The Endless Frontier Act

Since the end of World War II, the United States has been the unequivocal global leader in scientific and technological innovation, and as a result the American people have benefited through good-paying jobs, economic prosperity, and a higher quality of life. Today, however, this leadership position is being eroded. Far too many of our communities have tremendous innovation potential but lack the critical public investment to build the nation's strength in new technologies, while our foreign competitors, some of whom are stealing American intellectual property, are aggressively investing in fundamental research and commercialization to dominate the key technology fields of the future.

Without a significant increase in investment in fundamental scientific research, education and training, technology transfer and entrepreneurship, and the broader U.S. innovation ecosystem across the nation, it is only a matter of time before America's global competitors catch-up and overtake the U.S. in terms of technological primacy: whichever country wins the race in key technologies – such as artificial intelligence, quantum computing, advanced communications, and advanced manufacturing – will be the superpower of the future. The U.S. Government needs to catalyze U.S. innovation by boosting investments in the discovery, creation, and commercialization of new technologies that ensure American leadership in the industries of the future.

To do this, we propose the Endless Frontier Act:

- The National Science Foundation (NSF) would be renamed the National Science and Technology Foundation (NSTF) and task a new deputy director with executing the new funding of fundamental research related to specific recognized global technology challenges with geostrategic implications for the United States.

- The new NSTF would have two Deputy Directors – one to oversee existing NSF operations and the other to oversee a newly established Technology Directorate. The bill would provide the new Directorate with flexible personnel, program management, and awarding authorities.

- The new Directorate would be given DARPA-like authorities, with the option to utilize program managers for selecting awardees.

- NSTF would have a newly-created Board of Advisors for the Directorate for Technology to advise the Deputy Director on how to strategically advance technology in the 10 key focus areas. The new board would not have decision-making authority and the National Science Board would retain its existing authorities.

- The authorization for the new Directorate would be $100 billion over five years to reinvigorate American leadership in the discovery and application of key technologies that will define global competitiveness.

- An additional $10 billion would be authorized over five years for the Commerce Department to designate at least 10 regional technology hubs, awarding funds for comprehensive investment initiatives that position regions across the country to be global centers for the research, development, and manufacturing of key technologies.

- The Directorate would be authorized to coordinate with the Department of Commerce and other federal departments and agencies on initiatives to build the regional technology hubs and to connect disadvantaged populations and places to new job and business opportunities developing key technologies.

- In addition to carrying out its own activities, the Directorate could partner and provide funding to the rest of NSF and to other federal research entities when that would advance its objectives. The Directorate would be prohibited from taking money from other elements of NSF.

- The new Directorate would fund research in the following technology focus areas:

    1. artificial intelligence and machine learning
    2. high performance computing, semiconductors, and advanced computer hardware
    3. quantum computing and information systems
    4. robotics, automation, and advanced manufacturing
    5. natural or anthropogenic disaster prevention
    6. advanced communications technology
    7. biotechnology, genomics, and synthetic biology
    8. advanced energy technology
    9. cybersecurity, data storage, and data management technologies
    10. materials science, engineering, and exploration relevant to the other focus areas

- The authorized activities include:

    - Increases in research spending at universities (which can form consortia that include private industry) to advance U.S. progress in key technology areas, including the creation of focused research centers

    - New undergraduate scholarships, industry training programs, graduate fellowships and traineeships and post-doctoral support in the targeted research areas to develop the U.S. workforce

    - The development of test-bed and fabrication facilities

    - Programs to facilitate and accelerate the transfer of new technologies from the lab to the marketplace, including expanding access to investment capital

    - Planning and coordination with state and local economic development stakeholders and the private sector to build regional innovation ecosystems

    - Increases in research spending for collaboration with U.S. allies, partners, and international organizations