

The United States Innovation and Competition Act of 2021

Division-by-division summary

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Division A – {Bipartisan Emergency Appropriations CHIPS and ORAN 5G}

{Sec. 1001. Table of contents.}

{Sec.1002.Creating helpful incentives to produce semiconductors (CHIPS) for America funds.}

{Sec.1003.Appropriations for wireless supply chain innovation.}

Division B – Endless Frontier Act

The Endless Frontier Act, as reported by the Senate Commerce Committee, seeks to maintain and build on U.S. science and technology leadership through investments in research and development and strengthening regional economic development, manufacturing, and supply chains. The legislation would authorize roughly \$120 billion over 5 years for activities at the National Science Foundation (“NSF”), Department of Commerce (“DOC”), the Department of Energy (“DOE”), and the National Aeronautics and Space Administration (“NASA”). The Endless Frontier Act advances priorities including to reduce undue geographic concentration of R&D funding, encourage broader participation of populations underrepresented in STEM, and increase collaboration across federal agencies and with non-governmental partners on innovation.

Notable Provisions:

Technology Directorate (Title I)

The Endless Frontier Act would create a new Directorate of Technology and Innovation at the NSF to support research and technology development in key technology focus areas, such as artificial intelligence and quantum science, in order to strengthen the global leadership of the United States in innovation. Major activities would include funding research and development at collaborative institutes, supporting academic technology transfer and intellectual property protection, establishing technology testbeds, and awarding scholarships and fellowships to build the relevant workforce. The Directorate would be authorized at \$29B over fiscal years 2022 to 2026, including a transfer of \$2.9B to existing NSF divisions to support basic research collaboration.

Existing NSF Divisions (Title II)

The NSF is the gold standard for basic research around the world. The Endless Frontier Act would authorize \$52.0B over fiscal years 2022 to 2026 for existing NSF activities (before the \$2.9B transfer from the Directorate), representing a seven percent increase each year. The legislation would also create a Chief Diversity Officer at NSF and increase STEM education to enhance the domestic STEM workforce. The legislation would also incorporate a series of Commerce Committee member priorities for NSF, including programs for precision agriculture, rural STEM education, quantum information science, skilled technical education, critical minerals, and bioeconomy R&D. It would also develop policies to combat sexual harassment in science and provide flexibilities for researchers with caregiver responsibilities.

Research Security (Title III)

The Endless Frontier Act would take strong steps to secure research from adversaries. It would authorize NSF's research security office, provide NIST cybersecurity assistance for universities, and set up an information sharing and analysis organization to exchange information on research security risks. It would also require policies to prohibit participation in state-sponsored foreign talent programs that unethically or illegally transfer U.S. knowledge to adversaries.

Capacity Building (Title I and II) and Technology Hubs (Title IV)

The Endless Frontier Act would take steps to build capacity across the nation and increase the participation of those underrepresented in STEM, including through support for early-career researchers, emerging research institutions, minority serving institutions, rural institutions, and institutions that participate in the Established Program to Stimulate Competitive Research, to reduce geographic concentration of R&D and education.

It would also create a regional technology hub program at DOC to support regional economic development in innovation. Technology hubs would carry out workforce development activities, business and entrepreneur development activities, technology maturation activities, and infrastructure activities related to the technology development. The technology hubs program would be authorized at \$8B over fiscal years 2022 to 2026.

Manufacturing (Title IV)

The Endless Frontier Act would authorize a quadrupling of the DOC Manufacturing Extension Partnership and create a new track within the program for public benefit activities like workforce development and cybersecurity services. The Manufacturing Extension Partnership would be funded at \$2.4B over fiscal years 2022 to 2026. The substitute would also authorize the Manufacturing USA program, at \$1.2B over fiscal years 2022 to 2026, and add workforce and coordination provisions.

Supply Chain Resiliency (Title V)

The Endless Frontier Act would establish a supply chain resiliency program at the Department of Commerce to work with the private sector, for the purpose of identifying and recommending opportunities to mitigate or address supply chain vulnerabilities in the United States and in allied and partner countries. It would also amend the recently-enacted CHIPS Act to provide \$2 billion in incentives for domestic production of mature semiconductor technologies, such as for the automotive industry.

Space (Title VI)

The Endless Frontier Act incorporates the bipartisan NASA Authorization Act of 2019, which passed the Senate unanimously last Congress, and would authorize NASA's activities, including the agency's exploration, science, aeronautics, STEM education, and technology missions. It also incorporates the bipartisan SPACE Act, which would provide the authorities necessary for DOC to perform certain space situational awareness activities and authorize centers of excellence for space situational awareness. The space title would authorize just over \$10B for these activities between fiscal years 2022 and 2026.

Telecommunications (Title V)

The Endless Frontier Act would authorize \$100M to establish the Telecommunications Workforce Training Grant Program Fund at the National Telecommunications and Information Administration (NTIA). It would also authorize \$35M to NTIA to expand internet access to rural areas and tribal lands through the establishment of internet exchanges facilities and submarine cable landing station grants. The substitute would authorize \$50M to NTIA to create a testbed to develop open network architecture technologies and applications and increase U.S. participation in international standards-setting bodies.

DOE (Title I)

The Endless Frontier Act would authorize \$16.9B in supplemental amounts for DOE over 5 years for research and development in the key technology focus areas. It also would establish robust coordinating mechanisms to ensure that activities authorized in the legislation are not duplicative of other federal agency activities.

Bipartisan Bills Included in the Endless Frontier Act, as reported by the Commerce Committee

1. S. 289, Research Investment to Spark the Economy (RISE) Act (Markey, Tillis, Collins, Peters, Warren, Brown, Stabenow, Coons, Rosen, Van Hollen, Baldwin, Cardin, Kelly) (Section 507)
2. S. 637, Supporting Early-Career Researchers Act (Blumenthal, Merkley, Coons, Brown, Van Hollen, Klobuchar, Hirono) (Section 212)
3. S. 710, Sister City Transparency Act (Blackburn, Hawley, Cramer, Tillis, Rubio, Marshall, Daines)
4. S. 725, Advanced Technological Manufacturing Act (Wicker, Cantwell, Rosen) (Sections 205 and 206)
5. S. 996, Improving Minority Participation and Careers in Telecommunications (IMPACT) Act (Wicker, Sinema, Tim Scott) (Section 509)
6. S. 997, Office of Manufacturing and Industrial Innovation Policy Act (Klobuchar, Wicker, Coons, Portman) (Section 508)
7. S. 1044, National Manufacturing Advisory Council for the 21st Century Act (Peters, Rubio) (Section 404)
8. S. 1106, Shark Fin Sales Elimination Act of 2021 (Booker, Capito, Cantwell, Portman, Blumenthal, Collins, Braun, Duckworth, Schatz, Whitehouse) (Section 518)
9. S. 1161, Quantum Network Infrastructure and Workforce Development Act (Thune, Hassan) (Section 211)
10. S. 1213, National Strategy to Ensure American Leadership (SEAL) Act (Van Hollen, Blunt) (Section 503)
11. S. 1240, Manufacturing USA Expansion Act of 2021 (Brown, Blunt) (Section 402)
12. S. 1257, AI Scholarship for Service Act (Peters, Thune) (Section 208)
13. S. 1374, Rural STEM Education Act (Wicker, Rosen, Cornyn, Hassan) (Section 210)
14. S. 1395, Advancing Precision Agriculture Capabilities Act (Fischer, Klobuchar) (Section 213)

15. S. 1379, Combatting Sexual Harassment in Science (Blumenthal, Smith, Reed, Van Hollen, Klobuchar, Hirono, Shaheen, Sanders, Wyden, Markey, Rosen, Brown, Padilla) (Section 521)
16. S. 1418, Bioeconomy Research and Development Act (Markey, Gillibrand, Rubio, Capito) (Section 217)
17. S. 1563, Telecommunications Supply Chain Diversity Promotion Act (Wicker, Hickenlooper) (Section 520)
18. S. 4827 (116th), Space Preservation And Conjunction Emergency Act (SPACE) Act (Wicker) (Subtitle A of Title VI)
19. S. 2800 (116th), National Aeronautics and Space Administration Act (Cruz, Sinema, Wicker, Cantwell) (Subtitle B of Title VI)
20. S. 3707 (115th), Country of Origin Labeling Online Act (COOL) Online Act (Baldwin, Rick Scott, Murphy, Loeffler)
21. S. 1166 (115th), Internet Exchanges and Submarine Cable Act of 2020 (Blackburn, Baldwin, Duckworth, Blunt)

Division C – Strategic Competition Act of 2021

The *Strategic Competition Act* is a bipartisan effort to enable the United States to effectively confront the challenges posed by the People’s Republic of China (PRC) to our national and economic security. The bill was passed out of SFRC in a nearly unanimous vote (21-1) on April 21, 2021. The bill provides a unified, strategic response that:

Increases U.S. strategic focus on the Indo-Pacific and prioritizes alliances, partnerships, and U.S. global leadership by:

- Advancing an Indo-Pacific strategy centered on strengthening U.S. alliances and partnerships and supporting regional cooperation that solves problems.
- Expanding cooperation with Indo-Pacific allies and partners on technology, defense, and infrastructure, increasing security assistance to allies and partners, and fostering enhanced cooperation in the face of China’s growing military capabilities.
- Promoting U.S. leadership within international organizations and other multilateral fora, including to counter malign PRC and Chinese Communist Party (CCP) influence in those organizations.

Confronts China’s malign political influence and predatory economic practices, and energizes U.S. diplomatic and economic statecraft by:

- Countering PRC and CCP influence campaigns by requiring the Committee on Foreign Investment in the United States to review certain foreign gifts and contracts to universities.

- Countering China’s predatory sovereign lending in the Western Hemisphere by authorizing the U.S. Governor to the Inter-American Development Bank to vote in favor of a 10th general capital increase.
- Addressing China’s intellectual property theft and subsidies, and prioritizing technical assistance to countries working to counter foreign corrupt practices.
- Bolstering U.S. economic statecraft by increasing the Development Finance Corporation’s maximum liability to \$100 billion and investing in supply chain security, infrastructure development, and digital connectivity and cybersecurity partnerships.

Upholds U.S. values by:

- Authorizing a broad range of human rights and civil society measures including sanctions for forced labor, forced abortion and sterilization, and other abuses in Xinjiang, and measures to stand with the people of Hong Kong, Tibet, and China’s civil society.
- Including critical provisions to increase transparency for Congress and the American public related to international agreements and arrangements.

Division D – Safeguarding American Innovation Act

Securing our Networks and Supply Chains

Cyber-attacks remain one of the most significant threats to our national security – and they can have real-world consequences for Americans, as the recent attack on the Colonial Pipeline showed. Whether an attack is coming from adversaries like the Chinese and Russian governments, or criminal organizations, these provisions strengthen the federal government’s roles and resources to better prepare for and respond to significant cyber incidents, including requiring regular National Risk Assessments and the creation of a Cyber Response and Recovery Fund. This section also includes provisions to block the purchase of drones manufactured and sold by companies backed by the Chinese government, and prohibits the social media app TikTok from being downloaded to government devices to better safeguard the privacy and security of Americans.

Recommitting to American Workers and Manufacturers

American taxpayer dollars should be used to buy American-made manufactured products and materials, which supports American workers and advances American competitiveness. These provisions modernize Buy American requirements to address the longstanding practice of using Chinese- or Russian-made steel and other products that undercuts American manufacturers and American workers. They also increase transparency when waivers are granted to Buy American requirements by creating a central publicly available website. This section also includes a provision to address the serious national security risk posed by our overreliance on companies in China and other countries for medical supplies by encouraging greater domestic production of personal protective equipment.

Safeguarding Groundbreaking Research

Adversarial foreign governments, including China, continue to pose a threat to the U.S. research enterprise and have used various means to exploit gaps in research security that allow bad actors

to steal American research, technology and intellectual property. This provision will boost American competitiveness by ensuring the federal government is securing taxpayer-funded research from misappropriation by foreign competitors.

Investing in Responsible Federal Use of Artificial Intelligence

This provision will help lock in America's competitive advantage over the Chinese government in the rapidly evolving field of artificial intelligence by leveraging American values, innovation and entrepreneurialism to advance this technology. The new partnerships created by this provision would allow the federal government to harness commercial breakthroughs to improve efficiency, better serve the American people and strengthen American economic competitiveness and national security.

Providing New Skills and Opportunities for Our Federal Workforce

The United States faces increasingly sophisticated cyber threats from foreign actors such as China and Russia, and we need a federal workforce that possesses the knowledge, skills, and competencies to counter those threats. These provisions would strengthen American competitiveness by investing in the future of the federal workforce – establishing programs to grow federal expertise and interagency coordination on cybersecurity, as well as offering opportunities to reskill federal workers to better meet emerging and mission-critical workforce needs and stay competitive on the global stage.

Division E – Meeting the China Challenge Act of 2021

Executive summary: The Brown-Toomey amendment addresses critical concerns about China in the national security and financial services arena, including pressing for intensified use of existing sanctions authorities against Chinese violators (on human rights, cyber espionage, illicit trade with North Korea, fentanyl production and distribution, and other issues) and providing for broad new mandatory sanctions on Chinese actors engaged in cyberattacks against the U.S., or in the theft of intellectual property from U.S. firms. It underscores the need for effective implementation of new anti-money laundering and corporate transparency laws to combat China's abuses of anonymous shell companies, provides for a review of export controls on items that could be used to support human rights abuses in China, and urges firms to adopt a corporate code of conduct for operating in China. It also mandates new Congressional reporting requirements on a range of issues, including on whether and to what extent Chinese state-owned enterprises engaged in malign behavior have recently received U.S. taxpayer-funded assistance, to inform future policymaking.

Sanctions/Protecting U.S. National Security

Use of Existing Sanctions Authorities: Urges the intensified use of existing mandatory sanctions authorities, including those related to human rights and forced labor, economic espionage, fentanyl production and distribution, illicit trade with North Korea, and other issues.

Sanctions to Combat Cyber Attacks Against the U.S.: Designed to provide new tools to combat Chinese cyberattacks against U.S. targets, requires a review and mandatory imposition of tough sanctions on Chinese actors engaged in cyberattacks against U.S. government or private sector networks, including an asset freeze and visa ban for individuals determined to be involved, and a range of sanctions from a specified menu for entities (and their corporate officers) determined to

be knowingly involved in or facilitating this malign activity.

Sanctions to Combat Intellectual Property Theft: This measure would require imposition of sanctions against persons or entities in China determined by the President to be knowingly involved in or benefitting from significant acts of intellectual property theft from U.S. persons or firms.

Preventing Anonymous Shell Company Abuses by China: Outlines the rationale behind the recently-enacted Anti-Money Laundering Act of 2020, and Corporate Transparency Act of 2020, and urges their effective implementation, including provisions designed to combat abuses of anonymous shell companies by Chinese entities such as China's military.

Strengthening Export Controls: Requires a 180-day review of export controls on items that could be used to facilitate human rights abuses, and a determination on whether further crime control or end use/end user export controls are necessary to mitigate the risks of such abuses. Establishes authority for end use controls related to human rights abuses.

Congressional Reporting Requirements

Includes a range of new reporting requirements designed to shape future policymaking, including on potential violations of antitrust and competition laws in the U.S. by Chinese companies; on Chinese officials involved in human rights abuses; on the presence of Chinese entities in U.S. capital markets; on U.S.-China currency matters; on the development in China of alternative cross-border payment systems and financial messaging services; on the use of dual use technologies by Chinese governmental actors; on exposure of the U.S. to the financial system of China; on the importance of maintaining investment reciprocity with China, and other matters.

Division F – Other Matters

Title I – Competitiveness and Security for Education and Medical Research

Title I of the Division F seeks to provide resources and supports to our nation's K12 schools and institutions of higher education as they work to educate our students and help our nation become more competitive and meet the changing global economy.

Computer Science Education

Expanding access to computer science education in K12 schools can help improve America's long-term competitiveness. According to [\(ISC\)](#), the global cybersecurity professionals' association, in 2020, there were 359,000 cybersecurity positions that were unfilled in the United States. A shortage of cybersecurity experts can have wide ramifications across national security, government, and the private sector, as more employers rely on technology and online tools. According to the [Bureau of Labor Statistics](#), software developers, software quality assurance analysts, and testers are the occupations that are estimated to provide the fourth-highest number of projected new jobs by 2029. Investing in computer science education now will better prepare the United States to meet these long-term needs.

- **Creates a new computer science education program.** This bill authorizes a new competitive grant for states to expand access to computer science education, including,

for marginalized students who have less access to computer science coursework in their schools.

Postsecondary STEM Pathways

Expanding access to postsecondary STEM pathways, such as dual enrollment and early college high school programs, can help boost competitiveness by providing students with both high school and college credit and better preparing students to continue in STEM pathways at the postsecondary level. Increasing access to college level coursework in high school has been shown to increase college enrollment and retention. Expand access to these pathways to diverse students will help ensure that more students are successful in postsecondary education and better prepared for STEM careers.

- **Expands access to Postsecondary STEM Pathways.** This bill authorizes a new competitive grant program for states to expand postsecondary STEM pathways, such as dual enrollment and early college high school programs. These pathways will increase the number of students exposed to high-quality STEM coursework, provide students the opportunity to earn postsecondary credentials, reduce college costs, and improve postsecondary credit transfers.

Confucius Institutes

Some colleges and universities have maintained partnerships with Confucius Institutes, which are programs that are intended to be jointly controlled by the institution and the Chinese government. Confucius Institutes have at times raised bipartisan concerns about academic freedom and expression. A [variety of restrictions](#) have been adopted on Confucius Institutes in recent years, and the number of Confucius Institutes has dropped to less than 50 nationwide, down from a peak of 110 as reported in a [February 2019 report](#) by the Permanent Subcommittee on Investigations.

- **Create new transparency requirements and protections related to Confucius Institutes.** This bill would require the U.S. Department of Education, in collaboration with the National Academies of Science, Engineering, and Medicine, to review Confucius Institute to ensure they protect academic freedom, or for institutions to post their agreements with Confucius Institutes publicly. Institutions that fail to comply would lose access to federal grants provided under the Higher Education Act of 1965 (20 U.S.C. 1001 et seq.), except for Federal student aid under title IV of the HEA.

International Education

International education programs educate and equip students in higher education with the skills needed to engage with diverse cultures at home and around the globe. Programs authorized under Title VI of the Higher Education Act build a strong foundation for students in international education, research, and world language studies. The bill continues our nation's investment in language, cultural, and regional expertise so that we can compete economically and maintain robust defense, intelligence, and diplomatic communities.

- **Reauthorize the International Education Programs under Title VI of the Higher Education Act.** Increase and expand existing foreign language and area studies programs

across the country; build international education capacity at minority-serving institutions; and promote opportunities for students and professionals to increase their knowledge of world regions, international business, and over 200 foreign languages at all levels of higher education. This is achieved through language of the bipartisan *Advancing International and Foreign Language Education Act*.

Truman and Madison Foundations

The Harry S. Truman Memorial Scholarship and James Madison Memorial Fellowship are federally-chartered foundations in honor of two of our Nation's former presidents, which work to create careers in public service that defend and advance democracy, U.S. interests, and civil and human rights at home and around the world. However, the trusts that sustain these two foundations have been declining due to the historically low interest rates on U.S. Treasury securities.

- **Sustains the Truman and Madison Foundations.** By expanding the foundations' investment authorities to other types of securities, federal funds that are invested can yield a greater return for taxpayers and, in turn, better enable the Truman and Madison Foundations to support public service and international competitiveness.

Reporting of Foreign Gifts and Contracts

Institutions of higher education operate in an interconnected global environment and regularly exchange information with international companies, researchers, and partner institutions of higher education located around the world. These interactions generally promote U.S. interests and the academic model abroad, and enhance the competitiveness of domestic institutions. However, institutions of higher education are also exposed to malign influence through foreign state and non-state actors who desire to affect institutional decision-making and curriculum, disrupt the integrity of research and development activities, and steal intellectual property. Foreign sources often provide gifts and contracts to achieve such goals. To guard against inappropriate foreign influence, the bill enhances and clarifies existing policies in Section 117 of the Higher Education Act requiring institutions to report foreign gifts and contracts and creates new requirements related to risks to individual faculty and staff involved in research and development activities.

- Comprehensively updates requirements of institutional reporting of foreign gifts and contracts. The bill amends Section 117 of the Higher Education Act of 1965 to capture additional foreign gifts and contracts received by institutions of higher education totaling more than \$50,000 in any given year. Previous efforts to promote compliance were largely limited to investigations of individual institutions, and institutions faced significant confusion and frequent underreporting. Under the bill, both institutions of higher education and the U.S. Department of Education will see new requirements designed to promote compliance and provide clarity and consistency to institutions on appropriate reporting.
- Creates new transparency for foreign gifts and contracts received by individual faculty and staff involved in research and development. Institutions of higher education that have more than \$5 million in research and development expenditures in any given year will be

required to maintain a policy requiring certain faculty and staff to report any foreign gifts and contracts they received to their institution; to maintain a database of such reporting; and to have a plan to effectively identify and manage potential information gathering by foreign sources through espionage targeting faculty and staff.

Title II – Committee on the Judiciary Provisions

The Senate Judiciary Committee reported the Merger Filing Fee Modernization Act of 2021 by voice vote.

The Problems

Filing Fees are Unfair: Premerger filing fees paid by merging companies to the federal antitrust agencies, have not changed since 2001 despite the steady march of inflation and the growth of the economy. In addition, the current fee structure places too heavy a burden on smaller deals and too small a fee on larger deals. The fee for a \$900 million deal should not be the same as the fee for a \$60 billion deal.

Lack of Resources: Merger filing continue to increase. Amid rising concerns about anticompetitive mergers, the business activities of dominant firms, and the privacy and security of personal data, the public has increasingly called on the Federal Trade Commission and Department of Justice’s Antitrust Division to investigate and take action to protect competition and consumers. But both agencies have been underfunded for years.

Practical Solutions

Fair Filing Fees: The Merger Filing Fee Modernization Act would update merger filing fees for the first time since 2001, lower the burden on small and medium-sized transactions, ensure larger deals pay their fair share, and raise revenue so that taxpayers do not have to foot the bill for necessary agency enforcement.

Deal Size	Old Fee	New Fee
Less than \$161.5 million	\$45,000	\$30,000
\$161.5 - \$500 million	\$125,000	\$100,000
\$500 - \$1 billion	\$125,000 - \$280,000	\$250,000
\$1 - \$2 billion	\$280,000	\$400,000
\$2 - \$5 billion	\$280,000	\$800,000
\$5 billion +	\$280,000	\$2,250,000

To ensure this legislation is not just a one-time fix, these filing fees will be linked to increases in the Consumer Price Index. Based on fiscal year 2019 merger filings, additional revenues resulting from the fee revision are estimated at approximately \$135 million.

FY 2022 Appropriations: The bill would authorize increases in appropriations to the antitrust agencies, which would raise the Antitrust Division’s budget to \$252 million and the FTC’s to \$418 million. These increases would be offset by the adjusted fee structure, providing much needed additional funding to the antitrust agencies and ensuring they can better fulfill their missions to protect competition and consumers, without impacting the federal budget.

Title III – Miscellaneous

The bill would require the Secretary of Commerce to work with partners at all relevant government agencies to conduct a comprehensive study into the underlying factors driving the current “startup slump.” Economists have identified several factors that may explain the reasons for the slowdown in entrepreneurship, including demographic changes caused by an aging workforce, increased industry concentration, increased risk-aversion following the last recession, difficulties related to access to capital (particularly difficulties encountered by underserved populations, minorities, and women), the concentration of venture capital in only a few cities, record levels of student loan debt, and difficulties faced by entrepreneurs in making use of federally funded research and innovation.

In conducting the study, the Secretary will be required to consult with leaders and utilize key data sets housed at the Census Department, Bureau of Economic Analysis, Bureau of Labor Statistics, Treasury Department, Federal Reserve, and Small Business Administration—in addition to consulting with entrepreneurs and representatives from consumer, community, and entrepreneurship advocacy organizations. The Secretary will be required to consider each of the potential factors identified above and will be required to make distinctions between industries, which economists believe may be affected by disparate factors.