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(Original Signature of Member)

117TH CONGRESS
1ST SESSION

H. R. _____

To authorize appropriations for fiscal years 2022, 2023, 2024, 2025, and 2026 for the National Science Foundation, and for other purposes.

IN THE HOUSE OF REPRESENTATIVES

Ms. JOHNSON of Texas introduced the following bill; which was referred to the Committee on _____

A BILL

To authorize appropriations for fiscal years 2022, 2023, 2024, 2025, and 2026 for the National Science Foundation, and for other purposes.

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

SECTION 1. SHORT TITLE.

This Act may be cited as the ''National Science Foundation for the Future Act''.

SEC. 2. FINDINGS.

Congress finds the following:

(1) Over the past seven decades, the National Science Foundation has played a critical role in advancing the United States academic research enterprise by supporting fundamental research and education across science and engineering disciplines.

(2) Discoveries enabled by sustained investment in fundamental research and the education of the United States science and engineering workforce have led to transformational innovations and spawned new industries.

(3) While the traditional approach to investment in research has delivered myriad benefits to society, a concerted effort is needed to ensure the benefits of federally funded science and engineering are enjoyed by all Americans.

(4) As countries around the world increase investments in research and STEM education, United States global leadership in science and engineering is eroding, posing significant risks to economic competitiveness, national security, and public well-being.

(5) To address major societal challenges and sustain United States leadership in innovation, the Federal Government must increase investments in research, broaden participation in the STEM workforce, and bolster collaborations among universities,

National Laboratories, companies, non-profit funders of research, local policymakers, civil societies and stakeholder communities, and international partners.

SEC. 3. DEFINITIONS.

In this Act:

(1) ACADEMIES.—The term ''Academies'' means the National Academies of Sciences, Engineering, and Medicine.

(2) AWARDEE.—The term ''awardee'' means the legal entity to which Federal assistance is awarded and that is accountable to the Federal Government for the use of the funds provided.

(3) BOARD.—The term ''Board'' means the National Science Board.

(4) DIRECTOR.—The term ''Director'' means the Director of the National Science Foundation.

(5) EMERGING RESEARCH INSTITUTION.—The term ''emerging research institution'' means an institution of higher education with an established undergraduate student program that has, on average for 3 years prior to the time of application for an award, received less than $35,000,000 in Federal research funding.

(6) FEDERAL SCIENCE AGENCY.—The term ''Federal science agency'' means any Federal agency with an annual extramural research expenditure of over $100,000,000.

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

(8) 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 (20 U.S.C. 1001(a)).

(9) NON-PROFIT ORGANIZATION.—The term ''non-profit organization'' means an organization which is described in section 501(c)(3) of the Internal Revenue Code of 1986 and exempt from tax under section 501(a) of such code.

(10) NSF INCLUDES.—The term ''NSF includes'' means the initiative carried out under section 6(c).

(11) PREK-12.—The term ''preK-12'' means pre-kindergarten through grade 12.

(12) SKILLED TECHNICAL WORK.—The term ''skilled technical work'' means an occupation that requires a high level of knowledge in a technical domain and does not require a bachelor's degree for entry.

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

SEC. 4. AUTHORIZATION OF APPROPRIATIONS.

(a) FISCAL YEAR 2022.—

(1) IN GENERAL.—There are authorized to be appropriated to the Foundation $11,469,200,000 for fiscal year 2022.

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

(A) $9,444,100,000 shall be made available to carry out research and related activities, of which—

(i) $208,150,000 shall be for the Graduate Research Fellowship Program;

(ii) $55,000,000 shall be for the Mid-Scale Research Infrastructure Program; and

(iii) $1,000,000,000 shall be for the Directorate for Science and Engineering Solutions;

(B) $1,333,860,000 shall be made available for education and human resources, of which—

(i) $73,700,000 shall be for the Robert Noyce Teacher Scholarship Program;

(ii) $59,500,000 shall be for the NSF Research Traineeship Program;

(iii) $208,150,000 shall be for the Graduate Research Fellowship Program; and

(iv) $66,000,000 shall be for the Cybercorps Scholarship for Service Program;

(C) $190,000,000 shall be made available for major research equipment and facilities construction, of which $65,000,000 shall be for the Mid-Scale Research Infrastructure Program;

(D) $473,500,000 shall be made available for agency operations and award management;

(E) $4,620,000 shall be made available for the Office of the National Science Board; and

(F) $23,120,000 shall be made available for the Office of the Inspector General.

(b) FISCAL YEAR 2023.—

(1) IN GENERAL.—There are authorized to be appropriated to the Foundation $12,668,000,000 for fiscal year 2023.

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

(A) $10,367,460,000 shall be made available to carry out research and related activities, of which—

(i) $227,070,000 shall be for the Graduate Research Fellowship Program;

(ii) $60,000,000 shall be for the Mid-Scale Research Infrastructure Program; and

(iii) $1,500,000,000 shall be for the Directorate for Science and Engineering Solutions;

(B) $1,391,320,000 shall be made available for education and human resources, of which—

(i) $80,400,000 shall be for the Robert Noyce Teacher Scholarship Program;

(ii) $64,910,000 shall be for the NSF Research Traineeship Program;

(iii) $227,070,000 shall be for the Graduate Research Fellowship Program; and

(iv) $72,000,000 shall be for the Cybercorps Scholarship for Service Program;

(C) $355,000,000 shall be made available for major research equipment and facilities construction, of which $75,000,000 shall be for the Mid-Scale Research Infrastructure Program;

(D) $522,940,000 shall be made available for agency operations and award management;

(E) $4,660,000 shall be made available for the Office of the National Science Board; and

(F) $26,610,000 shall be made available for the Office of the Inspector General.

(c) FISCAL YEAR 2024.—

(1) IN GENERAL.—There are authorized to be appropriated to the Foundation $14,148,200,000 for fiscal year 2024.

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

(A) $11,702,420,000 shall be made available to carry out research and related activities, of which—

(i) $245,990,000 shall be for the Graduate Research Fellowship Program;

(ii) $70,000,000 shall be for the Mid-Scale Research Infrastructure Program; and

(iii) $2,250,000,000 shall be for the Directorate for Science and Engineering Solutions;

(B) $1,457,590,000 shall be made available for education and human resources, of which—

(i) $87,100,000 shall be for the Robert Noyce Teacher Scholarship Program;

(ii) $70,320,000 shall be for the NSF Research Traineeship Program;

(iii) $245,990,000 shall be for the Graduate Research Fellowship Program; and

(iv) $78,000,000 shall be for the Cybercorps Scholarship for Service Program;

(C) $370,000,000 shall be made available for major research equipment and facilities construction, of which $85,000,000 shall be for the Mid-Scale Research Infrastructure Program;

(D) $582,380,000 shall be made available for agency operations and award management;

(E) $4,700,000 shall be made available for the Office of the National Science Board; and

(F) $31,110,000 shall be made available for the Office of the Inspector General.

(d) FISCAL YEAR 2025.—

(1) IN GENERAL.—There are authorized to be appropriated to the Foundation $16,036,900,000 for fiscal year 2025.

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

(A) $13,440,840,000 shall be made available to carry out research and related activities, of which—

(i) $264,920,000 shall be for the Graduate Research Fellowship Program;

(ii) $75,000,000 shall be for the Mid-Scale Research Infrastructure Program; and

(iii) $3,375,000,000 shall be for the Directorate for Science and Engineering Solutions;

(B) $1,522,890,000 shall be made available for education and human resources, of which—

(i) $93,800,000 shall be for the Robert Noyce Teacher Scholarship Program;

(ii) $75,730,000 shall be for the NSF Research Traineeship Program;

(iii) $264,920,000 shall be for the Graduate Research Fellowship Program; and

(iv) $84,000,000 shall be for the Cybercorps Scholarship for Service Program;

(C) $372,000,000 shall be made available for major research equipment and facilities construction, of which $90,000,000 shall be for the Mid-Scale Research Infrastructure Program;

(D) $661,830,000 shall be made available for agency operations and award management;

(E) $4,740,000 shall be made available for the Office of the National Science Board; and

(F) $34,610,000 shall be made available for the Office of the Inspector General.

(e) FISCAL YEAR 2026.—

(1) IN GENERAL.—There are authorized to be appropriated to the Foundation $18,325,020,000 for fiscal year 2026.

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

(A) $15,549,390,000 shall be made available to carry out research and related activities, of which—

(i) $283,840,000 shall be for the Graduate Research Fellowship Program;

(ii) $80,000,000 shall be for the Mid-Scale Research Infrastructure Program; and

(iii) $5,062,500,000 shall be for the Directorate for Science and Engineering Solutions;

(B) $1,601,470,000 shall be made available for education and human resources, of which—

(i) $100,500,000 shall be for the Robert Noyce Teacher Scholarship Program;

(ii) $81,140,000 shall be for the NSF Research Traineeship Program;

(iii) $283,840,000 shall be for the Graduate Research Fellowship Program; and

(iv) $90,000,000 shall be for the Cybercorps Scholarship for Service Program;

(C) $375,000,000 shall be made available for major research equipment and facilities construction, of which $100,000,000 shall be for the Mid-Scale Research Infrastructure Program;

(D) $756,270,000 shall be made available for agency operations and award management;

(E) $4,780,000 shall be made available for the Office of the National Science Board; and

(F) $38,110,000 shall be made available for the Office of the Inspector General.

SEC. 5. STEM EDUCATION.

(a) PREK-12 STEM EDUCATION.—

(1) DECADAL SURVEY OF STEM EDUCATION RESEARCH.—Not later than 45 days after the date of enactment of this Act, the Director shall enter into a contract with the Academies to review and assess the status and opportunities for PreK–12 STEM education research and make recommendations for research priorities over the next decade.

(2) SCALING INNOVATIONS IN PREK-12 STEM EDUCATION.—

(A) IN GENERAL.—The Director shall establish a program to award grants, on a competitive basis, to institutions of higher education or non-profit organizations (or consortia of such institutions or organizations) to establish no fewer than 3 multidisciplinary Centers for Tranformative Education Research and Translation (in this section referred to as ''Centers'') to support research and development on widespread and sustained implementation of STEM education innovations.

(B) APPLICATION.—An institution of higher education or non-profit organization (or a consortium of such institutions or organizations) seeking funding under subparagraph (A) shall submit an application to the Director at such time, in such manner, and containing such information as the Director may require. The application shall include, at a minimum, a description of how the proposed Center will—

(i) establish partnerships among academic institutions, local or State education agencies, and other relevant stakeholders in supporting programs and activities to facilitate the widespread and sustained im-

plementation of promising, evidence-based STEM education practices, models, programs, and technologies;

(ii) support enhanced STEM education infrastructure, including cyberlearning technologies, to facilitate the widespread adoption of promising, evidence-based practices;

(iii) support research and development on scaling practices, partnerships, and alternative models to current approaches, including approaches sensitive to the unique combinations of capabilities, resources, and needs of varying localities, educators, and learners;

(iv) include a focus on the learning needs of under resourced schools and learners in low-resource or underachieving local education agencies in urban and rural communities; and

(v) support research and development on scaling practices and models to support and sustain highly-qualified STEM educators in urban and rural communities.

(C) ADDITIONAL CONSIDERATIONS.—In awarding a grant under this paragraph, the Director may also consider the extent to which the proposed Center will—

(i) leverage existing collaborations, tools, and strategies supported by the Foundation, including NSF INCLUDES and the Convergence Accelerators;

(ii) support research on and the development and scaling of innovative approaches to distance learning and education for various student populations;

(iii) support education innovations that leverage new technologies or deepen understanding of the impact of technology on educational systems; and

(iv) include a commitment from local or State education administrators to making the proposed reforms and activities a priority.

(D) PARTNERSHIP.—In carrying out the program under subparagraph (A), the Director shall explore opportunities to partner with the Department of Education, including through jointly funding activities under this paragraph.

(E) ANNUAL MEETING.—The Director shall encourage and facilitate an annual meeting of the Centers to foster collaboration among the Centers and to further disseminate the results of the Centers' activities.

(F) REPORT.—Not later than 5 years after the date of enactment of this Act, the Director shall submit to Congress a report describing the activities carried out pursuant to this paragraph that includes—

(i) a description of the focus and proposed goals of each Center; and

(ii) an assessment of the program's success in helping to promote scalable solutions in PreK-12 STEM education.

(3) NATIONAL ACADEMIES STUDY.—Not later than 45 days after the date of enactment of this Act, the Director shall enter into an agreement with the Academies to conduct a study to—

(A) review the research literature and identify research gaps regarding the interconnected factors that foster and hinder successful implementation of promising, evidence-based PreK-12 STEM education innovations at the local, regional, and national level;

(B) present a compendium of promising, evidence-based PreK-12 STEM education practices, models, programs, and technologies;

(C) identify barriers to widespread and sustained implementation of such innovations; and

(D) make recommendations to the Foundation, the Department of Education, the National Science and Technology Council's Committee on Science, Technology, Engineering, and Mathematics Education, State and local educational agencies, and other relevant stakeholders on measures to address such barriers.

(b) UNDERGRADUATE STEM EDUCATION.—

(1) RESEARCH ON STEM EDUCATION AND WORKFORCE NEEDS.—The Director shall award grants, on a competitive basis, to four-year institutions of higher education or non-profit organizations (or consortia of such institutions or organizations) to support research and development activities to—

(A) encourage greater collaboration and coordination between institutions of higher education and industry to enhance education and improve alignment with workforce needs;

(B) understand the current composition of the STEM workforce and the factors that influence growth, retention, and development of that workforce; and

(C) increase the size, diversity, capability, and flexibility of the STEM workforce.

(2) ADVANCED TECHNOLOGICAL EDUCATION PROGRAM UPDATE.—Section 3(b) of the Scientific and Advanced Technology Act of 1992 (42 U.S.C. 1862i(b)) is amended to read as follows:

''(b) NATIONAL COORDINATION NETWORK FOR SCIENCE AND TECHNICAL EDUCATION.—The Director shall award grants to institutions of higher education, non-profit organizations, and associate-degree granting colleges (or consortia of such institutions or organizations) to establish a network of centers for science and technical education. The centers shall—

''(1) coordinate research, training, and education activities funded by awards under subsection (a) and share information and best practices across the network of awardees;

''(2) serve as a national and regional clearinghouse and resource to communicate and coordinate research, training, and educational activities across disciplinary, organizational, geographic, and inter-

national boundaries and disseminate best practices; and

''(3) develop national and regional partnerships between PreK–12 schools, two-year colleges, institutions of higher education, workforce development programs, and industry to meet workforce needs.''.

(c) GRADUATE STEM EDUCATION.—

(1) MENTORING AND PROFESSIONAL DEVELOPMENT.—

(A) MENTORING PLANS.—

(i) UPDATE.—Section 7008 of the America Creating Opportunities to Meaningfully Promote Excellence in Technology, Education, and Science Act (42 U.S.C. 1862o) is amended by—

(I) inserting ''and graduate student'' after ''postdoctoral''; and

(II) inserting ''The requirement may be satisfied by providing such individuals with access to mentors, including individuals not listed on the grant.'' after ''review criterion.''.

(ii) EVALUATION.—Not later than 45 days after the date of enactment of this Act, the Director shall enter into an agree-

ment with a qualified independent organization to evaluate the effectiveness of the postdoctoral mentoring plan requirement for improving mentoring for Foundation-supported postdoctoral researchers.

(B) CAREER EXPLORATION.—

(i) IN GENERAL.—The Director shall award grants, on a competitive basis, to institutions of higher education and nonprofit organizations (or consortia of such institutions or organizations) to develop innovative approaches for facilitating career exploration of academic and non-academic career options and for providing opportunity-broadening experiences for graduate students and postdoctoral scholars that can then be considered, adopted, or adapted by other institutions and to carry out research on the impact and outcomes of such activities.

(ii) REVIEW OF PROPOSALS.—In selecting grant recipients under this subparagraph, the Director shall consider, at a minimum—

(I) the extent to which the administrators of the institution are committed to making the proposed activity a priority; and

(II) the likelihood that the institution or organization will sustain or expand the proposed activity effort beyond the period of the grant.

(C) DEVELOPMENT PLANS.—The Director shall require that annual project reports for awards that support graduate students and postdoctoral scholars include certification by the principal investigator that each graduate student and postdoctoral scholar receiving substantial support from such award, as determined by the Director, in consultation with faculty advisors, has developed and annually updated an individual development plan to map educational goals, career exploration, and professional development.

(D) PROFESSIONAL DEVELOPMENT SUPPLEMENT.—The Director shall carry out a five-year pilot initiative to award up to 2,500 administrative supplements of up to $2,000 to existing research grants annually, on a competi-

tive basis, to support graduate student professional development experiences for graduate students who receive a substantial portion of their support under such grants, as determined by the Director.

(E) GRADUATE EDUCATION RESEARCH.—The Director shall award grants, on a competitive basis, to institutions of higher education or non-profit organizations (or consortia of such institutions or organizations) to support research on the graduate education system and outcomes of various interventions and policies, including—

(i) the effects of traineeships, fellowships, internships, and teaching and research assistantships on outcomes for graduate students;

(ii) the effects of graduate education and mentoring policies and procedures on degree completion, including differences across gender, race and ethnicity, and citizenship; and

(iii) the development and assessment of new or adapted interventions, including approaches that improve mentoring rela-

tionships, develop conflict management skills, and promote healthy research teams.

(2) GRADUATE RESEARCH FELLOWSHIP PROGRAM UPDATE.—

(A) SENSE OF CONGRESS.—It is the sense of Congress that the Foundation should increase the number of new graduate research fellows supported annually over the next 5 years to no fewer than 3,000 fellows.

(B) PROGRAM UPDATE.—Section 10 of the National Science Foundation Act of 1950 (42 U.S.C. 1869) is amended—

(i) in subsection (a), by inserting ''and as will address national workforce demand in critical STEM fields'' after ''throughout the United States'';

(ii) in subsection (b), by striking ''of $12,000'' and inserting ''up to $16,000''; and

(iii) by adding at the end the following:

''(c) OUTREACH.—The Director shall ensure program outreach to recruit fellowship applicants from fields of study that are in areas of critical national need, from all

regions of the country, and from historically underrepresented populations in STEM.''.

(3) STUDY ON GRADUATE STUDENT FUNDING.—

(A) IN GENERAL.—Not later than 45 days after the date of enactment of this Act, the Director shall enter into an agreement with a qualified independent organization to evaluate—

(i) the role of the Foundation in supporting graduate student education and training through fellowships, traineeships, and other funding models; and

(ii) the impact of different funding mechanisms on graduate student experiences and outcomes, including whether such mechanisms have differential impacts on subsets of the student population.

(B) REPORT.—Not later than 1 year after the date of enactment of this Act, the organization charged with carrying out the study under subparagraph (A) shall publish the results of its evaluation, including a recommendation for the appropriate balance between fellowships, traineeships, and other funding models.

(d) STEM WORKFORCE DATA.—

(1) SKILLED TECHNICAL WORKFORCE PORTFOLIO REVIEW.—

(A) IN GENERAL.—Not later than 1 year after the date of enactment of this Act, the Director shall conduct a full portfolio analysis of the Foundation's skilled technical workforce investments across all Directorates in the areas of education, research, infrastructure, data collection, and analysis.

(B) REPORT.—Not later than 180 days after the date of the review under subparagraph (A) is complete, the Director shall submit to Congress and make widely available to the public a summary report of the portfolio review.

(2) SURVEY DATA.—

(A) ROTATING TOPIC MODULES.—To meet evolving needs for data on the state of the science and engineering workforce, the Director shall assess, through coordination with other Federal statistical agencies and drawing on input from relevant stakeholders, the feasibility and benefits of incorporating questions or topic modules to existing National Center for Science

and Engineering Statistics surveys that would vary from cycle to cycle.

(B) NEW DATA.—Not later than 1 year after the date of enactment of this Act, the Director shall submit to Congress and the Board the results of an assessment, carried out in coordination with other Federal agencies and with input from relevant stakeholders, of the feasibility and benefits of incorporating new questions or topic modules to existing National Center for Science and Engineering Statistics surveys on—

(i) the skilled technical workforce;

(ii) working conditions and work-life balance;

(iii) harassment and discrimination;

(iv) sexual orientation and gender identity;

(v) immigration and emigration; and

(vi) any other topics at the discretion of the Director.

(C) LONGITUDINAL DESIGN.—The Director shall continue and accelerate efforts to enhance the usefulness of National Center for

Science and Engineering Statistics survey data for longitudinal research and analysis.

(D) GOVERNMENT ACCOUNTABILITY OFFICE REVIEW.—Not later than 1 year after the date of enactment of this Act, the Comptroller General of the United States shall submit a report to Congress that—

(i) evaluates Foundation processes for ensuring the data and analysis produced by the National Center for Science and Engineering Statistics meets current and future needs; and

(ii) includes such recommendations as the Comptroller General determines are appropriate to improve such processes.

SEC. 6. BROADENING PARTICIPATION.

(a) PRESIDENTIAL AWARDS FOR EXCELLENCE IN MATHEMATICS AND SCIENCE TEACHING.—

(1) IN GENERAL.—Section 117(a) of the National Science Foundation Authorization Act of 1988 (42 U.S.C.1881b(a)) is amended—

(A) in subparagraph (B)—

(i) by striking ''108'' and inserting ''110'';

(ii) by striking clause (iv);

(iii) in clause (v), by striking the period at the end and inserting ''; and'';

(iv) by redesignating clauses (i), (ii), (iii), and (v) as subclauses (I), (II), (III), and (IV), respectively, and moving the margins of such subclauses (as so redesignated) two ems to the right; and

(v) by striking ''In selecting teachers'' and all that follows through ''two teachers—'' and inserting the following:

''(C) In selecting teachers for an award authorized by this subsection, the President shall select—

''(i) at least two teachers—''; and

(B) in subparagraph (C), as designated by paragraph (1)(A)(v), by adding at the end the following:

''(ii) at least one teacher—

''(I) from the Commonwealth of the Northern Mariana Islands;

''(II) from American Samoa;

''(III) from the Virgin Islands of the United States; and

''(IV) from Guam.''.

(2) EFFECTIVE DATE.—The amendments made by paragraph (1) shall apply with respect to awards made on or after the date of the enactment of this Act.

(b) ROBERT NOYCE TEACHER SCHOLARSHIP PROGRAM UPDATE.—

(1) SENSE OF CONGRESS.—It is the sense of Congress that over the next five years the Foundation should increase the number of scholarships awarded under the Robert Noyce Teacher Scholarship program established under section 10 of the National Science Foundation Authorization Act of 2002 (42 U.S.C. 1862n–1) by 50 percent.

(2) OUTREACH.—To increase the diversity of participants, the Director shall support symposia, forums, conferences, and other activities to expand and enhance outreach to—

(A) historically Black colleges and universities that are part B institutions, as defined in section 322(2) of the Higher Education Act of 1965 (20 U.S.C. 1061(2));

(B) minority institutions, as defined in section 365(3) of the Higher Education Act of 1965 (20 U.S.C. 1067k(3));

(C) institutions of higher education that are located near or serve rural communities;

(D) emerging research institutions; and

(E) higher education programs that serve or support veterans.

(c) NSF INCLUDES INITIATIVE.—The Director shall award grants and cooperative agreements, on a competitive basis, to institutions of higher education or nonprofit organizations (or consortia of such institutions or organizations) to carry out a comprehensive national initiative to facilitate the development of networks and partnerships to build on and scale up effective practices in broadening participation in STEM studies and careers of groups historically underrepresented in such studies and careers.

(d) BROADENING PARTICIPATION ON MAJOR FACILITIES AWARDS.—The Director shall require organizations seeking a cooperative agreement for the management of the operations and maintenance of a Foundation project to demonstrate prior experience and current capabilities in employing best practices in broadening participation in science and engineering and ensure implementation of such practices is considered in oversight of the award.

(e) PARTNERSHIPS WITH EMERGING RESEARCH INSTITUTIONS.—The Director shall establish a five-year

pilot program to enhance partnerships between emerging research institutions and institutions classified as very high research activity by the Carnegie Classification of Institutions of Higher Education at the time of application. In carrying out this program, the Director shall—

(1) require that each proposal submitted by a multi-institution collaboration for an award, including those under section 9, that exceeds $1,000,000, as appropriate, specify how the applicants will support substantive, meaningful, and mutually-beneficial partnerships with one or more emerging research institutions;

(2) require awardees funded under paragraph (1) to direct no less than 25 percent of the total award to one or more emerging research institutions to build research capacity, including through support for faculty salaries and training, research experiences for undergraduate and graduate students, and maintenance and repair of research equipment and instrumentation;

(3) require awardees funded under paragraph (1) to report on the partnership activities as part of the annual reporting requirements of the Foundation;

(4) solicit feedback on the partnership directly from partner emerging research institutions, in such form as the Director deems appropriate; and

(5) submit a report to Congress after the third year of the pilot program that includes—

(A) an assessment, drawing on feedback from the research community and other sources of information, of the effectiveness of the pilot program for improving the quality of partnerships with emerging research institutions; and

(B) if deemed effective, a plan for permanent implementation of the pilot program.

(f) TRIBAL COLLEGES AND UNIVERSITIES PROGRAM UPDATE.—

(1) IN GENERAL.—Section 525 of the America COMPETES Reauthorization Act of 2010 (42 U.S.C. 1862p–13) is amended—

(A) in subsection (a) by—

(i) striking ''Native American'' and inserting ''American Indian, Alaska Native, and Native Hawaiian''; and

(ii) inserting ''post-secondary credentials and'' before ''associate's''; and

(iii) striking ''or baccalaureate degrees'' and inserting '', baccalaureate, and graduate degrees''; and

(B) in subsection (b) by striking ''undergraduate''; and

(C) in subsection (c) by inserting ''and STEM'' after ''laboratory''.

(2) AUTHORIZATION OF APPROPRIATIONS.—There is authorized to be appropriated to the Director to carry out this program $107,250,000 for fiscal year 2022 through fiscal year 2026.

(g) DIVERSITY IN TECH RESEARCH.—The Director shall award grants, on a competitive basis, to institutions of higher education or non-profit organizations (or consortia of such institutions or organizations) to support basic and applied research that yields a scientific evidence base for improving the design and emergence, development and deployment, and management and ultimate effectiveness of organizations of all kinds, including research related to diversity, equity, and inclusion in the technology sector.

SEC. 7. FUNDAMENTAL RESEARCH.

(a) BROADER IMPACTS.—

(1) ASSESSMENT.—Not later than 45 days after the date of enactment of this Act, the Director

shall enter into an agreement with a qualified independent organization to assess how the Broader Impacts review criterion is applied across the Foundation and make recommendations for improving the effectiveness for meeting the goals established in section 526 of the America Creating Opportunities to Meaningfully Promote Excellence in Technology, Education, and Science Reauthorization Act of 2010 (42 U.S.C. 1862p-14).

(2) ACTIVITIES.—The Director shall award grants on a competitive basis, to institutions of higher education or non-profit organizations (or consortia of such institutions or organizations) to support activities to increase the efficiency, effectiveness, and availability of resources for implementing the Broader Impacts review criterion, including—

(A) training and workshops for program officers, merit review panelists, grant office administrators, faculty, and students to improve understanding of the goals and the full range of potential broader impacts available to researchers to satisfy this criterion;

(B) repositories and clearinghouses for sharing best practices and facilitating collaboration; and

(C) tools for evaluating and documenting societal impacts of research.

(b) SENSE OF CONGRESS.—It is the sense of Congress that the Director should continue to identify opportunities to reduce the administrative burden on researchers.

(c) RESEARCH INTEGRITY AND SECURITY.—

(1) OFFICE OF RESEARCH SECURITY AND POLICY.—The Director shall maintain a Research Security and Policy office within the Office of the Director with no fewer than 4 full time equivalent positions. The functions of the Research Security and Policy office shall be to coordinate all research security policy issues across the Foundation, including by—

(A) consulting and coordinating with the Foundation Office of Inspector General and with other Federal science agencies and intelligence and law enforcement agencies, as appropriate, through the National Science and Technology Council in accordance with the authority provided under section 1746 of the National Defense Authorization Act for Fiscal Year 2020 (Public Law 116–92; 42 U.S.C. 6601 note), to identify and address potential security risks

that threaten research integrity and other risks to the research enterprise;

(B) serving as the Foundation's primary resource for all issues related to the security and integrity of the conduct of Foundation-supported research;

(C) conducting outreach and education activities for awardees on research policies and potential security risks;

(D) educating Foundation program managers and other directorate staff on evaluating Foundation awards and awardees for potential security risks; and

(E) communicating reporting and disclosure requirements to awardees and applicants for funding.

(2) CHIEF OF RESEARCH SECURITY.—The Director shall appoint a senior agency official within the Office of the Director as a Chief of Research Security, whose primary responsibility is to manage the office established under paragraph (1).

(3) REPORT TO CONGRESS.—No later than 180 days after the date of enactment of this Act, the Director shall provide a report to the Committee on Science, Space, and Technology of the House of

Representatives, the Committee on Commerce, Science, and Transportation of the Senate, the Committee on Appropriations of the House of Representatives, and the Committee on Appropriations of the Senate on the resources and the number of full time employees needed to carry out the functions of the Office established in paragraph (1).

(4) ONLINE RESOURCE.—The Director shall develop an online resource hosted on the Foundation's website containing up-to-date information, tailored for institutions and individual researchers, including—

(A) an explanation of Foundation research security policies;

(B) unclassified guidance on potential security risks that threaten scientific integrity and other risks to the research enterprise;

(C) examples of beneficial international collaborations and how such collaborations differ from foreign government interference efforts that threaten research integrity;

(D) promising practices for mitigating security risks that threaten research integrity; and

(E) additional reference materials, including tools that assist organizations seeking Foundation funding and awardees in information disclosure to the Foundation.

(5) RISK ASSESSMENT CENTER.—The Director shall enter into an agreement with a qualified independent organization to create a new risk assessment center to—

(A) help the Foundation develop the online resources under paragraph (4); and

(B) help awardees in assessing and identifying issues related to nondisclosure of current and pending research funding, risks to the Foundation merit review process, and other issues that may negatively affect the Foundation proposal and award process due to undue foreign interference.

(6) RESEARCH GRANTS.—The Director shall continue to award grants, on a competitive basis, to institutions of higher education or non-profit organizations (or consortia of such institutions or organizations) to support research on the conduct of research and the research environment, including research on research misconduct or breaches of research integrity and detrimental research practices.

(7) RESPONSIBLE CONDUCT IN RESEARCH TRAINING.—Section 7009 of the America Creating Opportunities to Meaningfully Promote Excellence in Technology, Education, and Science Act (42 U.S.C. 1862o-1) is amended by—

(A) striking ''and postdoctoral researchers'' and inserting ''postdoctoral researchers, faculty, and other senior personnel''; and

(B) inserting the following at the end: '', including mentor training, and training to raise awareness of potential security threats and Federal export control, disclosure, and reporting requirements''.

(8) NATIONAL ACADEMIES GUIDE TO RESPONSIBLE CONDUCT IN RESEARCH.—

(A) IN GENERAL.—Not later than 180 days after the date of enactment of this Act, the Director shall enter into an agreement with the Academies to update the report entitled ''On Being a Scientist: A Guide to Responsible Conduct in Research'' issued by the Academies. The report, as so updated, shall include—

(i) updated professional standards of conduct in research;

(ii) promising practices for preventing, addressing, and mitigating the negative impact of harassment, including sexual harassment and gender harassment as defined in the 2018 Academies report entitled ''Sexual Harassment of Women: Climate, Culture, and Consequences in Academic Sciences, Engineering, and Medicine''; and

(iii) promising practices for mitigating potential security risks that threaten research integrity.

(B) REPORT.—Not later than 18 months after the effective date of the agreement under subparagraph (A), the Academies, as part of such agreement, shall submit to the Director and the Committee on Science, Space, and Technology of the House of Representatives and the Committee on Commerce, Science, and Transportation of the Senate the report referred to in such subparagraph, as updated pursuant to such subparagraph.

(d) RESEARCH ETHICS.—

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

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

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

(C) the Foundation's agreement with the Academies to conduct a study and make recommendations with respect to governance of research in emerging technologies is a positive step toward accomplishing this goal; and

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

(2) ETHICS STATEMENTS.—Drawing on stakeholder input, not later than 18 months after the date of enactment of this Act, the Director shall amend award proposal instructions to include a requirement for an ethics statement to be included as part of any proposal for funding prior to making the

award. Such statement shall be considered by the Director in the review of proposals, taking into consideration any relevant input from the peer-reviewers for the proposal, and shall factor into award decisions as deemed necessary by the Director. Such statements may include, as appropriate—

(A) any foreseeable or quantifiable risks to society, including how the research could enable products, technologies, or other outcomes that could intentionally or unintentionally cause significant societal harm;

(B) how technical or social solutions can mitigate such risks and, as appropriate, a plan to implement such mitigation measures; and

(C) how partnerships and collaborations in the research can help mitigate potential harm and amplify potential societal benefits.

(3) GUIDANCE.—The Director shall solicit stakeholder input to develop clear guidance on what constitutes a foreseeable or quantifiable risk as described in paragraph (2)(A), and to the extent practicable harmonize this policy with existing ethical policies or related requirements for human subjects.

(4) RESEARCH.—The Director shall award grants, on a competitive basis, to institutions of

higher education or non-profit organizations (or consortia of such institutions or organizations) to support—

(A) research to assess the potential ethical and societal implications of Foundation-supported research and products or technologies enabled by such research, including the benefits and risks identified pursuant to paragraph (2)(A); and

(B) the development and verification of approaches to proactively mitigate foreseeable risks to society, including the technical and social solutions identified pursuant to paragraph (2)(B).

(5) ANNUAL REPORT.—The Director shall encourage awardees to update their ethics statements as appropriate as part of the annual reports required by all awardees under the award terms and conditions.

(e) RESEARCH REPRODUCIBILITY AND REPLICABILITY.—Consistent with existing Federal law for privacy, intellectual property, and security, the Director shall facilitate the public access to research products, including data, software, and code, developed as part of Foundation-supported projects.

(1) DATA MANAGEMENT PLANS.—

(A) The Director shall require that every proposal for funding for research include a machine-readable data management plan that includes a description of how the awardee will archive and preserve public access to data, software, and code developed as part of the proposed project.

(B) In carrying out the requirement in subparagraph (A), the Director shall—

(i) provide necessary resources, including trainings and workshops, to educate researchers and students on how to develop and review high quality data management plans;

(ii) ensure program officers and merit review panels are equipped with the resources and training necessary to review the quality of data management plans; and

(iii) ensure program officers and merit review panels treat data management plans as essential elements of grant proposals, where appropriate.

(2) OPEN REPOSITORIES.—The Director shall—

(A) coordinate with the heads of other Federal science agencies, and solicit input from the scientific community, to develop and widely disseminate a set of criteria for trusted open repositories, accounting for discipline-specific needs and necessary protections for sensitive information, to be used by Federally funded researchers for the sharing of data, software, and code;

(B) work with stakeholders to identify significant gaps in available repositories meeting the criteria developed under subparagraph (A) and options for supporting the development of additional or enhanced repositories;

(C) award grants on a competitive basis to institutions of higher education or non-profit organizations (or consortia of such institutions or organizations) for the development, upgrades, and maintenance of open data repositories that meet the criteria developed under subparagraph (A);

(D) work with stakeholders and build on existing models, where appropriate, to establish a single, public, web-based point of access to help users locate repositories storing data, soft-

ware, and code resulting from or used in Foundation-supported projects;

(E) work with stakeholders to establish the necessary policies and procedures and allocate the necessary resources to ensure, as practicable, data underlying published findings resulting from Foundation-supported projects are deposited in repositories meeting the criteria developed under subparagraph (A) at the time of publication;

(F) incentivize the deposition of data, software, and code into repositories that meet the criteria developed under subparagraph (A); and

(G) coordinate with the scientific publishing community to develop uniform consensus standards around data archiving and sharing.

(3) RESEARCH, DEVELOPMENT, AND EDUCATION.—The Director shall award grants, on a competitive basis to institutions of higher education or non-profit organizations (or consortia of such institutions or organizations) to—

(A) support research and development of open source, sustainable, usable tools and infrastructure that support reproducibility for a

broad range of studies across different disciplines;

(B) support research on computational reproducibility, including the limits of reproducibility and the consistency of computational results in the development of new computation hardware, tools, and methods; and

(C) support the education and training of students, faculty, and researchers on computational methods, tools, and techniques to improve the quality and sharing of data, code, and supporting metadata to produce reproducible research.

(f) CLIMATE CHANGE RESEARCH.—

(1) IN GENERAL.—The Director shall award grants, on a competitive basis, to institutions of higher education or non-profit organizations (or consortia of such institutions or organizations) to support research to improve our understanding of the climate system and related human and environmental systems.

(2) USE OF FUNDS.—Activities funded by a grant under this subsection may include—

(A) fundamental research on climate forcings, feedbacks, responses, and thresholds in the earth system;

(B) research on climate-related human behaviors and institutions;

(C) research on climate-related risk, vulnerability, resilience, and adaptive capacity of coupled human-environment systems, including risks to ecosystem stability and risks to vulnerable populations;

(D) research to support the development and implementation of effective social strategies and tools for mitigating and adapting to climate change, including at the local level;

(E) improved modeling, projections, analyses, and assessments of climate and other Earth system changes;

(F) the development of effective strategies for educating and training future climate change researchers, and climate change response and mitigation professionals, in both research and development methods, as well as community engagement and science communication; and

(G) the development of effective strategies for public and community engagement in the all stages of the research and development process.

(g) VIOLENCE RESEARCH.—

(1) IN GENERAL.—The Director shall award grants, on a competitive basis, to institutions of higher education or non-profit organizations (or consortia of such institutions or organizations) to support research to improve our understanding of the nature, scope, causes, consequences, prevention, and response to all forms of violence.

(2) USE OF FUNDS.—Activities funded by a grant under this subsection may include—

(A) research on the magnitude and distribution of fatal and nonfatal violence;

(B) research on risk and protective factors;

(C) research on the design, development, implementation, and evaluation of interventions for preventing and responding to violence;

(D) research on scaling up effective interventions; and

(E) one or more interdisciplinary research centers to conduct violence research, foster new and expanded collaborations, and support capacity building activities to increase the number

and diversity of new researchers trained in cross-disciplinary violence research.

(h) SOCIAL, BEHAVIORAL, AND ECONOMIC SCIENCES.—The Director shall—

(1) actively communicate opportunities and solicit proposals for social, behavioral, and economic science researchers to participate in cross-cutting and interdisciplinary programs, including the Convergence Accelerator and Big Ideas activities, and the Mid-Scale Research Infrastructure program; and

(2) ensure social, behavioral, and economic science researchers are represented on relevant merit review panels for such activities.

(i) FOOD-ENERGY-WATER RESEARCH.—The Director shall award grants on a competitive basis to institutions of higher education or non-profit organizations (or consortia of such institutions or organizations) to—

(1) support research to significantly advance our understanding of the food-energy-water system through quantitative and computational modeling, including support for relevant cyberinfrastructure;

(2) develop real-time, cyber-enabled interfaces that improve understanding of the behavior of food-energy-water systems and increase decision support capability;

(3) support research that will lead to innovative solutions to critical food-energy-water system problems; and

(4) grow the scientific workforce capable of studying and managing the food-energy-water system, through education and other professional development.

(j) SUSTAINABLE CHEMISTRY RESEARCH AND EDUCATION.—In accordance with section 263 of the National Defense Authorization Act for Fiscal Year 2021, the Director shall carry out activities in support of sustainable chemistry, including—

(1) establishing a program to award grants, on a competitive basis, to institutions of higher education or non-profit organizations (or consortia of such institutions or organizations) to support—

(A) individual investigators and teams of investigators, including to the extent practicable, early career investigators for research and development;

(B) collaborative research and development partnerships among universities, industry, and non-profit organizations; and

(C) integrating sustainable chemistry principles into elementary, secondary, under-

graduate, and graduate chemistry and chemical engineering curriculum and research training, as appropriate to that level of education and training; and

(2) incorporating sustainable chemistry into existing Foundation research and development programs.

(k) RISK AND RESILIENCE RESEARCH.—The Director shall award grants on a competitive basis to institutions of higher education or non-profit organizations (or consortia of such institutions or organizations) to advance knowledge of risk assessment and predictability and to support the creation of tools and technologies for increased resilience through—

(1) improvements in our ability to understand, model, and predict extreme events and natural hazards, including pandemics;

(2) the creation of novel engineered systems solutions for resilient infrastructures, particularly those that leverage the growing infusion of cyber-physical-social components into the infrastructures; and

(3) research on the behaviors individuals and communities engage in to detect, predict, assess,

mitigate, and prevent risks and to improve and increase resilience.

(l) LEVERAGING INTERNATIONAL EXPERTISE IN RESEARCH.—The Director shall explore and advance opportunities for leveraging international capabilities and resources that align with the Foundation and United States research community priorities and have the potential to benefit United States prosperity, security, health, and well-being, including by sending teams of Foundation scientific staff for site visits of scientific facilities and agencies in other countries.

(m) BIOLOGICAL RESEARCH COLLECTIONS.—

(1) IN GENERAL.—The Director shall continue to support databases, tools, methods, and other activities that secure and improve existing physical and digital biological research collections, improve the accessibility of collections and collection-related data for research and educational purposes, develop capacity for curation and collection management, and to transfer ownership of collections that are significant to the biological research community, including to museums and universities.

(2) SPECIMEN MANAGEMENT PLAN.—The Director shall require that every proposal for funding for research that involves collecting or generating

specimens include a specimen management plan that includes a description of how the specimens and associated data will be accessioned into and permanently maintained in an established biological collection.

(3) ACTION CENTER FOR BIOLOGICAL COLLECTIONS.—The Director shall award grants on a competitive basis to institutions of higher education or non-profit organizations (or consortia of such institutions or organizations) to establish an Action Center for Biological Collections to facilitate coordination and data sharing among communities of practice for research, education, workforce training, evaluation, and business model development.

SEC. 8. RESEARCH INFRASTRUCTURE.

(a) FACILITY OPERATION AND MAINTENANCE.—

(1) IN GENERAL.—The Director shall continue the Facility Operation Transition pilot program for a total of five years.

(2) COST SHARING.—The Facility Operation Transition program shall provide funding for 10–50 percent of the operations and maintenance costs for major research facilities that are within the first five years of operation, where the share is determined based on—

(A) the operations and maintenance costs of the major research facility; and

(B) the capacity of the managing directorate or division to absorb such costs.

(3) REPORT.—After the fifth year of the pilot program, the Director shall transmit a report to Congress that includes—

(A) an assessment, that includes feedback from the research community, of the effectiveness of the pilot program for—

(i) supporting research directorates and divisions in balancing investments in research grants and funding for the initial operation and maintenance of major facilities;

(ii) incentivizing the development of new world-class facilities;

(iii) facilitating interagency and international partnerships;

(iv) funding core elements of multidisciplinary facilities; and

(v) supporting facility divestment costs; and

(B) if deemed effective, a plan for permanent implementation of the pilot program.

(b) REVIEWS.—The Director shall periodically carry out reviews within each of the directorates and divisions to assess the cost and benefits of extending the operations of research facilities that have exceeded their planned operational lifespan.

(c) HELIUM CONSERVATION.—

(1) MAJOR RESEARCH INSTRUMENTATION SUPPORT.—

(A) IN GENERAL.—The Director shall support, through the Major Research Instrumentation program, proposal requests that include the purchase, installation, operation, and maintenance of equipment and instrumentation to reduce consumption of helium.

(B) COST SHARING.—The Director may waive the cost-sharing requirement for helium conservation measures for non-Ph.D.-granting institutions of higher education and Ph.D.-granting institutions of higher education that are not ranked among the top 100 institutions receiving Federal research and development funding, as documented by the National Center for Science and Engineering Statistics.

(2) ANNUAL REPORT.—No later than 1 year after the date of enactment of this Act and annually

for the subsequent two years, the Director shall submit an annual report to Congress on the use of funding awarded by the Foundation for the purchase and conservation of helium. The report should include—

(A) the volume and price of helium purchased;

(B) changes in pricing and availability of helium; and

(C) any supply disruptions impacting a substantial number of institutions.

(d) ADVANCED COMPUTING.—

(1) COMPUTING NEEDS.—To gather information about the computational needs of grant proposals submitted to the Foundation, the Director shall encourage and provide access to tools to facilitate the inclusion of relevant measures of computational performance needs in proposals for projects that require advanced computing, including the measures identified in the 2016 Academies report entitled ''Future Directions for NSF Advanced Computing Infrastructure to Support U.S. Science and Engineering in 2017–2020''.

(2) REPORTS.—The Director shall document and publish on a regular basis a summary of the

amount and types of advanced computing capabilities that are needed to respond to Foundation research opportunities as identified under paragraph (1).

(3) ROADMAP.—To set priorities and guide strategic decisions regarding investments in advanced computing capabilities, the Director shall develop, publish, and regularly update a 5-year advanced computing roadmap that—

(A) draws on community input, information contained in research proposals, allocation requests, and Foundation-wide information gathering regarding community needs;

(B) reflects anticipated technology trends;

(C) informs users and potential partners about future facilities and services; and

(D) addresses the needs of groups historically underrepresented in STEM and geographic regions with low availability and high demand for advanced computing resources.

SEC. 9. DIRECTORATE FOR SCIENCE AND ENGINEERING SOLUTIONS.

(a) ESTABLISHMENT.—Subject to the availability of appropriated funds, there is established within the Foundation the Directorate for Science and Engineering Solu-

tions to advance research and development solutions to address societal and national challenges for the benefit of all Americans.

(b) PURPOSE.—The purpose of the Directorate established under subsection (a) is to accelerate the translation of Foundation-supported fundamental research and to advance technologies, support use-inspired research, facilitate commercialization and use of Federally funded research, and expand the pipeline of United States students and researchers in areas of societal and national importance.

(c) ACTIVITIES.—The Director shall achieve the purposes described in subsection (a) by awarding financial assistance through the Directorate to—

(1) support transformational advances in use-inspired and translational research through diverse funding mechanisms and models, including convergence accelerators;

(2) translate research into science and engineering innovations, including through developing innovative approaches to connect research with societal outcomes, education and training for students and researchers on engaging with end users and the public, partnerships that facilitate research uptake, application, and scaling, prototype development, entre-

preneurial education, developing tech-to-market strategies, and partnerships that connect research products to businesses, accelerators, and incubators;

(3) develop and expand sustainable and mutually-beneficial use-inspired and translational research and development partnerships and collaborations among institutions of higher education, including minority serving institutions and emerging research institutions, non-profit organizations, businesses and other for-profit entities, Federal or State agencies, community organizations, other Foundation directorates, national labs, international entities as appropriate, and other organizations;

(4) build capacity for use-inspired and translational research at institutions of higher education, including necessary administrative support;

(5) expand opportunities for researchers to contribute to use-inspired and translational research including through support for workshops and conferences, targeted incentives and training, and multidisciplinary research centers;

(6) support the education, mentoring, and training of undergraduate students, graduate students, and postdoctoral researchers in use-inspired and translational approaches to research in key

focus areas identified under subsection (g) through scholarships, fellowships, and traineeships;

(7) support translational research infrastructure, including platforms and testbeds, data management and software tools, and networks and communication platforms for interactive and collective learning and information sharing; and

(8) identify social, behavioral, and economic drivers and consequences of technological innovations.

(d) ASSISTANT DIRECTOR.—

(1) IN GENERAL.—The Director shall appoint an Assistant Director responsible for the management of the Directorate established under this section.

(2) TERM LIMIT.—The Assistant Director appointed under paragraph (1) shall serve a term lasting no longer than 4 years.

(3) QUALIFICATIONS.—The Assistant Director shall be an individual, who by reason of professional background and experience, is specially qualified to—

(A) advise the Director on all matters pertaining to use-inspired and translational research, development, and commercialization at

the Foundation, including partnership with the private sector and other users of Foundation funded research; and

(B) develop and implement the necessary policies and procedures to promote a culture of use-inspired and translational research within the Directorate and across the Foundation and carry out the responsibilities under paragraph (4).

(4) RESPONSIBILITIES.—The responsibilities of the Assistant Director shall include—

(A) advising the Director on all matters pertaining to use-inspired and translational research and development activities at the Foundation, including effective practices for convergence research;

(B) identifying opportunities for and facilitating coordination and collaboration, where appropriate, on use-inspired and translational research, development, commercialization, and societal application activities—

(i) among the offices, directorates, and divisions within the Foundation; and

(ii) between the Foundation and stakeholders in academia, the private sec-

tor, including non-profit entities, labor organizations, Federal or State agencies, and international entities, as appropriate;

(C) ensuring that the activities carried out under this section are not duplicative of activities supported by other parts of the Foundation or other relevant Federal agencies;

(D) approving all new programs within the Directorate;

(E) developing and testing diverse merit-review models and mechanisms for selecting and providing awards for use-inspired and translational research and development at different scales, from individual investigator awards to large multi-institution collaborations;

(F) assessing the success of programs;

(G) administering awards to achieve the purposes described in subsection (b); and

(H) performing other such duties pertaining to the purposes in subsection (b) as are required by the Director.

(5) RELATIONSHIP TO THE DIRECTOR.—The Assistant Director shall report to the Director.

(6) RELATIONSHIP TO OTHER PROGRAMS.—No other directorate within the Foundation shall report to the Assistant Director.

(e) ADVISORY COMMITTEE.—

(1) IN GENERAL.—In accordance with the Federal Advisory Committee Act (5 U.S.C. App.) the Director shall establish an advisory committee to assess, and make recommendations regarding, the activities carried out under this section.

(2) MEMBERSHIP.—The advisory committee members shall—

(A) be individuals with relevant experience or expertise, including individuals from industry and national labs, educators, academic subject matter experts, technology transfer experts, and representatives of civil society and other non-governmental organizations; and

(B) consist of at least 10 members broadly representative of stakeholders, including no less than 3 members from the private sector, none of whom shall be an employee of the Federal Government.

(3) RESPONSIBILITIES.—The Committee shall be responsible for—

(A) reviewing and evaluating activities carried out under this section; and

(B) assessing the success of the Directorate in and proposing new strategies for fulfilling the purposes in subsection (b).

(f) EXISTING PROGRAMS.—The Convergence Accelerator, the Growing Convergence Research Big Idea, and any other program, at the discretion of the Director, may be managed by the Directorate.

(g) FOCUS AREAS.—In consultation with the Assistant Director, the Board, and other Federal agencies and taking into account advice under subsection (e), the Director shall identify, and regularly update, up to 5 focus areas to guide activities under this section. In selecting such focus areas, the Director shall consider the following societal challenges:

(1) Climate change and environmental sustainability.

(2) Global competitiveness in critical technologies.

(3) Cybersecurity.

(4) National security.

(5) STEM education and workforce.

(6) Social and economic inequality.

(h) TRANSFER OF FUNDS.—

(1) IN GENERAL.—Funds made available to carry out this section shall be available for transfer to other offices, directorates, or divisions within the Foundation for such use as is consistent with the purposes for which such funds are provided.

(2) PROHIBITION ON TRANSFER FROM OTHER OFFICES.—No funds shall be available for transfer to the Directorate established under this section from other offices, directorates, or divisions within the Foundation.

(i) AUTHORITIES.—In addition to existing authorities available to the Foundation, the Director may exercise the following authorities in carrying out the activities under this section:

(1) AWARDS.—In carrying out this section, the Director may provide awards in the form of grants, contracts, cooperative agreements, cash prizes, and other transactions.

(2) APPOINTMENTS.—The Director shall have the authority to—

(A) make appointments of scientific, engineering, and professional personnel without regard to the civil service laws as the Director determines necessary for carrying out research and development functions which require the

services of specially qualified personnel relating to the focus areas identified under subsection (g) and such other areas of national research priorities as the Director may determine; and

(B) fix the basic pay of such personnel at rates not in excess of the basic rate of pay of the Vice President under section 104 of title 3, United States Code, without regard to the civil service laws.

(j) ETHICAL, LEGAL, AND SOCIETAL CONSIDERATIONS.—The Director shall establish policies and set up formal avenues for public input, as appropriate, to ensure that ethical, legal, and societal considerations are explicitly integrated into the priorities for the Directorate, including the selection of focus areas under subsection (g), the award-making process, and throughout all stages of supported projects.

(k) REPORTS AND ROADMAPS.—

(1) ANNUAL REPORT.—The Director shall provide to the relevant authorizing and appropriations committees of Congress an annual report describing projects supported by the Directorate during the previous year.

(2) ROADMAP.—Not later than 1 year after the date of enactment of this Act, the Director shall pro-

vide to the relevant authorizing and appropriations committees of Congress a roadmap describing the strategic vision that the Directorate will use to guide investment decisions over the following 3 years.

(l) EVALUATION.—

(1) IN GENERAL.—After the Directorate has been in operation for 6 years, the National Science Board shall evaluate how well the Directorate is achieving the purposes identified in subsection (b), including an assessment of the impact of Directorate activities on the Foundation's primary science mission.

(2) INCLUSIONS.—The evaluation shall include—

(A) a recommendation on whether the Directorate should be continued or terminated; and

(B) a description of lessons learned from operation of the Directorate.

(3) AVAILABILITY.—On completion of the evaluation, the evaluation shall be made available to Congress and the public.

(m) LIMITATION.—No amounts may be appropriated for the Directorate for each of fiscal years 2022, 2023, 2024, 2025, or 2026 unless—

(1) a specific appropriation is made for the Directorate; and

(2) the amount appropriated for the activities of the Foundation, other than the activities authorized under this section, for each such fiscal year exceeds the amount appropriated for the Foundation for fiscal year 2021, as adjusted for inflation in accordance with the Consumer Price Index published by the Bureau of Labor Statistics of the Department of Labor.

SEC. 10. ADMINISTRATIVE AMENDMENTS.

(a) SUPPORTING VETERANS IN STEM CAREERS.—Section 3(c) of the Supporting Veterans in STEM Careers Act is amended by striking ''annual'' and inserting ''biennial''.

(b) SUNSHINE ACT COMPLIANCE.—Section 15 of the National Science Foundation Authorization Act of 2002 is amended—

(1) so that paragraph (3) reads as follows:

''(3) COMPLIANCE REVIEW.—The Inspector General of the Foundation shall conduct a review of the compliance by the Board with the requirements described in paragraph (2) as necessary based on a triennial risk assessment. Any review deemed necessary shall examine the proposed and actual con-

tent of closed meetings and determine whether the closure of the meetings was consistent with section 552b of title 5, United States Code.''; and

(2) by striking paragraphs (4) and (5) and inserting the following:

''(4) MATERIALS RELATING TO CLOSED PORTIONS OF MEETING.—To facilitate the risk assessment required under paragraph (3) of this subsection, and any subsequent review conducted by the Inspector General, the Office of the National Science Board shall maintain the General Counsel's certificate, the presiding officer's statement, and a transcript or recording of any closed meeting, for at least 3 years after such meeting.''.

(c) SCIENCE AND ENGINEERING INDICATORS REPORT SUBMISSION.—Section 4(j)(1) of the National Science Foundation Act of 1950 (42 U.S.C. 1863(j)(1)) is amended by striking ''January 15'' and inserting ''March 15''.