not rely on traditional commercialization tools; and

(C) establishing partnerships that connect researchers and research products to businesses, accelerators, and incubators that enable research uptake, prototype development and scaling, entrepreneurial education, and the formation and growth of new companies;

(3) develop mutually-beneficial research and technology development partnerships and collaborations among institutions of higher education, including historically Black colleges and universities, Tribal Colleges or Universities, minority-serving institutions, emerging research institutions, EPSCoR institutions, and nonprofit organizations, labor organizations, businesses and other for-profit entities, Federal or State agencies, local or Tribal governments, civil society organizations, other Foundation directorates, national labs, field stations and marine laboratories, and, as appropriate, international entities and binational research and development foundations and funds, excluding foreign entities of concern;

(4) partner with other directorates and offices of the Foundation for specific projects or research areas including—

(A) to pursue basic questions about natural, human, and physical phenomena that could enable advances in the challenges and key technology focus areas under section 19107 of this title;

(B) to study questions that could affect the design (including human interfaces), safety, security, operation, deployment, or the social and ethical consequences of technologies and innovations in the challenges and key technology focus areas under section 19107 of this title, including the development of technologies and innovations that complement or enhance the abilities of workers and impact of specific innovations on domestic jobs and equitable opportunity; and

(C) to further the creation of a domestic workforce capable of advancing, using, and adapting to the key technology focus areas;

(5) build capacity and infrastructure for use-inspired and translational research at institutions of higher education across the United States, including by making awards to support administrative activities that advance development, operation, integration, deployment, and sharing of innovation;

(6) support the education, mentoring, and training of undergraduate students, graduate students, and postdoctoral researchers, to both advance use-inspired and translational research and to address workforce challenges, through scholarships, fellowships, and traineeships; and

(7) identify social, behavioral, and economic drivers and consequences of technological innovations that could enable advances in the challenges and key technology focus areas under section 19107 of this title.

(Pub. L. 117–167, div. B, title III, §10383, Aug. 9, 2022, 136 Stat. 1576.)

§ 19104. Requirements

In carrying out the activities under the Directorate, the Director shall ensure the programmatic work of the Directorate and Foundation—

(1) utilizes the full potential of the United States workforce by avoiding undue geographic concentration of research and development and education funding across the United States, and encourages broader participation in the key technology focus area workforce by populations historically underrepresented in STEM; and

(2) incorporates a worker perspective through participation by labor organizations and workforce training organizations.

(Pub. L. 117–167, div. B, title III, §10384, Aug. 9, 2022, 136 Stat. 1577.)

§ 19105. Assistant Director

(a) In general

The Director shall appoint an Assistant Director responsible for the management of the Directorate established under this part, in the same manner as other Assistant Directors of the Foundation are appointed.

(b) Qualifications

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

(1) 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

(2) 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 subsection (c).

(c) Responsibilities

The responsibilities of the Assistant Director shall include—

(1) 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, and the potential impact of Foundation research on United States societal, national and geostrategic challenges;

(2) identifying opportunities for and facilitating coordination and collaboration, where appropriate, on use-inspired and translational research, development, adoption, and commercialization—

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

(B) between the Foundation and stakeholders in academia, the private sector, including non-profit entities, labor organizations, Federal or State agencies, and international entities, as appropriate;

(3) ensuring that the activities carried out under this part do not substantially and unnecessarily duplicate activities supported by other parts of the Foundation or other relevant Federal agencies;

(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.)[1] 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.

[1] See References in Text note below.

(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-