Foundation in entrepreneurship and commercialization;

(3) I-Corps should continue to build a network of entrepreneurs, educators, mentors, and institutions and support specialized education and training; and

(4) researchers other than those funded by the Foundation may also benefit from the education and training described in paragraph (3).

(c) I-CORPS PROGRAM.—

(1) IN GENERAL.—In order to promote a strong, lasting foundation for the national innovation ecosystem and increase the positive economic and social impact of federally-funded research, the Director of the Foundation shall set forth eligibility requirements and carry out a program to award grants for entrepreneurship and commercialization education, training, and mentoring.

(2) EXPANSION OF I-CORPS.—

(A) IN GENERAL.—The Director—

(i) shall encourage the development and expansion of I-Corps and other training programs that focus on professional development, including education in entrepreneurship and commercialization; and

(ii) may establish an agreement with another Federal science agency—

(I) to make researchers, students, and institutions funded by that agency eligible to participate in the I-Corps program; or

(II) to assist that agency with the design and implementation of its own program that is similar to the I-Corps program.

(B) PARTNERSHIP FUNDING.—In negotiating an agreement with another Federal science agency under subparagraph (A)(ii), the Director shall require that Federal science agency to provide funding for—

(i) the training for researchers, students, and institutions selected for the I-Corps program; and

(ii) the locations that Federal science agency designates as regional and national infrastructure for science and engineering entrepreneurship.

(3) FOLLOW-ON COMMERCIALIZATION GRANTS.—

(A) IN GENERAL.—Subject to subparagraph (B), the Director, in consultation with the Director of the Small Business Innovation Research Program, shall make funds available for competitive grants, including to I-Corps participants, to help support—

(i) prototype or proof-of-concept development; and

(ii) such activities as the Director considers necessary to build local, regional, and national infrastructure for science and engineering entrepreneurship.

(B) LIMITATION.—Grants under subparagraph (A) shall be limited to participants with innovations that because of the early stage of development are not eligible to participate in a Small Business Innovation Research Program or a Small Business Technology Transfer Program.

(4) STATE AND LOCAL PARTNERSHIPS.—The Director may engage in partnerships with State and local governments, economic development organizations, and nonprofit organizations to provide access to the I-Corps program to support entrepreneurship and commercialization education and training for researchers, students, and institutions under this subsection.

(5) REPORTS.—The Director shall submit to the appropriate committees of Congress a biennial report on I-Corps program efficacy, including metrics on the effectiveness of the program. Each

Federal science agency participating in the I-Corps program or that implements a similar program under paragraph (2)(A) shall contribute to the report.

(6) DEFINITIONS.—In this subsection, the terms ''Small Business Innovation Research Program'' and ''Small Business Technology Transfer Program'' have the meanings given those terms in section 9 of the Small Business Act (15 U.S.C. 638).

SEC. 602. TRANSLATIONAL RESEARCH GRANTS.

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

(1) commercialization of federally-funded research may benefit society and the economy; and

(2) not-for-profit organizations support the commercialization of federally-funded research by providing useful business and technical expertise to researchers.

(b) COMMERCIALIZATION GRANTS PROGRAM.—The Director of the Foundation shall continue to award grants on a competitive, merit-reviewed basis to eligible entities to promote the commercialization of federally-funded research results.

(c) USE OF FUNDS.—Activities supported by grants under this section may include—

(1) identifying Foundation-sponsored research and technologies that have the potential for accelerated commercialization;

(2) supporting prior or current Foundation-sponsored investigators in undertaking proof-of-concept work, including development of prototypes of technologies that are derived from Foundation-sponsored research and have potential market value;

(3) promoting sustainable partnerships between Foundation-funded institutions, industry, and other organizations within academia and the private sector with the purpose of accelerating the transfer of technology;

(4) developing multi-disciplinary innovation ecosystems which involve and are responsive to specific needs of academia and industry; and

(5) providing professional development, mentoring, and advice in entrepreneurship, project management, and technology and business development to innovators.

(d) ELIGIBILITY.—

(1) IN GENERAL.—The following organizations may be eligible for grants under this section:

(A) Institutions of higher education.

(B) Public or nonprofit technology transfer organizations.

(C) A nonprofit organization that partners with an institution of higher education.

(D) A consortia of 2 or more of the organizations described under subparagraphs (A) through (C).

(2) LEAD ORGANIZATIONS.—Any eligible organization under paragraph (1) may apply as a lead organization.

(e) APPLICATIONS.—An eligible entity seeking a grant under this section shall submit an application to the Director at such time, in such manner, and containing such information as the Director may require.

SEC. 603. OPTICS AND PHOTONICS TECHNOLOGY INNOVATIONS.

(a) FINDINGS.—Congress makes the following findings:

(1) The 1998 National Research Council Report, ''Harnessing Light'' presented a comprehensive overview on the importance of optics and photonics to various sectors of the United States economy.

(2) In 2012, in response to increased coordination and investment by other nations, the National

Research Council released a follow up study recommending a national photonics initiative to increase collaboration and coordination among United States industry, Federal and State government, and academia to identify and further advance areas of photonics critical to regaining United States competitiveness and maintaining national security.

(3) Publicly-traded companies focused on optics and photonics in the United States enable more than $3 trillion in revenue annually.

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

(1) optics and photonics research and technologies promote United States global competitiveness in industry sectors, including telecommunications and information technology, energy, healthcare and medicine, manufacturing, and defense;

(2) Federal science agencies, industry, and academia should seek partnerships with each other to develop basic research in optics and photonics into more mature technologies and capabilities; and

(3) each Federal science agency, as appropriate, should—

(A) survey and identify optics and photonics-related programs within that Federal science agency and share results with other Federal science agencies for the purpose of generating multiple applications and uses;

(B) partner with the private sector and academia to leverage knowledge and resources to maximize opportunities for innovation in optics and photonics;

(C) explore research and development opportunities, including Federal and private sector-sponsored internships, to ensure a highly trained optics and photonics workforce in the United States;

(D) encourage partnerships between academia and industry to promote improvement in the education of optics and photonics technicians at the secondary school level, undergraduate level, and 2-year college level, including through the Foundation's Advanced Technological Education program; and

(E) assess existing programs and explore alternatives to modernize photonics laboratory equipment in undergraduate institutions in the

United States to facilitate critical hands-on learning.