

**DIRECTORATE FOR TECHNOLOGY, INNOVATION, AND PARTNERSHIPS (TIP)****\$900,000,000****TIP Funding**

(Dollars in Millions)

	FY 2023	FY 2024 (TBD)	FY 2025 Request	Change over	
	Base Plan <sup>1,2</sup>			FY 2023 Base Plan Amount	Percent
Technology Frontiers	\$127.92	-	\$139.00	\$11.08	8.7%
Innovation and Technology Ecosystems	146.84	-	350.00	203.16	138.4%
Translational Impacts	389.19	-	410.00	20.81	5.3%
Strategic Partnership Office	0.20	-	1.00	0.80	400.0%
<b>Total</b>	<b>\$664.15</b>	<b>-</b>	<b>\$900.00</b>	<b>\$235.85</b>	<b>35.5%</b>

<sup>1</sup> For comparability with FY 2025, the FY 2023 levels do not include this organization's share of Mission Support Services that were funded through the R&RA and EDU directorates and offices.

<sup>2</sup> Not included in the table above is FY 2023 funding of \$200.0 million for the NSF Engines program and \$10.0 million for the NSF Entrepreneurial Fellows program both of which were funded via the FY 2023 Disaster Relief Supplemental CHIPS and Science Act appropriations.

**About TIP**

As the agency's newest directorate, TIP aims to usher in a new era for American innovation, accelerating research to impact and enhancing job and economic growth and national security for decades to come. Serving as a crosscutting platform that leverages, energizes, and rapidly advances use-inspired research and innovation as well as workforce development across all fields of science, technology, engineering, and mathematics (STEM) supported by NSF, TIP helps to ensure that the U.S. remains in the vanguard of technology competitiveness for the foreseeable future. TIP advances key technologies; accelerates the translation of research results from the laboratory to the market and society; addresses national, societal, and geostrategic needs; and cultivates new education pathways leading to a diverse and skilled future technical workforce comprising researchers, practitioners, technicians, entrepreneurs, and educators. Along the way, TIP opens new possibilities for research and education by catalyzing strategic partnerships that link academia; industry, including startups and small businesses; federal, state, local, and Tribal governments; nonprofits and philanthropic organizations; civil society; and communities of practice to cultivate 21<sup>st</sup>-century innovation ecosystems that give rise to new industries and high-wage, good-quality jobs.

Since its establishment in March 2022, TIP has initiated several new programs focused on innovation and translation as well as workforce development, in alignment with authorities specified by the bipartisan CHIPS and Science Act of 2022. In FY 2025, TIP will continue to support these programs, which serve to catalyze a paradigm expansion in the nation's research and innovation ecosystem, expanding from "technology push" to "market pull."

TIP programs align with three pillars. First, TIP nurtures new and diverse innovation ecosystems throughout the U.S. For example, the NSF Regional Innovation Engines (NSF Engines) are catalyzing place-based innovation to spur economic and job growth throughout the U.S., particularly in places that have not benefited from the technology and innovation booms of the last several decades. An inaugural portfolio of 10 NSF Engines spanning 18 states and more than 475 distinct organizations

was announced in January 2024. NSF invested \$150 million in the first two years of these 10 NSF Engines, a figure matched by more than twice as much in commitments by state and local governments, private industry, and philanthropy. Of the 10 NSF Engines, two are based in EPSCoR jurisdictions and nine include partners in an EPSCoR jurisdiction; nine include minority-serving institutions and all ten include community colleges; and four are led by industry and nonprofits. The NSF Engines will harness the nation's diverse science and technology research enterprise, regional-level resources, and untapped innovation potential to accelerate advances in key technologies; grow our economy; address national, societal, and geostrategic challenges; and advance national security and competitiveness.

Second, TIP advances technology development across the range of key technology focus areas specified in the CHIPS and Science Act of 2022, in collaboration with NSF's other directorates and offices as well as with other federal agencies and the private sector. TIP also accelerates the translation of fundamental science and engineering discoveries into innovative new technologies and solutions. For example, TIP optimizes the historic NSF Lab-to-Market Platform, allowing researchers to pursue additional prototyping, demonstration, and scale-up work, giving rise to the startups and small businesses that are generating new markets and economies of scale. TIP introduces new translation pathways as well, for example, facilitating the adoption of NSF-funded research results as secure open-source ecosystems. As part of these efforts, TIP supports the establishment and operation of testbeds to advance development, integration, deployment, and demonstration of breakthroughs in the key technology focus areas, as authorized in the CHIPS and Science Act of 2022.

Finally, TIP creates opportunities for everyone to engage in the nation's R&D enterprise. For example, TIP works with academia, state, local, and tribal governments, industry, and other educational partners to provide practical experiences to diverse learners at every stage of education, from first-time job seekers to experienced workers.

**Selected TIP Programming<sup>1,2</sup>**  
(Dollars in Millions)

	FY 2023		
	Base Plan	FY 2024 (TBD)	FY 2025 Request
<b>Diverse Innovation Ecosystems</b>			
Convergence Accelerator (CA)	\$85.00	-	\$100.00
<i>CA: Regionalizing Convergence Accelerator</i>	15.00	-	30.00
NSF Regional Innovation Engines (NSF Engines)	-	-	205.00
<i>NSF Engines: Enabling Partnerships to Increase Innovation Capacity (EPIIC)</i>	20.00	-	20.00
<b>Technology Translation and Development</b>			
Accelerating Research Translation (ART)	45.00	-	45.00
Global Competitive Analysis Team (GCAT)	-	-	25.00
<i>Assessing and Predicting Technology Outcomes (APTO)</i>	-	-	15.00
Pathways to enable Open-Source Ecosystems (POSE)	27.80	-	35.00
Translation to Practice (TTP; previously Partnerships for Innovation)	30.00	-	30.00
Lab-to-Market Platform			
Innovation Corps (I-Corps™)	50.00	-	50.00
SBIR/STTR, including Operations	266.54	-	279.21
<b>Workforce Development</b>			
Experiential Learning for Emerging and Novel Technologies (ExLENT)	20.00	-	20.00
NSF Entrepreneurial Fellows	-	-	10.00

<sup>1</sup> This table reflects TIP's support for selected areas of investment and should not be summed.

<sup>2</sup> Not included in the table above is FY 2023 funding of \$200.0 million for the NSF Engines program and \$10.0 million for the NSF Entrepreneurial Fellows program both of which were funded via the FY 2023 Disaster Relief Supplemental CHIPS and Science Act appropriations.

## Major Investments

### TIP Major Investments

(Dollars in Millions)

Area of Investment <sup>1,2</sup>	FY 2023			Change over	
	Base Plan	FY 2024 (TBD)	FY 2025 Request	FY 2023 Base Plan Amount	Percent
Advanced Manufacturing	\$41.60	-	\$55.72	\$14.12	33.9%
Advanced Wireless Research	23.26	-	31.16	7.90	34.0%
Artificial Intelligence	78.09	-	104.62	26.53	34.0%
Biotechnology	52.58	-	70.44	17.86	34.0%
BaRP: Clean Energy Technology	53.07	-	69.32	16.25	30.6%
Microelectronics/Semiconductors	38.25	-	51.23	12.98	33.9%
Quantum Information Science	29.25	-	39.18	9.93	33.9%

<sup>1</sup> Major investments may have funding overlap and thus should not be summed.

<sup>2</sup> This table reflects this directorate's support for selected topics. Investment priorities and presentation may differ by organization and so should not be summed across narratives.

To learn more about cross-agency themes and initiatives supported by TIP, including in the areas noted in the above table, see individual narratives in the NSF-Wide Investments chapter.

## Centers Programs

### TIP Funding for Centers Programs

(Dollars in Millions)

	Division	FY 2023			Change over	
		Base Plan	FY 2024 (TBD)	FY 2025 Request	FY 2023 Base Plan Amount	Percent
NSF Regional Innovation Engines (NSF Engines)	ITE	-	-	\$205.00	\$205.00	N/A

For detailed information on individual centers programs, please see the Cross Theme Topics section of the NSF-Wide Investments chapter.

**TIP Divisions**

**TIP Division Funding by Category<sup>1</sup>**

(Dollars in Millions)

	FY 2023		FY 2024 (TBD)	FY 2025 Request	Change over	
	Base Plan				FY 2023 Base Plan Amount	Percent
<b>TF</b>	<b>\$127.92</b>	-	-	<b>\$139.00</b>	<b>\$11.08</b>	<b>8.7%</b>
Research	117.92	-	-	129.00	11.08	9.4%
Education	10.00	-	-	10.00	-	-
<b>ITE</b>	<b>\$146.84</b>	-	-	<b>\$350.00</b>	<b>\$203.16</b>	<b>138.4%</b>
Research	136.84	-	-	340.00	203.16	148.5%
Education	10.00	-	-	10.00	-	-
<b>TI</b>	<b>\$389.19</b>	-	-	<b>\$410.00</b>	<b>\$20.81</b>	<b>5.3%</b>
Research	389.19	-	-	400.00	10.81	2.8%
Education	-	-	-	10.00	10.00	N/A
<b>SPO</b>	<b>\$0.20</b>	-	-	<b>\$1.00</b>	<b>\$0.80</b>	<b>400.0%</b>
Research	0.20	-	-	1.00	0.80	400.0%

<sup>1</sup> For comparability with FY 2025, the FY 2023 levels do not include this organization's share of Mission Support Services that were funded through the R&RA and EDU directorates and offices.

**Technology Frontiers (TF)** accelerates breakthroughs in the full range of key technology focus areas and national, societal, and geostrategic challenges specified in Section 10387 of the CHIPS and Science Act to sustain and grow U.S. competitiveness and security for the long term. TF investments harness the innovative spirit that permeates all corners of our country, engaging individuals of all backgrounds, organizational affiliations, and geographic locations.

Among its investments, TF will lead the assessment of key technology focus areas to examine the alignment of federal science and technology research spending and programs with long-term U.S. competitiveness in these areas. Relatedly, TF will conduct regular reviews evaluating the implementation of major federal R&D spending, and whether that implementation is optimized to advance U.S. competitiveness.

**Innovation and Technology Ecosystems (ITE)** significantly strengthens the unique U.S. innovation ecosystem, engaging all Americans in shaping and conducting research and innovation as well as education pathways leading to high-quality, good-wage jobs.

For example, the NSF Convergence Accelerator will continue to regionalize its approach, investing in transdisciplinary, multi-sector teams pursuing technology solutions to location-specific challenges in food and agriculture, disaster response and mitigation, transportation, and beyond. By contrast, the NSF Engines will constitute significantly greater investment on a per-Engine basis, together with a framework for ecosystem-building, leading to regional-scale innovation ecosystems throughout the U.S. that in turn usher in a new era for American innovation, job and economic growth, and national security. ITE investments will harness the nation's geography of innovation, including those regions

that have not fully participated in the technology boom of the past several decades.

ITE also seeks to develop inclusive workforce-training pathways for the innovation-driven jobs of the future. For example, through the Experiential Learning for Emerging and Novel Technologies (ExLENT) program, ITE will connect highly diverse aspiring students and professionals interested in key technology focus areas and national, societal, and geostrategic challenges with much-needed practical experiences.

**Translational Impacts (TI)** accelerates the translation of research from the laboratory to the market and society. By investing federal funds in a diverse portfolio of universities, startups and small businesses, and open-source communities, TI stimulates the creation of novel products, services, and solutions that grow jobs and the economy.

TI provides an optimized Lab-to-Market Platform comprising the I-Corps™ and SBIR/STTR programs. TI additionally supports new pathways for translation, impacting government services and education, among other sectors. For example, through the relatively new Pathways to Enable Open-Source Ecosystems (POSE) program, TI facilitates the creation and growth of sustainable, high impact open-source ecosystems for technology innovation. Finally, TI will also invest in testbeds to enable prototyping, demonstration, and scaling of research outputs.

TI also supports entrepreneurial education through the NSF Entrepreneurial Fellowships authorized in the CHIPS and Science Act of 2022. These fellowships provide Ph.D.-trained scientists and engineers with resources, including lab space, to mature promising ideas and technologies from lab to market. Along the way, the NSF Entrepreneurial Fellows become leaders in technology translation.

**Strategic Partnerships Office (SPO)** serves as an agency-wide resource to catalyze and scale public and private partnerships to amplify and further the impact of NSF's investments in research, research infrastructure, and education. The SPO provides expertise and support to build partnerships, along with co-funding to strategically advance high-impact relationships that will deepen and advance NSF's mission across STEM fields. The SPO assists these partnerships in expanding the reach of, and exponentially increasing the return on, NSF's investments across its directorates and offices.

NSF's partnerships unite broad and diverse communities and coalitions in the pursuit of discovery and innovation by leveraging unique experiences and strengths of government, industry, academia, philanthropy, civil society, and investors to motivate the understanding of research problems and iteratively pilot research-based solutions through co-design. In addition to advancing the nation's research enterprise, SPO-facilitated partnerships nurture STEM talent by focusing on the engagement of populations long underrepresented in or underserved by STEM, along with the inclusion of diverse organization types such as minority-serving institutions and community colleges. SPO also advances testbeds and other infrastructure critical to furthering the research and education enterprise, as authorized in the CHIPS and Science Act of 2022.