

(4) approving all new programs within the Directorate;

(5) 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;

(6) assessing the success of programs;

(7) administering awards to achieve the purposes described in section 19102 of this title; and

(8) performing other such duties pertaining to the purposes in section 19102 of this title as are required by the Director.

**(d) Relationship to the Director**

The Assistant Director shall report to the Director.

**(e) Relationship to other programs**

No other directorate within the Foundation shall report to the Assistant Director.

(Pub. L. 117–167, div. B, title III, §10385, Aug. 9, 2022, 136 Stat. 1577.)

**§ 19106. Advisory committee**

**(a) In general**

In accordance with the Federal Advisory Committee Act (5 U.S.C. App.)<sup>1</sup> the Director shall establish an advisory committee to assess, and make recommendations regarding, the activities carried out under this part.

**(b) Membership**

The advisory committee members shall—

(1) be individuals with relevant experience or expertise, including individuals from industry and national labs, educators, academic subject matter experts, including individuals with knowledge of key technology focus areas and their impact on United States national security and geostrategic leadership, the technical and social dimensions of science and technology, technology transfer experts, labor organizations, representatives of civil society, and other nongovernmental organizations; and

(2) 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, and no less than 1 member with significant expertise in United States national security and economic competitiveness.

**(c) Responsibilities**

The Committee's responsibilities shall include—

(1) reviewing and advising on activities carried out under this part;

(2) proposing strategies for fulfilling the purposes in section 19102 of this title;

(3) proposing potential areas of research, particularly as relevant to United States societal, national, and geostrategic challenges; and

(4) other relevant issues as determined by the Director.

(Pub. L. 117–167, div. B, title III, §10386, Aug. 9, 2022, 136 Stat. 1578.)

**Editorial Notes**

REFERENCES IN TEXT

The Federal Advisory Committee Act, referred to in subsec. (a), is Pub. L. 92–463, Oct. 6, 1972, 86 Stat. 770, which was set out in the Appendix to Title 5, Government Organization and Employees, and was substantially repealed and restated in chapter 10 (§1001 et seq.) of Title 5 by Pub. L. 117–286, §§3(a), 7, Dec. 27, 2022, 136 Stat. 4197, 4361. For disposition of sections of the Act into chapter 10 of Title 5, see Disposition Table preceding section 101 of Title 5.

**§ 19107. Challenges and focus areas**

**(a) In general**

In consultation with the Assistant Director, the Board, and the interagency working group established under part D of subchapter VI, the Director shall identify, and annually review and update as appropriate, a list of—

(1) not more than 5 United States societal, national, and geostrategic challenges that may be addressed by technology to guide activities under this part; and

(2) not more than 10 key technology focus areas to guide activities under this part.

**(b) Initial list of societal, national, and geostrategic challenges**

The initial list of societal, national, and geostrategic challenges are the following:

(1) United States national security.

(2) United States manufacturing and industrial productivity.

(3) United States workforce development and skills gaps.

(4) Climate change and environmental sustainability.

(5) Inequitable access to education, opportunity, or other services.

**(c) Initial list of key technology focus areas**

The initial list of key technology focus areas are the following:

(1) Artificial intelligence, machine learning, autonomy, and related advances.

(2) High performance computing, semiconductors, and advanced computer hardware and software.

(3) Quantum information science and technology.

(4) Robotics, automation, and advanced manufacturing.

(5) Natural and anthropogenic disaster prevention or mitigation.

(6) Advanced communications technology and immersive technology.

(7) Biotechnology, medical technology, genomics, and synthetic biology.

(8) Data storage, data management, distributed ledger technologies, and cybersecurity, including biometrics.

(9) Advanced energy and industrial efficiency technologies, such as batteries and advanced nuclear technologies, including but not limited to for the purposes of electric generation (consistent with section 1874 of this title.

(10) Advanced materials science, including composites 2D materials, other next-genera-

<sup>1</sup> See References in Text note below.

tion materials, and related manufacturing technologies.

**(d) Relationship between United States societal, national, and geostrategic challenges and key technology focus areas**

(1) In updating the list under subsection (a)(1), the Director shall evaluate national and global technology trends.

(2) In updating the list under subsection (a)(2), the Director shall consider the impact of the selected technologies on United States societal, national, and geostrategic challenges.

(3) The list under subsection (a)(2) may, but is not required to, align directly with the list under subsection (a)(1).

(4) Nothing under this section shall prevent the Director from making limited investments in technologies or areas not identified in subsection (a)(1) or subsection (a)(2).

**(e) Review and updates**

The Director, in coordination with the inter-agency working group established under part D of subchapter VI and in consultation with the Director of National Intelligence and the Director of the Federal Bureau of Investigation, shall annually review and update as appropriate, the list of key technology focus areas for purposes of this division. As part of the annual review, the Director—

(1) shall consider input from relevant industries and stakeholders;

(2) may consider the challenges and recommendations identified in the reports required by sections 6615 and 6615b of this title, as added by section 10611 and 10613 of this division and in other relevant reports, such as technology and global trend reports from the defense and intelligence communities;

(3) shall consider the potential impact of the key technology focus areas on addressing societal, national, and geostrategic challenges; and

(4) subject to the limitation under subsection (a), may add or delete key technology focus areas in light of shifting national needs or competitive threats to the United States (including for reasons of the United States or other countries having advanced or fallen behind in a technological area).

**(f) Reporting**

At the conclusion of the annual review and update process required by subsection (e), the Director, in consultation with other Federal research agencies, as appropriate, shall deliver a report to Congress detailing—

(1) the key technology focus areas and rationale for their selection;

(2) the societal, national, and geostrategic challenges and rationale for their selection;

(3) the role of the Foundation in advancing the key technology focus areas;

(4) the impact, including to the academic research community, of any changes to the key technology focus areas; and

(5) the activities and partnerships between the Directorate and the private sector.

**(g) Detailed description**

The National Science Foundation shall, in coordination with the Office of Management and

Budget, submit as part of their annual budget requests to Congress, a detailed description of the activities to be funded under this part, including an explanation of how the requested funding is complementary and not redundant of programs, efforts, and infrastructure undertaken or supported by other relevant Federal agencies.

**(h) National Academies**

Not later than 5 years after August 9, 2022, the Director shall contract with the National Academies to conduct a review of the key technology focus areas and the societal, national, and geostrategic challenges, including—

(1) an assessment of their selection process;

(2) an assessment of their relevance to the purposes of the Directorate, including to solving challenges with social, economic, health, scientific, and national security implications;

(3) a review of whether Federal investment in the key technology focus areas have resulted in new domestic manufacturing capacity and job creation;

(4) an assessment of any critical, new emerging areas;

(5) an assessment of Federal investments in education and workforce development to support the key technology focus areas; and

(6) an assessment of relative balance in leadership in addressing the key technology focus areas between the United States, allied and partner countries, and the People's Republic of China.

(Pub. L. 117–167, div. B, title III, §10387, Aug. 9, 2022, 136 Stat. 1579.)

**Editorial Notes**

REFERENCES IN TEXT

This division, referred to in subsec. (e), is div. B of Pub. L. 117–167, Aug. 9, 2022, 136 Stat. 1399, which enacted this chapter and enacted, amended, and repealed numerous other sections and notes in the Code. For complete classification of div. B to the Code, see Short Title note set out under section 18901 of this title and Tables.

Sections 10611 and 10613 of this division, referred to in subsec. (e)(2), are sections 10611 and 10613 of div. B of Pub. L. 117–167, which, respectively, generally amended section 6615 of this title and enacted section 6615b of this title.

**§ 19108. Regional Innovation Engines**

**(a) In general**

From amounts made available to the Directorate, the Director shall make awards to eligible entities for the planning, establishment, and support of Regional Innovation Engines.

**(b) Purpose**

The purpose of the Regional Innovation Engines shall be to—

(1) advance multidisciplinary, collaborative, use-inspired and translational research, technology development, in key technology focus areas;

(2) address regional, national, societal, or geostrategic challenges;

(3) leverage the expertise of multi-disciplinary and multi-sector partners, including partners from private industry, nonprofit or-