



APPENDIX TABLE 8-38

Federal policies and programs supporting early stage technology development and innovation

(Summary of programs and policies for selected federal agencies)

Agency	Office	Program	Science and technology development							Enterprise development						
			Tech. devt.	Tech. scouting	Govt. need	Financial support	Talent devt.	Standard setting	IP mgmt./tech. transfer	Business training	Business networks	Business mentors and peers	Business services	Talent devt.	Liability protn.	Financial support
Department of Agriculture																
Under Secretary for Natural Resources and Environment	U.S. Forest Service	Forest Products Laboratory (FPL) Business Incubator	X							X						
		Consortium for Research on Renewable Industrial Materials (CORRIM)		X												
Under Secretary for Research, Education, and Economics	Agricultural Research Service (ARS)	ARS Innovation Corps (I-Corps ARS)									X		X		X	
		Agricultural Research Partnerships (ARP) Network	X	X							X		X	X		



Agency	Office	Program	Science and technology development							Enterprise development						
			Tech. devt.	Tech. scouting	Govt. need	Financial support	Talent devt.	Standard setting	IP mgmt./tech. transfer	Business training	Business networks	Business mentors and peers	Business services	Talent devt.	Liability protn.	Financial support
		Agricultural Technology Innovation Partnership (ATIP)		X						X		X				
	National Institute of Food and Agriculture (NIFA)	Innovations in Food and Agricultural Science and Technology (I-FAST) Prize Competition									X	X	X		X	
Program descriptions	FPL Business Incubator	<p>Program goals: To expedite the discovery and application of new science, the FPL is in the initial stages of developing a business incubator for emerging or fledgling advanced wood technology business ventures.</p> <p>Program activities: Private startups or other entities needing expanded production resources can rent space and equipment at the FPL to pilot test new products or process innovations. By developing product prototypes without excessive overhead costs, business incubator associates can sell these products in limited quantities. These companies will conduct research in partnership with FPL scientists and technical staff in existing FPL laboratories. When appropriate, companies can also enter into joint-venture agreements for collaborative research.</p> <p>Website: https://www.fpl.fs.fed.us/partners/businessincubator/index.shtml</p>														



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	CORRIM	<p>Program goals: The CORRIM research plan develops a scientific base of information relating to the environmental performance of wood-based building products. The research plan provides (1) a consistent life-cycle inventory database for evaluating the environmental performance of wood and alternative materials from resource regeneration or extraction to end use and disposal; (2) a framework for evaluating life-cycle environmental and economic impacts; (3) source data for many users, including resource managers, manufacturers, architects, engineers, environmental protection and energy analysts, and policy specialists; and (4) continuously updated wood products life-cycle assessment (LCA) underlying data for making LCA-based environmental product declaration (EPD) eco-labels renewals easy and cost-effective, and providing valuable environmental performance feedback to industry.</p>														
		<p>Program activities: CORRIM research provides a transparent and credible database of information for quantifying environmental impacts and economic costs of wood building materials through the stages of tree planting, growing, product manufacturing, building construction, and its operational use and demolition. Current research provides a component-by-component assessment of environmental impacts to assist in making building design changes that can improve performance along with development of North American-wide EPDs. CORRIM's geographic, product, and building design coverage was expanded in order to identify more opportunities for improved performance. As part of the any wood product LCA and EPD updates, CORRIM addresses pressing research issues including carbon sequestration, temporal and spatial aspects of forest harvesting, land use and land use changes (direct and indirect), and the impact of changes in forest carbon inventories.</p>														
		<p>Website: https://www.fpl.fs.fed.us/partners/corrim/corrim.shtml</p>														
	I-Corps ARS	<p>Program goals: The I-Corps ARS pilot was a set of activities and programs that prepared ARS scientists to extend their focus beyond the laboratory and broadened the impact of select ARS research projects.</p>														
		<p>Program activities: The I-Corps ARS curriculum, based on the National Science Foundation (NSF) I-Corps, taught research teams to identify the problems facing stakeholders and develop valuable products and/ or technologies that can emerge from their own research. In addition, I-Corps ARS offered entrepreneurship training, which helped the participants to be more innovative in their research programs. I-Corps ARS was the first program in a government-owned, government-operated environment (GOGO) that has an intramural focus with the goal of creating an entrepreneurial scientific enterprise.</p>														
		<p>Website: NA</p>														
	ARP Network	<p>Program goals: The ARS founded the ARP Network to expand the impact of ARS research and provide resources to help ARS commercial partners grow.</p>														



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		<p>Program activities: The ARP Network matches business needs with ARS innovations and research capabilities and provides business assistance services to help companies and startups solve agricultural problems, develop products, and create new jobs. The ARP Network assists ARS in creating new partnerships and in supporting existing partnerships to advance ARS R&D efforts and subsequent utilization, including commercialization. Some of the ARP Network activities include matching industry needs with ARS patents and researchers for partnering; providing access to ARS research expertise, facilities, and equipment; and assisting in identifying sources of funding. The ARP Network is composed of organizations interested in agriculture-based economic development.</p> <p>Website: https://www.ars.usda.gov/office-of-technology-transfer/administration-partnership/</p>														
	ATIP	<p>Program goals: ATIP is a national network of Department of Agriculture (USDA) federal partnership intermediaries that facilitate the transfer of USDA technologies to U.S. businesses for their research, development, and production needs to meet agriculture requirements, as well as to foster commercial applications and support U.S. economic competitiveness.</p> <p>Program activities: ATIP leverages the skills, knowledge, and capabilities of USDA's 10 partnership intermediaries to enhance USDA's ability to transfer technology. ATIP helps USDA labs and research institutions successfully partner with the private sector for the purpose of collaborating on technology innovation and maturation. The program markets USDA technologies and capabilities and facilitates communications with the private sector. ATIP makes companies aware of both USDA-developed technologies available for commercial licensing, use, and manufacturing, and USDA's research capabilities for solving problems of the agriculture sector. ATIP also conducts market research to establish the value of licensable technologies and help ensure the license applications and commercialization plans received contain appropriate information for a decision on licensing or partnering regarding further development of a technology.</p> <p>Website: http://atipfoundation.com/</p>														
	I-FAST Prize Competition	<p>Program goals: The I-FAST Prize Competition pilot program provides entrepreneurship training to USDA NIFA grantees. The competition aims to identify valuable product opportunities that can emerge from NIFA-supported academic research, to spur translation of that research to the market place, to encourage collaboration between academia and industry, and to train NIFA-funded faculty, students, and other researchers to understand innovation and entrepreneurship.</p>														



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		<p>Program activities: The I-FAST Prize Competition identifies promising NIFA-funded research teams and provides them with support, in the form of mentoring, training, and funding, to accelerate the translation of fundamental research into emerging products and services that can attract subsequent third-party funding. I-FAST teams participate in a 6-month entrepreneurial immersion course provided by the NSF I-Corps program. Leveraging experience and guidance from established entrepreneurs and the NSF I-Corps curriculum, I-FAST teams learn to identify valuable product opportunities that can emerge from USDA NIFA supported academic research. The final goal of the I-FAST Prize Competition is to facilitate technology transfer of innovations that can make an impact in the marketplace and the global economy.</p> <p>Website: https://nifa.usda.gov/program/innovations-food-and-agricultural-science-and-technology-i-fast-prize-competition</p>															
Department of Commerce																	
National Institute of Standards and Technology (NIST)	Associate Director for Innovation and Industry Services	Manufacturing USA	X			X	X				X		X	X		X	
		Designated User Facilities	X		X												
		Domestic Guest Researcher (DGR) Program	X		X		X										
		Hollings Manufacturing Extension Partnership (MEP)	X	X							X	X	X	X	X		
		NIST Entrepreneurs-in-Residence (EIRs)									X		X	X			



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		NIST Science and Technology Entrepreneurship Program (N-STEP)	X							X	X		X	X	X		
Economic Development Administration (EDA)	Office of Innovation and Entrepreneurship	i6 Challenge	X			X					X	X	X	X	X		X
		Seed Fund Support (SFS) Grant											X			X	
Program descriptions	Manufacturing USA	<p>Program goals: Manufacturing USA aims to (1) increase the competitiveness of U.S. manufacturing; (2) facilitate the transition of innovative technologies into scalable, cost-effective, and high-performing domestic manufacturing capabilities; (3) accelerate the development of an advanced manufacturing workforce; and (4) support business models that help institutes become stable and sustainable.</p> <p>Program activities: The program currently consists of 14 public-private partnership institutes, which are established through competed proposals requiring matching funds from the proposing partner organizations. Manufacturing USA institutes focus on moving promising, early stage research into proven capabilities ready for adoption by U.S. manufacturers. The institutes provide members with access to state-of-the-art facilities and equipment, as well as workforce training and skills development customized to support new technology areas. Each institute focuses on a specific technology area; examples include advanced fabrics, biopharmaceuticals, and integrated photonics.</p>															
		Website: https://www.manufacturingusa.com/															
	Designated User Facilities	<p>Program goals: Designated User Facilities aim to support U.S. industry, academic institutions, the National Institute of Standards and Technology (NIST), and other government laboratories in specific areas of research.</p>															



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			<p>Program activities: NIST operates two unique laboratory facilities available for use by approved users from industry, academic institutions, NIST, and other government laboratories: (1) NIST Center for Neutron Research (NCNR); and (2) Center for Nanoscale Science and Technology (CNST). NCNR is a national user facility that provides cold and thermal neutron measurement capabilities. CNST supports the development of nanotechnology from discovery to production.</p>													
			<p>Website: https://www.nist.gov/labs-major-programs/user-facilities</p>													
	DGR Program		<p>Program goals: The DGR Program provides access to NIST facilities and equipment to nongovernment scientists to work with NIST staff on projects of mutual interest.</p>													
			<p>Program activities: The program provides access for technically qualified U.S. citizens to NIST facilities and equipment while working with NIST staff on projects of mutual interest. Research results are available to the public because the DGR Agreement does not provide for confidentiality of research results.</p>													
			<p>Website: https://www.nist.gov/tpo/guest-researchers</p>													
	MEP		<p>Program goals: The MEP Program's overarching mission is to strengthen and empower U.S. manufacturers. The program works primarily with small- and medium-sized U.S. manufacturers to help them create and retain jobs, increase profits, and increase and retain sales.</p>													
			<p>Program activities: The program consists of 51 MEP centers, one in every state and Puerto Rico, that work directly with manufacturers and their local manufacturing communities to strengthen the competitiveness of the nation's domestic manufacturing base. The public-private partnership that is the MEP National Network™ is composed of nonprofit, university-based and state economic development-based organizations, in partnership with the federal government. Each MEP center provides a variety of services to their local manufacturers, including product design and prototyping, design for manufacture/assembly, machine and equipment design, lean process improvement, and other services. Center services are fee-based and designed to be flexible and responsive.</p>													
			<p>Website: https://www.nist.gov/mep</p>													
	NIST EIRs		<p>Program goals: In partnership with the Maryland Technology Development Corporation (TEDCO), NIST EIRs are selected to provide advice and consulting to NIST scientists and tech transfer staff regarding commercialization and entrepreneurship.</p>													



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		<p>Program activities: NIST EIRs hold public seminars about entrepreneurship and commercialization, and meet one-on-one with individual NIST scientists and postdocs about career opportunities in business and entrepreneurship, developing spinoffs and startup companies, and other commercialization topics. They also provide information about the potential commercial viability of new NIST inventions to assist in the patenting and licensing process.</p>														
		<p>Website: NA</p>														
	N-STEP	<p>Program goals: N-STEP aims to provide opportunities for motivated researchers to build upon the experience gained while working at NIST as they explore entrepreneurial careers.</p>														
		<p>Program activities: Maryland TEDCO administers the N-STEP program, which will offer grants to current and former NIST researchers for technology development and commercialization of NIST technologies. The NIST Technology Partnerships Office (TPO) identifies inventions available for licensing that are most appropriate for commercialization, especially by startup and early-stage firms. TEDCO and local economic development organizations help the researchers create startup companies to license and commercialize NIST's inventions. In addition to the funding, NIST and TEDCO will make available a variety of resources, including entrepreneurship training, mentoring, and other resources.</p>														
		<p>Website: http://tedco.md/program/n-step/</p>														
	i6 Challenge	<p>Program goals: The i6 program supports innovation, entrepreneurship, innovative regional economic development, and commercialization of research. Supported projects must focus on one or more of these aims.</p>														
<p>Program activities: The i6 Challenge is one of the two competitions supported by the Regional Innovation Strategies (RIS) Program. The i6 Challenge provides grants to support the creation of centers for innovation and entrepreneurship that increase the rate at which innovations, ideas, intellectual property, and research are translated into products, services, viable companies, and, ultimately, jobs. The i6 grantees offer a range of services to client companies, including events, networking, and referrals; mentoring, coaching, and technical assistance; access to facilities and equipment; technology development support; and financing support.</p>																
<p>Website: https://www.eda.gov/oie/ris/i6/</p>																



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Department of the Navy		Navy Small Business Innovation Research (SBIR)/ Small Business Technology Transfer (STTR) Transition Program (STP)									X	X	X	X			
	Naval Surface Warfare Center, Crane Division (NSWC Crane)	Innovation Discovery Process							X			X	X				
Department of the Air Force		New York Furnace Technology Transfer Accelerator (NY Furnace)							X		X	X	X				
Office of the Secretary of Defense	Office of the Under Secretary of Defense for Acquisition, Technology and Logistics	Joint Capability Technology Demonstration (JCTD)	X		X							X					



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		Rapid Reaction Fund	X		X	X										
	Office of the Assistant Secretary of Defense for Research & Engineering	I-Corps @ DoD									X	X	X		X	
	Defense Advanced Research Projects Agency (DARPA)	SBIR/STTR Transition & Commercialization Support Program (TCSP)									X	X	X	X		
		Defense Innovation Unit Experimental (DIUx)		X	X											X
		MD5 National Security Technology Accelerator (MD5)	X	X	X	X				X	X	X	X	X	X	



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Program descriptions	ManTech Program	Program goals: The Defense-Wide Manufacturing Science & Technology (DMS&T) ManTech Program was established to address cross-cutting, game-changing initiatives that are beyond the scope of any one Military Department or Defense Agency.														
		Program activities: ManTech seeks to address defense manufacturing needs, transition manufacturing R&D processes into production applications, attack manufacturing issues, and explore new opportunities.														
		Website: https://www.dodmantech.com/														
	CRP	Program goals: Part of the Department of Defense's (DoD) SBIR/STTR program, the purpose of the CRP is to accelerate the transition of SBIR and STTR funded technologies to Phase III, especially those that lead to programs of record and fielded systems.														
		Program activities: The CRP enhances the connectivity among SBIR and STTR firms, prime contractors, and DoD science & technology and acquisition communities. It also improves an SBIR or STTR firm's capability to provide the identified technology to the Department, directly or as a subcontractor.														
		Website: http://www.acq.osd.mil/osbp/sbir/sb/crp.shtml														
	AVCI	Program goals: AVCI aims to accelerate product development and efficiently deliver breakthrough, war-winning capabilities through investments in venture-funded companies developing innovative technologies of significant interest to the warfighter that are traditionally beyond the reach of the DoD.														
		Program activities: AVCI is the venture activity of the U.S. Army and DoD that strategically invests in cutting-edge technologies. The model helps build sustainable solutions and is powered by investing along with venture capital firms. AVCI focuses on technologies addressing the needs of the commercial market that will also meet priority warfighter needs. For each dollar AVCI invests in a company, the venture community, on average, invests more than \$22. AVCI's model offers a complement to traditional acquisition and uses a proven commercial investment methodology that results in faster solution identification, product development, continuous enhancements, and is often accompanied by lower costs to the DoD.														
		Website: http://armyvci.org/														
	ARL Open Campus Initiative	Program goals: ARL's Open Campus Initiative is a collaborative endeavor, with the goal of building a science and technology ecosystem that will encourage groundbreaking advances in basic and applied research areas of relevance to the Army.														



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		Program activities: MD5 executes three portfolios of effort: Education promotes workforce development cultivating innovators and intrapreneurs inside DoD (Hacking for Defense, JPME, innovation boot camps, and industry fellowships); Collaboration connects communities of innovators around problems and technologies relevant to national security to enable formation of new ventures (Hackathons, Innovation Challenges, Startup Showcases, and Fed Tech); and Acceleration grows and matures civil-military technology ventures by ensuring that innovators can access critical resources, including DoD R&D infrastructure, to build, test, and enhance venture concepts (Proof-of-Concept Centers, Fulcrum, Hard Tech Studio/Innovator-in-Residence, and Defense Innovation Proving Ground). Website: www.md5.net/														
Department of Energy																
Advanced Research Projects Agency-Energy (ARPA-E)		Tech-to-Market (T2M) Program							X	X	X	X	X			
Office of the Under Secretary for Science and Energy	Office of Energy Efficiency and Renewable Energy (EERE)	Small Business Vouchers (SBV)	X			X							X			
		Cleantech University Prize (Cleantech UP)	X				X			X		X		X		X
		National Incubator Initiative for Clean Energy (NIICE)	X							X	X	X	X			



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		Build4Scale Manufacturing Training for Cleantech Entrepreneurs (Build4Scale)	X								X			X			
		Energy I-Corps (Lab-Corps)									X	X	X		X		
		Incubatenergy Network										X		X			
		Lab-Embedded Entrepreneurship Program	X								X	X					
		Technologist in Residence (TIR) Program	X	X	X					X		X					
		SunShot Incubator	X			X					X	X	X	X			
		SunShot Technology-to-Market (T2M) Initiative	X			X					X	X	X	X			X



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	Office of Science	Argonne National Laboratory Nano Design Works (ADW)	X															
		Argonne Collaborative Center for Energy Storage Science (ACCESS)	X															
		Argonne National Laboratory Chain Reaction Innovations (CRI)	X					X				X	X	X			X	
		Innovation Crossroads	X				X					X	X	X	X			X
		Lawrence Berkeley National Laboratory Cyclotron Road	X								X							X



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		Oak Ridge National Laboratory (ORNL) SPARK!			X							X				
		ORNL Bridging the Gap							X			X				
		ORNL Institute for Advanced Composites Manufacturing Innovation (IACMI)	X									X	X			
		Pacific Northwest National Laboratory Mentor-Protégé Program (MPP)									X		X			
		Pacific Northwest National Laboratory Entrepreneur Support Catalog										X				



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	Office of Nuclear Energy	Gateway for Accelerated Innovation in Nuclear (GAIN)	X									X				
	Office of Technology Transitions	Energy Investment Center (EIC)										X		X		X
		Technology Commercialization Fund (TCF)	X				X				X		X			
Office of the Under Secretary for Nuclear Security and National Nuclear Security Administration	National Nuclear Security Administration	Center for Collaboration and Commercialization (C3)	X							X	X	X	X	X		
		Livermore Valley Open Campus (LVOC)	X						X				X			
Program descriptions	T2M Program	Program goals: The ARPA-E T2M Program aids ARPA-E in transitioning energy technologies from the laboratory towards real-world application. The T2M Program team helps create impact opportunities for funded projects across all ARPA-E program areas.														



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		<p>Program activities: Once a project team has crafted a tech-to-market plan, the ARPA-E T2M team works to align their resources and efforts towards the wants and need of potential technology transition partners. They do this through a range of activities, including providing awardees with market knowledge; providing resources on commercialization best practices; identifying and connecting awardees to strategic opportunities and resources; maintaining and cultivating a strong network across the market/industry; presenting and highlighting ARPA-E projects and technologies to stakeholders across the ecosystem; and identifying and working to mitigate shared obstacles for fielding new energy technologies (regulatory, ecosystem, standards, etc.).</p>														
		<p>Website: https://arpa-e.energy.gov/?q=site-page/tech-market-t2m</p>														
	SBV	<p>Program goals: SBVs help small businesses overcome challenges with prototyping, materials characterization, high-performance computations, modeling and simulations, and validation of technology performance by providing them access to national labs. At the same time, the program increases national lab awareness of the challenges small businesses face in the energy sector.</p>														
		<p>Program activities: Through the SBV program, eligible small businesses can tap into the reserve of national laboratory intellectual and technical assets to overcome critical technology challenges, including prototyping, materials characterization, high performance computations, modeling and simulations, intermediate scaling to generate samples for potential customers, validation of technology performance, and designing new ways to satisfy regulatory compliance. The SunShot Initiative funds vouchers for solar projects under the SBV program, which are valued between \$50,000 and \$300,000 each.</p>														
		<p>Website: https://energy.gov/eere/technology-to-market/small-business-vouchers</p>														
	Cleantech UP	<p>Program goals: Cleantech UP inspires and equips the next generation of clean energy entrepreneurs and innovators by providing them with competitive funding for business development and commercialization training and other educational opportunities.</p>														
<p>Program activities: Eight institutions across the country host annual Cleantech UP Collegiate Competitions, where students receive entrepreneurial support and compete for cash prizes and services to further support the commercialization of their clean energy technologies. The Collegiate Competitions establish team development and training that will aid students in developing the skills to move clean energy technologies from the discovery phase to the marketplace. Winners of the Collegiate Competitions are eligible to compete in the Cleantech UP National Competition run by the Hub. The National Competition, which is the culmination of the Collegiate Competitions, awards an additional \$100,000 in prizes.</p>																



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		Website: https://energy.gov/eere/technology-to-market/cleantech-university-prize-cleantech														
	NIICE	Program goals: NIICE aims to increase coordination and collaboration among incubators across the country and develop best practices to raise incubator performance standards. This effort enables incubators to provide more efficient and effective services to early-stage U.S. companies.														
		Program activities: Through NIICE, EERE funds the first nationwide support organization to connect and build a community of cleantech-focused startup incubators. This network is a community of U.S. clean energy-focused business incubators nationwide that have supported almost 500 companies to date. NIICE also funds several regional cleantech incubators to run programs with commercialization services for startups including mentorship, business development, capital access, and testing and demonstration. These incubators work with the national organization to develop best practices for clean energy incubators that can be replicated nationwide.														
	Website: https://energy.gov/eere/technology-to-market/national-incubator-initiative-clean-energy-niice-0															
Build4Scale	Program goals: Build4Scale provides entrepreneurs with the tools they need to identify and address manufacturing challenges early in the process. The development of the Build4Scale training was informed by the "Manufacturing 101: An Education and Training Curriculum for Hardware Entrepreneurs" report developed by MForesight.															
	Program activities: Build4Scale trains cleantech entrepreneurs on the fundamentals of manufacturing, providing them with the tools and information they need to bring their promising energy solutions to market. The Build4Scale training "tool-kit" includes training for making and evaluating manufacturing-related decisions, understanding product design and development, self-assessment for manufacturing readiness, and basics of manufacturing processes. Lawrence Livermore National Laboratory (LLNL) led the development of the Build4Scale training. LLNL collaborated with more than a dozen partners to develop the training, leveraging their strengths in key areas, including technical knowledge, training module development, and resource networks.															
Website: https://energy.gov/eere/technology-to-market/build4scale-manufacturing-training-cleantech-entrepreneurs																
Energy I-Corps	Program goals: Energy I-Corps aims to accelerate the commercialization of clean energy technologies from the Department of Energy (DOE) national laboratories by utilizing the NSF's I-Corps model. I-Corps is an intensive, structured, and curriculum-based program designed to educate early stage technology developers on business model development and the value of customer discovery.															



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		<p>Program activities: Energy I-Corps pairs teams of researchers with industry mentors for an intensive two-month training where the researchers define technology value propositions, conduct customer discovery interviews, and develop viable market pathways for their technologies. Researchers return to the lab with a framework for industry engagement to guide future research and inform a culture of market awareness within the labs. Energy I-Corps is managed by DOE's National Renewable Energy Laboratory (NREL), which leads curriculum development and execution, recruits program instructors and industry mentors, and assembles teams from 10 national labs.</p>														
		<p>Website: https://energy.gov/eere/technology-to-market/energy-i-corps</p>														
	Lab-Embedded Entrepreneurship Program	<p>Program goals: The Lab-Embedded Entrepreneurship Program provides an institutional home for researchers to build their research into products and train to be entrepreneurs.</p>														
		<p>Program activities: The Lab-Embedded Entrepreneurship Program takes top entrepreneurial scientists and engineers and embeds them within the U.S. national laboratories to perform applied R&D with the express goal of launching a clean energy business. In addition to technological access and support, the program trains innovators to develop entrepreneurial acumen and skills, while introducing them to the ecosystem partners needed to facilitate commercial and investment opportunities. This dual focus on R&D and entrepreneurial development provides innovators with the platform they need to take their ideas from the lab and onto the commercialization pathway.</p>														
		<p>Website: https://energy.gov/eere/technology-to-market/lab-embedded-entrepreneurship-program</p>														
	TIR Program	<p>Program goals: The goals of the TIR program are to (1) increase collaborative R&D between national laboratories and private sector companies; and (2) develop a streamlined method for companies to establish long-term relationships with national laboratories that result in collaborative R&D.</p>														
<p>Program activities: The TIR program is designed to streamline engagement and increase collaborative R&D between national labs and private sector companies. The program competitively selects "technologist pairs" – a senior technical staff member from a national lab and a counterpart senior technical staff member from a manufacturing company or consortium of companies – that focus on building strong new R&D relationships between the respective companies and national labs. These partnerships focus on identifying the challenges of interest, and applicable resources and capabilities within the national labs; proposing collaborative R&D solutions; and developing an agreement and scope of work that would address one or more identified challenges.</p>																



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		Website: https://energy.gov/eere/cemi/technologist-residence-program														
	SunShot Incubator	<p>Program goals: The SunShot Incubator aims to shorten the time it takes for a young business or company to develop an innovative product concept and make it commercially available, which includes product prototyping, deployment, and, potentially, manufacturing. Most projects are cooperative agreements that last from 12 to 18 months with payment made upon completion and verification of aggressive project deliverables.</p> <p>Program activities: The SunShot Incubator program provides early-stage assistance to help startup companies cross technological barriers to commercialization while encouraging private sector investment. By taking innovations and putting them through a rigorous de-risking process, the Incubator program allows entrepreneurs to focus on rapid commercialization. Early-stage Incubator assistance enables startup businesses to cross critical technological barriers that the investment community is unable to address. Once these key risks are addressed, the startup businesses are ideally suited for private follow-on funding and success.</p>														
		Website: https://energy.gov/eere/sunshot/sunshot-incubator-program														
	SunShot T2M Initiative	<p>Program goals: The projects funded by the SunShot T2M subprogram aim to catalyze the continued development of the U.S. solar market and the continued expansion of U.S. manufacturing of solar products in order to achieve the 2020 SunShot goals. The T2M Initiative targets two funding gaps for energy technologies: those that occur at the prototype commercialization stage and those at the commercial scale-up stage.</p> <p>Program activities: There are four main funding programs under the SunShot T2M Initiative, each of which addresses innovations in technology development, supply chain, and/or manufacturing. The four main T2M funding programs are: (1) SunShot's Incubator program, which provides early-stage assistance to companies; (2) SBIR and STTR programs which encourage U.S.-based small businesses to engage in R&D; (3) the Solar Manufacturing Technology (SolarMaT) program, which funds the development of manufacturing technologies; and (4) the SunShot Photovoltaic Manufacturing Initiative (PVMI), which focuses on manufacturing R&D projects.</p>														
		Website: https://energy.gov/eere/sunshot/technology-market														
	ADW	Program goals: ADW provides services to strengthen the impact and support the acceleration of discoveries to market, helping the U.S. remain a leader in global nanotechnology.														



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		<p>Program activities: ADW provides a central point of contact for companies—ranging from large industrial entities to smaller businesses and startups, as well as government agencies—to benefit from Argonne National Lab's world-class expertise, scientific tools and facilities in the field of nanotechnology. Argonne National Lab has the capacity to fully comprehend the function of materials in three key areas: (1) fabrication and synthesis, (2) characterization of nanoscale materials, and (3) predictive understanding through modeling and simulation.</p> <p>Website: https://argonnedesignworks.anl.gov/</p>														
	ACCESS	<p>Program goals: ACCESS helps public and private-sector customers solve energy storage problems through multidisciplinary research.</p> <p>Program activities: ACCESS provides a central point of contact for companies to benefit from Argonne National Lab's world-class expertise, scientific tools, and facilities in the field of energy storage. ACCESS assembles collaborative teams drawn from Argonne National Lab's 1,400 scientists and engineers, who represent dozens of disciplines, to help clients in several key areas related to energy storage, including discovery of new materials and properties, materials characterization, process scale-up, process and systems modeling, cell fabrication, and performance testing.</p> <p>Website: https://access.anl.gov/</p>														
	Argonne National Laboratory CRI	<p>Program goals: Argonne National Laboratory CRI identifies innovators with ideas for energy- and science-based technologies that can have a significant impact on the lives of billions of people.</p> <p>Program activities: CRI is a two-year program for innovators focusing on energy and science technologies. Program participants receive the financial and technical support needed to mature nascent technologies that face long development cycles to the proof-of-concept level. CRI gives teams of innovators a two-year runway to develop and scale their technologies while being supported through fellowship funding that covers salary, benefits, and use of laboratory equipment and office space. Through partnerships with mentor organizations, CRI participants get assistance developing business strategies, conducting market research, and finding long-term financing and potential commercial partners. CRI is one of the Lab-Embedded Entrepreneurship Programs.</p> <p>Website: https://chainreaction.anl.gov/</p>														
	Innovation Crossroads	<p>Program goals: Through Innovation Crossroads, ORNL matches aspiring energy entrepreneurs with technology leaders, experienced mentors, and business and investment networks in technology-related fields that can help accelerate the transition of their world-changing ideas to the marketplace.</p>														



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		<p>Program activities: Through an annual call, the Innovation Crossroads program selects up to five entrepreneurs to help transform their ideas into energy and advanced manufacturing companies with financial support from the DOE's EERE. Innovators receive a fellowship that covers living costs, benefits and a travel stipend for up to two years, plus up to \$350,000 to use on collaborative research and development at ORNL. Each innovator is also paired with a doctoral student from the University of Tennessee's Bredesen Center for Interdisciplinary Research and Graduate Education for assistance with market research and customer discovery.</p> <p>Website: https://innovationcrossroads.ornl.gov/</p>														
		<p>Program goals: Cyclotron Road aims to empower scientists to advance hard technologies from concept to viable first product, positioning them for broad societal impact in the long term.</p> <p>Program activities: Cyclotron Road's Cohort Program is a two-year fellowship that supports scientists developing energy technologies that have potential for broad impact on the national, economic, and energy security of the U.S. Cohort innovators spend two years embedded at Lawrence Berkeley National Laboratory with an explicit mandate to bring their ideas to the point of commercial viability. Cyclotron Road participants receive access to facilities, equipment, and expertise at Lawrence Berkeley National Laboratory, as well as a small amount of initial research funding to facilitate access and collaboration with the Lab's staff scientists. Innovators fully own or jointly own all intellectual property developed during the program. Cyclotron Road is one of the Lab-Embedded Entrepreneurship Programs.</p> <p>Website: http://www.cyclotronroad.org/</p>														
	Lawrence Berkeley National Laboratory Cyclotron Road															
	ORNL SPARK!															
	ORNL Bridging the Gap															



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		Website: https://www.ornl.gov/partnerships/entrepreneurial-development-programs														
	ORNL IACMI	Program goals: IACMI aims to increase domestic production capacity, grow manufacturing, and create jobs across the U.S. composite industry.														
		Program activities: IACMI, managed by the Collaborative Composite Solutions Corporation (CCS), is a partnership of industry, universities, national laboratories, and federal, state, and local governments working together to benefit the nation's energy and economic security by sharing existing resources and co-investing to accelerate development and commercial deployment of advanced composites. CCS is a not-for-profit organization established by The University of Tennessee Research Foundation. IACMI partners focus on accelerating development and adoption of cutting-edge manufacturing technologies for low-cost, energy-efficient manufacturing of advanced polymer composites for vehicles, wind turbines, and compressed gas storage.														
		Website: https://www.ornl.gov/partnerships/iacmi														
	Pacific Northwest National Laboratory MPP	Program goals: MPP assists in the creation, stabilization, and growth of regional technology-based businesses by providing a network of individuals experienced in business (mentors) able and willing to provide guidance to regional companies/individuals (protégés).														
		Program activities: Potential protégés initiate the process by requesting a mentor for a specific business challenge. Through the MPP, protégés are introduced to one or more qualified mentors, who will assist them for an agreed upon period (typically 6–24 months). Mentors and protégés may continue their relationship independent of the MPP following completion of the formal mentoring engagement. In general, protégés receive the obvious benefit of learning from a mentor's experience. They may also receive specific assistance in things like writing business and sales plans, uncovering new market opportunities for products and services, preparing financial projections, and others.														
		Website: http://www.pnnl.gov/edo/mentor/														
	Pacific Northwest National Laboratory Entrepreneur Support Catalog	Program goals: The Entrepreneur Support Catalog provides an online database to help small businesses and entrepreneurs in the Tri-Cities, Washington area find support to prosper and grow. It is also intended to help the economic development organizations listed make referrals to other organizations.														
		Program activities: The Entrepreneur Support Catalog is an online database of economic development and entrepreneurial support organizations. All of the information in the Entrepreneur Support Catalog is added and maintained by the organizations listed. The database contains information about not-for-profit organizations only, although some of the organizations listed will make referrals to for-profit organizations (e.g., accountants) as appropriate.														



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		Website: http://www.pnnl.gov/edo/Default.aspx?topic=Entrepreneur_Support_Catalog														
	GAIN	Program goals: GAIN provides the nuclear energy community with access to the technical, regulatory, and financial support necessary to move new or advanced nuclear reactor designs toward commercialization while ensuring the continued safe, reliable, and economic operation of the existing nuclear fleet.														
		Program activities: GAIN provides the nuclear community with a single point of access to the broad range of capabilities – people, facilities, materials, and data – across the DOE complex and its National Lab capabilities. Focused research opportunities and dedicated industry engagement are also important components of GAIN, ensuring that DOE-sponsored activities are impactful to companies working to realize the full potential of nuclear energy. The capabilities accessible through GAIN include experimental capabilities, with primary emphasis on nuclear and radiological facilities; computational capabilities; information and data; and land use and site information for demonstration facilities.														
		Website: https://gain.inl.gov/SitePages/Home.aspx														
	EIC	Program goals: The EIC builds bridges to the private sector to facilitate the public-private partnerships needed to unshackle domestic innovation and assert U.S. leadership in the global energy technology race and marketplace that is fast-developing around the world.														
		Program activities: EIC assists and supports investors and businesses by providing a one-stop-shop to get connected with world-leading energy experts, acquire the latest research studies and reports, and identify promising funding opportunities and promising energy products. EIC offers: (1) Laboratory-Investor Knowledge Series (LINKS), which coordinate meetings across the country between DOE labs and with investors to discuss partnership opportunities; (2) Laboratory Partnering Service (LPS), an online platform that enables access to energy experts within the DOE national laboratory network; (3) Innovation Interface (I2), a forum for information exchange between investors and DOE program managers; and (4) Technical Assistance.														
Website: https://energy.gov/technologytransitions/us-department-energys-energy-investor-center																
TCF	Program goals: TCF aims to (1) increase the number of energy technologies developed at DOE's national labs that graduate to commercial development and achieve commercial impact, and (2) enhance DOE's technology transitions system with a forward-looking and competitive approach to lab-industry partnerships.															



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Department of Health and Human Services		<p>Program activities: The TCF is a nearly \$20 million funding opportunity that leverages the R&D funding in applied energy programs to mature promising energy technologies with the potential for high impact. These funds are matched with funds from private partners to promote promising energy technologies for commercial purposes. There are three key areas within DOE where the TCF enhances technology transitions efforts: (1) national lab technology maturation; (2) strategic CRADA (Cooperative Research and Development Agreement) approach to increase commercial impact; and (3) focused industry engagement to identify high-quality partners.</p>														
		<p>Website: https://energy.gov/technologytransitions/services/technology-commercialization-fund</p>														
	C3	<p>Program goals: The proposed C3 will serve as a public face for Sandia National Laboratories, facilitating access to the Labs and building linkages with the community.</p>														
		<p>Program activities: Located in the Sandia Science & Technology Park (SS&TP), C3 will be a multi-tenant facility dedicated to increasing Sandia's collaboration and commercialization activities. C3 will offer spaces for lease along with programs and services for tenants and partners, all designed to facilitate successful partnerships. C3 will offer many programs and services, including: Entrepreneur Training, Small Business Assistance, Interactive Intellectual Property Library, Tech Maturation, Investor Access, Scientific and Technical Consulting, Technology Showcase, and Mentors.</p>														
		<p>Website: https://sstp.org/c3</p>														
	LVOC	<p>Program goals: LVOC creates a novel venue for collaborations between experts from Lawrence Livermore National Laboratory and Sandia National Laboratories and experts outside the labs.</p>														
<p>Program activities: LVOC is an innovation hub along the boundaries of Lawrence Livermore National Laboratory and Sandia National Laboratories. LVOC is an open, unclassified R&D space intended to foster research on current and future national security challenges in areas such as high performance computing, energy and environmental security, cybersecurity, economic security, and non-proliferation. Modeled in part after research and development campuses found at major industrial research parks and other DOE laboratories, LVOC has a set of business and operating rules devised to enhance and accelerate international scientific collaboration and partnerships with U.S. government agencies, industry, and academia.</p>																
		<p>Website: https://lvoc.org/</p>														



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National Institutes of Health (NIH)	Office of the Director	Commercialization Accelerator Program (CAP)									X	X	X	X			
		I-Corps at NIH									X	X	X		X		
		Niche Assessment Program												X			
		Neuro Startup Challenge		X						X					X		X
	National Heart Lung and Blood Institute (NHLBI)	NIH Centers for Accelerated Innovations (NCAI)	X				X					X	X	X	X	X	
		Research Evaluation and Commercialization Hubs (REACH)	X				X					X	X	X	X	X	
		SBIR Phase IIB Bridge Award	X				X							X			
		SBIR Phase IIB Small Market Award	X				X							X			



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		Bridging Interventional Development Gaps (BrIDGs)	X													
Centers for Disease Control and Prevention (CDC)	Office of the Director	Innovation Fund (iFund)	X			X					X					
		Ideation Catalyst (I-Catalyst)									X		X		X	
Program descriptions	CAP	<p>Program goals: The NIH CAP mentors and assists the agency's most promising small life science and healthcare SBIR/STTR Phase II awardees in developing commercial businesses and transitioning SBIR/STTR-funded technologies into the marketplace.</p> <p>Program activities: Offered annually, CAP provides selected participants with individualized assistance toward accomplishing key commercialization goals. The program assists participants in evaluating commercialization options based on their specific technologies (including the need and prospect for investment, strategic partnerships, or licensing) and in developing an 18-month market-entry plan. This is achieved through individual mentoring and consulting sessions, training workshops, access to domain experts, and focus on outcomes that will enhance the commercialization profile and readiness of participating awardees. The program is customized to meet the needs of participating companies in three distinct tracks: (1) Commercialization Transition Track (CTT) for emerging companies, (2) Advanced Commercialization Track (ACT), and (3) Regulatory/Reimbursement Training Track (RTT) for "seasoned" companies.</p> <p>Website: https://sbir.nih.gov/cap</p>														
		<p>Program goals: Based on the NSF I-Corps program, I-Corps at NIH provides participants with real-world, hands-on entrepreneurship training in the life science and biotechnology sectors in order to accelerate the translation of innovations from the lab to clinical practice.</p>														
		<p>I-Corps at NIH</p>														



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			<p>Program activities: REACHs are unique public-private partnerships featuring expertise and resources from the federal government, academia, and the private-sector that change the way discoveries with scientific and commercial potential are identified and developed. The program gives upstream consideration to commercial and business issues and uses industry-style project management with go/no-go milestones to develop de-risked technologies with well-designed business cases primed for licensing or startup company formation. The program enables the development of self-sustaining biomedical technology development ecosystems that encourage the conversion of laboratory discoveries into products and services and disseminates best practices for translating academic innovations into new drugs, devices, and diagnostics to other agencies, institutions, and regions across the nation.</p>													
			<p>Website: https://ncai.nhlbi.nih.gov/ncai/</p>													
	NHLBI SBIR Phase IIB Bridge Award		<p>Program goals: NHLBI SBIR Phase IIB Bridge Awards facilitate and accelerate the capital-intensive steps that are required to transition SBIR/STTR Phase II projects to the commercialization stage by promoting partnerships between SBIR/STTR Phase II awardees and third-party investors and/or strategic partners.</p> <p>Program activities: The Bridge Award encourages business relationships between applicant small business concerns and third-party investors/strategic partners who can provide substantial financing to help accelerate the commercialization of promising new products and technologies that were initiated with SBIR/STTR funding. Applicants are expected to leverage their previous SBIR/STTR support in conjunction with the NHLBI Bridge Award funds to attract and negotiate third-party financing needed to advance a product or technology toward commercialization. The applicant's ability to secure independent third-party investor funds that equal or exceed the total amount of the NHLBI funds being requested over the entire Bridge Award project period helps validate the commercial potential that is essential for the projects solicited under the Bridge Award program.</p>													
			<p>Website: www.nhlbi.nih.gov/research/funding/sbir/funding-opportunities/targeted-funding/bridge-award</p>													
	NHLBI SBIR Phase IIB Small Market Award		<p>Program goals: The NHLBI SBIR Phase IIB Small Market Award provides support to Phase II SBIR or STTR awardees developing NHLBI mission-related technologies that address a rare disease or young pediatric populations.</p>													



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		<p>Program activities: The Small Market Award encourages business relationships between applicants and third-party investors/strategic partners who can provide substantial financing to help accelerate the commercialization of promising new products and technologies that were initiated with SBIR/STTR funding. Applicants are expected to leverage their previous SBIR/STTR support, in conjunction with the NHLBI Small Market Award funds to attract and negotiate third-party financing needed to advance a technology toward commercialization. The applicant's ability to secure independent third-party investor funds that equal or exceed one-third of the NHLBI funds being requested over the entire project period helps validate the commercial potential that is essential for the projects solicited under this program. Projects supported by this award must require eventual Federal regulatory approval/clearance and be focused on commercializing biomedical technologies for rare diseases and/or young pediatric populations, and may address preclinical and/or clinical stages of technology development.</p>														
		<p>Website: www.nhlbi.nih.gov/research/funding/sbir/small-market-awards</p>														
		<p>Program goals: NCI SBIR Phase IIB Bridge Awards support the next stage of development for federally funded SBIR Phase II projects in the areas of cancer therapeutics, imaging technologies, interventional devices, diagnostics, and prognostics.</p>														
	NCI SBIR Phase IIB Bridge Award	<p>Program activities: This award addresses the "Valley of Death" funding gap between the end of the SBIR Phase II award and the subsequent round of financing needed to advance a product or service toward commercialization for projects in the technical/scientific areas of cancer therapeutics; cancer imaging technologies, interventional devices, and in vivo diagnostics; and/or in vitro and ex vivo cancer diagnostics and prognostics. To achieve this goal, the funding opportunity incentivized partnerships between federally-funded SBIR Phase II awardees and third-party investors and/or strategic partners. Preference is given to applications deemed likely to result in a commercial product, as indicated by the applicant's ability to secure substantial independent third-party investor funds. Applicants must provide a commercialization plan that describes the long-term commercialization strategy and details on any independent third-party investor funding that has already been secured or will be provided during the Bridge Award project period.</p>														
		<p>Website: https://sbir.cancer.gov/bridge</p>														
	SBIR FRAC Workshop	<p>Program goals: The SBIR FRAC Workshop provides awardees an opportunity to learn how to utilize federal and local resources in order to advance commercialization.</p>														
<p>Program activities: The NCI SBIR Development Center FRAC Workshop is a two-day event open to current NCI SBIR/STTR awardees. The workshop brings together representatives from federal agencies including the FDA, CMS, and BARDA, as well as experts from local and private organizations to share their expertise with attending companies. Attendees also have a chance to engage in one-on-one meetings with their respective Program Directors, as well as with speakers at the event.</p>																



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		Website: https://sbir.cancer.gov/node/277														
	Breast Cancer Startup Challenge	Program goals: The Breast Cancer Startup Challenge was a business plan and startup competition to accelerate the commercialization of inventions conceived and developed by NCI scientists and Avon Foundation grantees.														
		Program activities: The Breast Cancer Startup Challenge leveraged 10 research technologies that were judged to show great promise to advance breast cancer research. These inventions included therapeutics, diagnostics, prognostics, one device, one vaccine, one delivery system, and one health IT invention. Teams of business, legal, medical/scientific, engineering, computer science students and seasoned entrepreneurs evaluated these technologies to create business plans and start new companies to develop and commercialize them. Winners and finalists in the Breast Cancer Startup Challenge were not only recognized for creating a business plan and pitch, but were also invited to launch a startup, negotiate licensing agreements, and raise seed funding to further develop the inventions.														
		Website: http://www.breastcancerstartupchallenge.com/														
	Nanotechnology Startup Challenge in Cancer	Program goals: The Nanotechnology Startup Challenge in Cancer is a business plan and startup competition that leverages inventions available for licensing from NCI to accelerate the translation and development of nanotechnology solutions for the early detection, diagnosis, and treatment of cancer.														
		Program activities: CAI evaluated NCI's portfolio to identify those inventions with the strongest commercial viability. These inventions were eligible for use in the Nanotechnology Startup Challenge in Cancer. The Nanotechnology Startup Challenge in Cancer involves four phases. In Phase 0, teams outline their intent to participate in the Nanotechnology Startup Challenge in Cancer by providing information regarding the invention they will develop their business plan around, details and backgrounds of the members of their team, and how team members meet eligibility requirements. In Phase 1: Elevator Speech, teams develop a two-minute elevator speech via recorded video; a 350-word executive summary outlining potential commercial product(s); and a company vision. Winners of Phase 1 move on to Phase 2: Business Plan, in which the teams develop a 10-page business plan with a detailed financial plan and present a 20 minute "live" pitch to the challenge judges. Winners of this phase receive a \$2000 award as well as move on to Phase 3: Startup. In Phase 3, teams launch their startups, including incorporation, applying for licenses, and executing other regulatory/developmental needs.														
		Website: http://www.nscsquared.org/														



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	Invention Development Program	<p>Program goals: The Invention Development Program accelerates the development of selected technologies through the early stages of validation to inform critical decision points in the patenting process.</p>														
		<p>Program activities: The Invention Development Program accelerates development of NCI's inventions by providing funding for studies conducted by Leidos Biomedical Research to demonstrate proof-of-principle. NCI identified 21 inventions from its portfolio that were in need of specific data to attract commercial interest. The inventions were evaluated based on uniqueness, patent status, public health benefit, stage of research, patent filing date, and cost. A review committee composed of NCI scientists with experience in drug development and preclinical validation reviewed the 21 inventions and selected eight inventions as top candidates for the program. The eight technologies that moved forward in the pilot program are in various phases of in vivo studies. Five inventions in the program have yielded actionable data so far.</p>														
		<p>Website: NA</p>														
	TRND	<p>Program goals: The TRND program supports pre-clinical development of therapeutic candidates intended to treat rare or neglected disorders, with the goal of enabling an Investigational New Drug (IND) application to the Food and Drug Administration (FDA).</p>														
		<p>Program activities: The TRND program encourages and speeds the development of new treatments for diseases with high unmet medical needs. The program advances the entire field of therapeutic development by encouraging scientific and technological innovations to improve success rates in the crucial pre-clinical stage of development. TRND stimulates therapeutic development research collaborations among NIH and academic scientists, nonprofit organizations, and pharmaceutical and biotechnology companies working on rare and neglected illnesses. The program provides NIH's rare and neglected disease drug development capabilities, expertise, clinical resources, and regulatory expertise to research partners to optimize promising therapeutics and move them through pre-clinical testing, with the goal to generate sufficient-quality data to support successful IND applications and first-in-human studies in limited circumstances.</p>														
	<p>Website: https://ncats.nih.gov/trnd</p>															
BrIDGs	<p>Program goals: The BrIDGs program enables research collaborations to advance candidate therapeutics for both common and rare diseases through late-stage pre-clinical development toward an IND application and clinical testing.</p>															



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			Tech. devt.	Tech. scouting	Govt. need	Financial support	Talent devt.	Standard setting	IP mgmt./tech. transfer	Business training	Business networks	Business mentors and peers	Business services	Talent devt.	Liability protn.	Financial support	
Department of Homeland Security		<p>Program activities: Investigators do not receive grant funds through this program. Instead, selected researchers partner with NCATS experts to generate pre-clinical data and clinical-grade material through government contracts for use in IND applications to a regulatory authority such as the FDA. BrIDGs provides synthesis, formulation, pharmacokinetic and toxicology expertise and resources to its collaborators.</p> <p>Website: https://ncats.nih.gov/bridgs</p>															
		<p>Program goals: The iFund supports the design and development of innovations that show promise for making a substantial impact on public health and how the CDC accomplishes its mission.</p> <p>Program activities: The iFund seeks to promote the inventiveness and creativity of the CDC community in the design and development of new innovations which show promise for making a substantial impact on public health and how we accomplish our mission. The iFund provides intramural funding and support to CDC staff to develop initial proof of concept "prototypes" and pilot projects, or scale up more mature projects that have been proven effective through pilot or replication studies.</p> <p>Website: https://www.cdc.gov/od/science/technology/innovation/innovationfund.htm</p>															
	iFund	<p>Program goals: I-Catalyst program trains CDC scientists to transform ideas into solutions.</p> <p>Program activities: I-Catalyst is an internal innovation training program intended to help CDC teams transform ideas into solutions. I-Catalyst is designed to help teams get their ideas out of the starting blocks and down the track through a discovery, ideation, and prototyping process. I-Catalyst is based on the NSF's successful I-Corps program.</p> <p>Website: NA</p>															



Agency	Office	Program	Science and technology development							Enterprise development							
			Tech. devt.	Tech. scouting	Govt. need	Financial support	Talent devt.	Standard setting	IP mgmt./tech. transfer	Business training	Business networks	Business mentors and peers	Business services	Talent devt.	Liability protn.	Financial support	
Science and Technology Directorate (S&T)	Office of Research and Development Partnerships (RDP)	Support Anti-Terrorism by Fostering Effective Technologies Act (SAFETY Act)													X		
		Technology Scouting and Horizon Scanning		X	X												
		Centers of Excellence (COEs)	X		X	X	X										
	Homeland Security Advanced Research Projects Agency (HSARPA)	HSARPA	X		X	X											
		Transition to Practice Program (TPP)	X						X			X	X	X			
		Homeland Security Innovation Program (HSIP)	X		X	X			X		X	X					
		Silicon Valley Office (SVO)	X		X	X					X						



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	Support to the Homeland Security Enterprise and First Responders Group (FRG)	EMERGE Accelerator			X						X		X			
Program descriptions	SAFETY Act	<p>Program goals: The SAFETY Act aims to designate anti-terrorism technologies that qualify for protection under the system of risk management. The program incentivizes the private sector to commit additional resources to significantly improve anti-terrorism preparedness and resiliency by reducing private sector risk and liability for developing anti-terrorism technologies.</p>														
		<p>Program activities: This program provides liability protections for claims resulting from an act of terrorism and provides legal liability protection for providers of qualified anti-terrorism technologies. The SAFETY Act provides two levels of liability protections: (1) designation, where the seller's liability for products or services is limited to the amount of liability insurance that the Department of Homeland Security (DHS) determines the seller must maintain; and (2) certification, which allows a seller of anti-terrorism technology to assert the Government Contractor Defense for claims arising from acts of terrorism.</p>														
		<p>Website: https://www.safetyact.gov/pages/homepages/Home.do</p>														
	Technology Scouting and Horizon Scanning	<p>Program goals: Technology Scouting aims to provide DHS S&T with a foundation for program decisions and help shape program priorities. Technology scouting shapes the way DHS S&T discovers, monitors, and assesses new and emerging technologies critical to homeland security. The program goals are to improve the availability of technology alternatives, increase the speed of project execution, and reduce costs for projects.</p>														
<p>Program activities: The technology scouting program provides program managers with a better understanding of the state of technology, including new and emerging technology, market analysis, and private sector innovation landscapes. The program does this in two ways: (1) technology scouting, which maps patent landscapes, finds federal laboratory technology, analyzes venture capital firms, and looks across relevant markets for a technology that will meet S&T needs; and (2) horizon scanning, which maintains constant awareness of the technology space to inform project managers of impactful breakthroughs or alternatives.</p>																
<p>Website: https://www.dhs.gov/publication/technology-scouting-and-horizon-scanning</p>																



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	COEs	Program goals: COEs establish a coordinated, university-based system to enhance the nation's homeland security.														
		Program activities: COEs develop multidisciplinary, customer-driven, innovative tools and technologies to solve real-world homeland security challenges and help train the next generation of homeland security experts. The COEs assist the homeland security community with specialized research, expertise, and facilities. Each COE focuses on a specific set of DHS-relevant challenges and addresses these challenges with multidisciplinary, customer-driven research and technology development. The COEs also provide their knowledge and technology to assist in rapid response and emergency operations.														
		Website: https://www.dhs.gov/science-and-technology/centers-excellence														
	HSARPA	Program goals: HSARPA awards competitive, merit-reviewed grants, cooperative agreements, or contracts to public or private entities, including businesses, federally funded research and development centers, and universities that support basic and applied homeland security research that promotes revolutionary changes in technologies.														
		Program activities: HSARPA conducts analysis to understand current missions, systems and processes and helps identify operational gaps where new technologies can have the most impact. HSARPA develops, tests and evaluates these new homeland security technologies and capabilities. HSARPA delivers usable, scalable, cost-effective, mission-focused capabilities to DHS components and other homeland security enterprise partners. The team also advises partners on science, technology, and industry developments with respect to mission, threats, and opportunities.														
		Website: https://www.dhs.gov/science-and-technology/hsarpa														
TPP	Program goals: TPP aims to (1) identify mature technologies that address an existing or imminent cybersecurity gap in public or private systems that impacts national security; (2) increase use through partnerships, product development efforts, and marketing strategies; and (3) improve the long-term ability for federal government research labs to transition technology more efficiently.															
	Program activities: TTP conducts tech foraging to identify promising cybersecurity technologies from several sources of federally funded R&D. Approximately eight new technologies are selected by TTP every year. The TTP transition process includes training, market validation, testing and evaluation, pilot deployment, and outreach. Technologies are introduced to potential partners, investors, and integrators, and showcased at a national series of Technology Demonstration Days. TTP supports multiple paths to transition, including open source, licensing, startups, adoption by cyber operators, and government use.															



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		Website: https://www.dhs.gov/science-and-technology/csd-ttp														
	HSIP	Program goals: HSIP generates innovation in hubs around the nation and the world to solve DHS's most difficult challenges. The program aims to use existing procurement authorities to mirror the process and pace of Silicon Valley and other innovative investment communities.														
		Program activities: HSIP uses Innovation Other Transaction Solicitations (OTSs) to work with non-traditional performers. These Innovation OTSs are open to all innovation ecosystems and offer up to \$800k in funding over 24 months. The Innovation OTS program offers several advantages to performers, including the government as an early adopter, no dilution of ownership, and pilots and operator feedback. The HSIP regional programs help companies better understand DHS, S&T, DHS components, the homeland security mission, and how innovation corridors can help the government solve problems across the Homeland Security Enterprise.														
		Website: https://www.dhs.gov/science-and-technology/hsip														
	SVO	Program gals: The DHS SVO cultivates a pipeline for non-traditional partners who have typically never done business with the government to develop solutions for the toughest homeland security challenges.														
		Program activities: The SVO helps DHS keep pace with the innovation community in order to tackle the hardest problems faced by the DHS. SVO cultivates relationships with technology companies from small startups to larger firms, incubators and accelerators, to help them better understand DHS's operational mission. SVO also co-invests in promising technologies to accelerate transition to market, demonstrate, and pilot near-term technologies that could better protect the homeland, fund new research and development using forward-leaning acquisition methods (such as accelerators and prize competitions), and transition emerging innovative technology into DHS programs and the Homeland Security Enterprise.														
		Website: https://www.dhs.gov/publication/silicon-valley-office														
EMERGE Accelerator	Program goals: EMERGE is a pilot for entrepreneurs designed to accelerate the development of technologies that address the unique needs of first responders by providing early market validation, test and evaluation opportunities, and paths to introduce those technologies to a variety of markets, including partners in the public sector.															



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		<p>Program activities: EMERGE participants are provided with business development education and connected with mentors to produce next generation innovative wearable technology. The EMERGE Accelerator program works with the Center for Innovation Technology and business accelerators TechNexus and Tech Wildcatters, to educate the investment, entrepreneurial, and startup communities on these specific homeland security needs. In 2015, the program selected around twenty startups and second-stage companies from roughly a hundred candidates. In 2016, the program selected 10 startups from over 260 candidates and worked with over 200 accelerators, incubators, and university partners across 149 cities.</p> <p>Website: https://www.dhs.gov/publication/emerge-accelerator-program</p>														
Department of Transportation																
Federal Highway Administration (FHWA)	Office of Innovative Program Delivery	State Transportation Innovation Council (STIC) Incentive Program		X	X	X						X				
		Every Day Counts (EDC) Program		X	X							X		X		
		Accelerated Innovation Deployment (AID) Demonstration Program		X	X											
Program descriptions	STIC Incentive Program	<p>Program goals: The STIC Incentive Program offers technical assistance and resources to support the standardization of innovative practices among state transportation agencies and other public sector stakeholders.</p>														



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			<p>Program activities: The STIC Incentive Program provides up to \$100,000 per State per Federal fiscal year to STICs to support or offset the costs of standardizing innovative practices in a State transportation agency (STA) or other public sector STIC stakeholder. STIC Incentive Program funding may be used to conduct internal assessments; build capacity; develop guidance, standards, and specifications; implement system process changes; organize peer exchanges; offset implementation costs; or conduct other activities the STIC identifies to address Technology and Innovation Deployment Program (TIDP) goals.</p>													
			<p>Website: https://www.fhwa.dot.gov/innovation/stic/</p>													
	EDC Program		<p>Program goals: The EDC Program is a state-based model for the identification and rapid deployment of proven but underutilized innovations to shorten the project delivery process, enhance roadway safety, reduce congestion, and improve environmental sustainability.</p>													
			<p>Program activities: Every two years FHWA works with state and local transportation agencies and industry stakeholders to select a new collection of innovations to champion based on market readiness, impacts, benefits, and ease of adoption. Transportation leaders from across the country gather at regional summits to discuss the EDC technologies for deployment, identify the innovations that make the most sense for their unique program needs, establish performance goals, and commit to finding opportunities to get those innovations into practice over the next two years. Throughout the two-year deployment cycle, specifications, best practices, lessons learned, and relevant data are shared among stakeholders through case studies, webinars, and demonstration projects.</p>													
			<p>Website: https://www.fhwa.dot.gov/innovation/everydaycounts/</p>													
	AID Demonstration Program		<p>Program goals: The AID Demonstration program provides incentive funding for eligible entities to accelerate the implementation and adoption of innovations in highway transportation.</p>													
		<p>Program activities: The AID Demonstration program provides funding to state departments of transportation (DOTs), federal land management agencies, and tribal governments that covers the cost of implementation and adoption of an innovation being deployed in a highway transportation project. AID Demonstration projects may involve any phase of a highway transportation project between project planning and project delivery including planning, financing, operation, structures, materials, pavements, environment, and construction and must include an innovation proven as a real-world highway transportation application but not routinely used by the applicant.</p>														
		<p>Website: https://www.fhwa.dot.gov/innovation/grants/</p>														



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Environmental Protection Agency																
Agency Wide		Environmental Technology Innovation Clusters	X	X								X				
Office of Water		WaterSense	X					X								
Office of Air and Radiation		SmartWay	X					X				X		X		
		ENERGY STAR®	X					X								
Office of Air and Radiation		Continuous Emissions Monitoring Performance Specifications	X					X								
		Roadmap for Next Generation Air Monitoring	X	X	X			X		X		X				
Program descriptions	Environmental Technology Innovation Clusters	Program goals: The Environmental Protection Agency's (EPA) Environmental Technology Innovation Clusters program supports community-based business clusters that seek to solve water problems and create jobs at the same time through the development and deployment of innovative water technologies.														



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		<p>Program activities: Environmental Technology Innovation Clusters are regional groupings of businesses, government, research institutions, and other organizations focused on innovative technologies for clean water. The program serves cluster organizations in an advisory role by disseminating best practices in cluster development, communicating EPA environmental priorities such as the Blueprint for Integrating Technology Innovation into the National Water Program, and convening cluster organization leaders. The program maintains a national inventory of water technology SBIR awards across eight agencies. The U.S. Small Business Administration and the U.S. Department of Commerce are full partners in this effort.</p>														
		<p>Website: https://www.epa.gov/clusters-program</p>														
	WaterSense	<p>Program goals: WaterSense aims to transform the marketplace for products and services that use water, and promote a nationwide ethic of water efficiency to conserve water resources for future generations and reduce water and wastewater infrastructure costs. The program encourages water efficiency in the United States through the use of a special label on consumer products.</p>														
		<p>Program activities: The EPA provides and maintains the WaterSense brand and develops national specifications for water-efficient products and programs through agreement and partnerships with interested stakeholders, such as product manufacturers, retailers, and water utilities. EPA requires all products bearing the WaterSense label to be assessed for conformance to the relevant WaterSense product specification by an accredited third-party product certifying body. Accredited product certifying bodies are licensed by EPA to certify that products conform to applicable specifications and to authorize the use of the WaterSense label in conjunction with the certified product.</p>														
		<p>Website: https://www.epa.gov/watersense</p>														
	SmartWay	<p>Program goals: SmartWay is a partnership with the private sector to achieve better environmental outcomes, save money, and drive technical innovation through improved efficiency in moving goods across commercial supply chains.</p>														
<p>Program activities: SmartWay helps U.S. businesses (freight shippers, carriers, logistics companies) innovate and lean their goods movement with tools, methods and technical advice that businesses rely upon to measure, benchmark and improve efficiency across freight supply chains. SmartWay technology verification and branding works with manufacturers and suppliers to accelerate the availability, adoption and market penetration of cleaner, fuel-saving technologies and operational practices. SmartWay also advances technical capacity for U.S. companies with overseas supply chains, by working to harmonize global sustainability accounting methods. More than 3,600 companies and over 400 trade associations and other organizations participate in SmartWay, along with dozens of manufacturers and suppliers.</p>																



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		Website: https://www.epa.gov/smartway														
		<p>Program goals: ENERGY STAR® is the government-backed symbol for energy efficiency, providing simple, credible, and unbiased information that consumers and businesses rely on to make well-informed decisions. It is a voluntary program that aims to identify and promote energy-efficient products and buildings in order to reduce energy consumption, improve energy security, and reduce emissions through voluntary labeling or other forms of communication about products and buildings that meet the highest energy efficiency standards.</p> <p>Program activities: ENERGY STAR boosts the adoption of energy efficient products, practices, and services through valuable partnerships, objective measurement tools, and consumer education. For products, ENERGY STAR ensures that each product that earns the label is independently certified to deliver the quality, performance, and savings that consumers have come to expect. ENERGY STAR has also developed energy performance rating systems for several commercial and institutional building types and manufacturing facilities, which provide a means for benchmarking the energy efficiency of specific buildings and industrial plants against the energy performance of similar facilities. For buildings and plants, ENERGY STAR tools and resources help businesses determine cost-effective approaches to managing energy use in their buildings and plants—enabling the private sector to save energy, increase profits, and strengthen their competitiveness. The program includes an online tool, ENERGY STAR Portfolio Manager®, that calculates an ENERGY STAR score for commercial buildings, which has become the industry standard for rating a facility's energy performance.</p>														
		Website: https://www.energystar.gov/														
	Continuous Emissions Monitoring Performance Specifications	<p>Program goals: These specifications set continuous emissions monitoring performance specifications and quality assurance procedures for governing the installation, performance, and continued operation of continuous emissions monitoring systems (CEMS) used to determine continuous compliance with air emissions standards for stationary sources of air pollution. These CEMS performance specifications and quality assurance procedures are designed to be as performance-based as possible to allow for the introduction of new and innovative monitoring technologies into the marketplace.</p>														



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		<p>Program activities: EPA's CEMS Performance Specifications and QA Procedures currently address: (1) Clean Air Act criteria pollutants including particulate matter, sulfur dioxide, nitrogen oxides, carbon monoxide, and total volatile organic compounds, (2) hazardous air pollutants (HAP) including mercury, hydrogen chloride, hydrogen sulfide, and speciated gaseous HAP organics, and (3) the diluent gases. Future projects will aim to refine performance specifications for Fourier-Transform Infrared technology for monitoring of multiple HAP simultaneously and expand the current gaseous hydrogen chloride (HCl) performance specifications to cover additional inorganic gases.</p> <p>Website: https://www.epa.gov/emc/performance-specifications-and-other-monitoring-information</p>														
		<p>Program goals: The Roadmap for Next Generation Air Monitoring summarizes major findings about the Next Generation of Air Monitoring (NGAM), particularly sensor technology. It focuses on three near-term goals: (1) promoting the development of affordable, near source, fence-line monitoring technologies and sensor network-based leak detection systems; (2) supplementing air quality monitoring networks through development of low cost, reliable air quality monitoring technology; and (3) supporting environmental justice communities and citizen science efforts to measure air pollution in local areas.</p> <p>Program activities: The Roadmap proposes research and other activities in each of these three areas: (1) Technology Development, Testing, and Integration; (2) Technology Demonstration, Outreach and Communication Strategies; and (3) IT infrastructure and New Data Streams.</p> <p>Website: https://www.epa.gov/sites/production/files/2014-09/documents/roadmap-20130308.pdf</p>														
	Roadmap for Next Generation Air Monitoring															
National Aeronautics and Space Administration																
Private Business - From Multi Federal Agency Initiative, including the National Aeronautics and Space Administration (NASA)		LAUNCH	X					X				X	X			
NASA-Initiated Public/Private Partnership		Space Race		X					X	X		X		X		X



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Human Exploration and Operations Mission Directorate	Advanced Exploration Systems Division	Next Space Technologies for Exploration Partnerships (NextSTEP)	X		X	X						X					
Space Technology Mission Directorate	Technology Demonstration Missions	X	X	X													
	Flight Opportunities	X	X	X													
	Centennial Challenges	X	X	X										X			
	Regional Economic Development (RED)	X	X	X						X			X				
	Technology Transfer Program	QuickLaunch								X							
		Startup NASA		X	X					X							X
		NASA Software Catalog			X					X							



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		Technology Transfer University (T2U)									X					X	
Program descriptions	LAUNCH	Program goals: LAUNCH aims to build and nurture a community of innovators, thought leaders and decision makers across value chains to collectively understand, articulate, and scale solutions for positive systems change leading to a more sustainable society.															
		Program activities: LAUNCH is a network-centered innovation platform that convenes and curates networks of individuals and organizations. LAUNCH coordinates system-wide collaborations to address complex challenges through its curated network of innovators and thought leaders. LAUNCH Network members help shape LAUNCH's challenge statements, recruit and select innovators, provide pro-bono innovator support and mentorship, and join a coalition of the committed to actively shepherd change.															
		Website: http://www.launch.org/															
	Space Race	Program goals: Space Race fostered new startup companies and encouraged adoption of NASA technologies, by teaming with CAI to run a multi-phase business plan competition in 2016. The competition leveraged NASA's new program - "Startup NASA" - to create space technology spin-offs.															
		Program activities: CAI reviewed NASA's portfolio of technologies and identified those that have near-term commercialization potential. CAI held a challenge for teams to explore the market potential of the technologies and write business plans. The winners of the competition were awarded a cash prize, provided by third-party venture capital investors, and encouraged to incorporate and pursue licensing the technologies from NASA, using their winnings as seed funding for the new business. The challenge was supported by a startup accelerator designed to provide training and expert mentorship to all participants.															
		Website: https://www.space-race.org/															
NextSTEP		Program goals: The NextSTEP program is a public-private partnership model that encourages commercial development of deep space exploration capabilities to support more extensive human spaceflight missions in the Proving Ground around and beyond cislunar space—the space near Earth that extends just beyond the moon.															



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			<p>Program activities: NextSTEP stimulates the commercial space industry to help NASA achieve its strategic goals and objectives for expanding the frontiers of knowledge, capability, and opportunities in space. The NextSTEP partnership model provides an opportunity for NASA and industry to partner to develop capabilities that meet NASA human space exploration objectives while also supporting industry commercialization plans. Through these public-private partnerships, NextSTEP partners provide advance concept studies and technology development projects in the areas of advanced propulsion, habitation systems, and small satellites.</p>													
			<p>Website: https://www.nasa.gov/nextstep</p>													
	Technology Demonstration Missions		<p>Program goals: Technology Demonstration Missions seek to mature crosscutting, laboratory-proven technologies—ones that could radically advance NASA's mission in space and reap untold benefits for science and industry here on Earth—to flight-ready status.</p>													
			<p>Program activities: The Technology Demonstration Mission program focuses on crosscutting technologies with strong customer interest that meet the needs of NASA and industry by enabling new missions or greatly enhancing existing ones. Chosen technologies are thoroughly ground- and flight-tested in relevant operating environments—reducing risks to future flight missions, gaining operational heritage and continuing NASA's long history as a technological leader.</p>													
			<p>Website: https://www.nasa.gov/mission_pages/tdm/main/index.html</p>													
	Flight Opportunities		<p>Program goals: The Flight Opportunities program advances innovative space technologies of interest to NASA while also stimulating the growth and use of the U.S. commercial spaceflight industry as well as supporting capability development in the suborbital and orbital small satellite launch vehicle market.</p>													
		<p>Program activities: The program provides access to space-relevant environments through the use of commercial reusable suborbital launch vehicles, rocket-powered vertical takeoff, vertical landing platforms, high-altitude balloons and parabolic aircraft flights. The program entails two activities. Through Suborbital Flight Testing and Capability Development, NASA selects promising technologies from industry, academia and government, and tests them on commercial suborbital platforms. This approach takes technologies from a laboratory environment and gives them flight heritage, increasing their Technology Readiness Level (TRL), while also nurturing the development of U.S. commercial spaceflight capabilities, services, and skills. Through Small Launch Vehicle Technology Development, NASA uses public-private partnerships to accelerate the development of commercial capabilities that enable the frequent launch of small satellites to low Earth orbit (LEO) at a cost per kilogram of payload much lower than currently available.</p>														
		<p>Website: https://www.nasa.gov/directorates/spacetech/flightopportunities/index.html</p>														



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	Centennial Challenges	Program goals: Centennial Challenges directly engage the public in the process of advanced technology development by offering incentive prizes to generate revolutionary solutions to problems of interest to NASA and the nation.														
		Program activities: The program seeks innovations from diverse and non-traditional sources. Competitors are not supported by government funding and awards are only made to successful teams when the challenges are met. The Centennial Challenge prizes are offered to independent inventors including small businesses, student groups, and individuals. These independent inventors are sought to generate innovative solutions for technical problems of interest to NASA and the nation and to provide them with the opportunity to stimulate or create new business ventures.														
		Website: https://www.nasa.gov/directorates/spacetech/centennial_challenges/index.html														
	RED	Program goals: The RED program creates, contributes to, catalyzes, and supports economic and innovative ecosystems across the country through strategic regional partnerships with external public and private sector organizations in business sectors of critical importance to the region of interest.														
		Program activities: The RED process is different in every region, but follows four general steps in order to be successful. In Step One: "Asset Inventory," an inventory of the regional and federal assets is conducted. In Step Two: "Market Analysis and Vision Gathering," an industry and market analysis is conducted to understand what opportunities both provide. In Step Three: "Demonstration Projects," the regional players are brought together to determine common goals and alignment between industry and NASA, as well as what assets can be utilized and how they are linked. Demonstration projects include technology showcases, technology interchange forums, technology roadshows, technology docking, and NASA Executive-in-Residence programs. In Step Four: "Ecosystem Sustainability," the motivation is expected to come from the ecosystem and its customers.														
		Website: https://www.nasa.gov/directorates/spacetech/regional_economic_development														
QuickLaunch	Program goals: QuickLaunch allows NASA to quickly turn license applications into license agreements and transfer technologies to the licensee.															
	Program activities: NASA offers a specially selected portfolio of technologies available for commercial nonexclusive licensing. QuickLaunch licenses have a set initial fee, annual royalty, and standard terms. For many technologies, licensees may request an evaluation license for a short term prior to requesting a commercial license.															
	Website: https://quicklaunch.nasa.gov/about.php															



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			Tech. devt.	Tech. scouting	Govt. need	Financial support	Talent devt.	Standard setting	IP mgmt./tech. transfer	Business training	Business networks	Business mentors and peers	Business services	Talent devt.	Liability protn.	Financial support
	Startup NASA	Program goals: Startup NASA offers licenses with no up-front costs for commercial use of NASA's patented technologies.														
		Program activities: Startup NASA licenses waives initial licensing fees and require no minimum fees for the first three years. Once a company starts selling a product, NASA collects a standard net royalty fee. This allows companies to hold onto their cash while securing the intellectual property needed to carve out competitive market space. Startup NASA licenses are only available for U.S. companies formed with the express intent of commercializing the licensed NASA technology. The startup agreement applies only to non-exclusive licenses, which means other companies may apply for similar rights to use the technology for commercial purposes. Companies entering into these licenses must develop a commercialization plan and report on efforts to achieve practical application. Startup NASA qualifying technologies have been vetted for technical and commercial viability by NASA and external sources. In addition, licensees have access to NASA technical personnel and facilities for additional support.														
		Website: https://technology.nasa.gov/startup														
	NASA Software Catalog	Program goals: The NASA Software Catalog offers an extensive portfolio of software products for a wide variety of technical applications, all free of charge to the public, without any royalty or copyright fees.														
		Program activities: The catalog has contributions from all of NASA's centers on data processing/storage, business systems, operations, propulsion, and aeronautics. It includes many of the tools NASA uses to explore space and broaden our understanding of the universe. Each catalog entry is accompanied with a plain language description of what it does. The NASA Software Catalog was the first comprehensive listing of publicly available software to be compiled by a federal government agency -- the largest creator of custom code. While access restrictions apply to some codes, NASA has automated and updated its software release process to ensure that it is as quick, easy, and straightforward as possible.														
	Website: https://software.nasa.gov/															
T2U	Program goals: T2U brings real-world, NASA-proven technologies into the classroom so that business students can practice creating market assessments and business plans for high-tech patents.															



Agency	Office	Program	Science and technology development							Enterprise development							
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		Program activities: In this program, business students have access to the NASA scientists and innovators, giving them a unique look into the fine-grained details of the technology they are working on. Through the T2U program, NASA field centers across the country engage business schools and hundreds of students each year. T2U educates young entrepreneurs about the benefits of using federal government research and development assets in commercial applications.															
		Website: https://technology.nasa.gov/t2u															
National Science Foundation																	
Directorate for Engineering	Division of Industrial Innovation and Partnerships (IIP)	Innovation Corps Program (I-Corps™)									X	X	X		X		
		Industry-University Cooperative Research Centers Program (IUCRC)	X										X				
		Partnerships for Innovation: Building Innovation Capacity (PFI:BIC)	X				X							X			



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		Partnerships for Innovation: Accelerating Innovation Research-Technology Translation (PFI:AIR-TT)	X			X					X				X		
		Grant Opportunities for Academic Liaison with Industry (GOALI)	X			X	X					X					
	Division of Engineering Education and Centers (EEC)	Engineering Research Centers (ERC)	X					X		X		X					
Program descriptions	I-Corps™	Program goals: The I-Corps Program aims to foster entrepreneurship that will lead to the commercialization of technology that has been supported previously by NSF-funded research. The program provides entrepreneurial education for federally-funded scientists and engineers, pairing them with business mentors for an intensive curriculum focused on discovering a demand-driven path from their lab work to a marketable product.															



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			<p>Program activities: There are three distinct components of I-Corps: Teams, Nodes, and Sites. I-Corps Teams include NSF-funded researchers who will receive additional support—in the form of mentoring and funding—to accelerate innovation that can attract subsequent third-party funding. Nodes serve as hubs for education, infrastructure, and research that engage academic scientists and engineers in innovation; they also deliver the I-Corps Curriculum to I-Corps Teams. I-Corps Sites are academic institutions that catalyze the engagement of multiple, local teams in technology transition and strengthen local innovation.</p>													
			<p>Website: https://www.nsf.gov/news/special_reports/i-corps/</p>													
	IUCRC		<p>Program goals: The IUCRC program enables industrially-relevant, pre-competitive research via multi-member, sustained partnerships among industry, academe, and government. The NSF invests in these partnerships to promote research programs of mutual interest to industry members and Center faculty, to contribute to the nation's research infrastructure base, to enhance the intellectual capacity of the engineering or science workforce through the integration of research and education, and to facilitate technology transfer.</p>													
			<p>Program activities: The IUCRC program seeks to achieve its goals by: (1) contributing to the nation's research enterprise by developing long-term partnerships among industry, academia, and government; (2) leveraging NSF funds with industry to support graduate students performing industrially-relevant pre-competitive research; (3) expanding the innovation capacity of our nation's competitive workforce through partnerships between industries and universities; and (4) encouraging the nation's research enterprise to remain competitive through active engagement with academic and industrial leaders throughout the world.</p>													
	PFI:BIC		<p>Program goals: PFI:BIC supports interdisciplinary academic-industry partnerships that carry out research to advance, adapt, and integrate technology(ies) into specified, human-centered smart service systems with the potential to achieve transformational change in an existing service system or to spur an entirely new service system. These partnerships are led by an interdisciplinary academic research team with at least one industry partner. The PFI:BIC program places a heavy emphasis on the quality, composition, and participation of the partners, including their appropriate contributions.</p>													
			<p>Program activities: PFI:BIC funds research partnerships working on projects that operate in the post-fundamental/translational space that require additional effort to integrate the technology into a real service system, one that can identify, learn, adapt, and make decisions. The research tasks in turn can spawn additional discoveries inspired by this interaction of humans with the technology. The research components included in these projects are engineered system design and integration; computing, sensing, and information technologies; and human factors, behavioral sciences, and cognitive engineering.</p>													



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		Website: https://www.nsf.gov/eng/iip/pfi/bic.jsp															
		PFI:AIR-TT	Program goals: The PFI:AIR-TT program supports research to overcome technology barriers or knowledge gaps in the transformation of fundamental science and engineering discoveries into market-valued solutions.														
			Program activities: PFI:AIR-TT enables the translation of research discoveries along a path toward commercial reality while engaging faculty and students in entrepreneurial and market-oriented thinking, leveraging prior NSF investments, and providing NSF-funded research alliances the opportunity to develop academic-based innovation ecosystems. Researchers are expected to develop a proof of concept, prototype, or scale-up of the prototype that addresses real-world constraints and provides a competitive value in a potential application space. During the course of the AIR-TT award, it is also expected that the team will advance their understanding of business as it relates to their technology, and that students are engaged to learn about innovation and technology translation.														
			Website: https://www.nsf.gov/eng/iip/pfi/air-tt.jsp														
		GOALI	Program goals: GOALI promotes university-industry collaboration by making project funds or fellowships/traineeships available to support an eclectic mix of industry-university linkages across the Foundation. By increasing the number of industrial partnerships and collaborations, NSF aims to improve the nation's capacity for intellectual and economic growth. By serving as a catalyst for industry-university partnerships, NSF helps ensure that intellectual capital and emerging technologies are brought together in ways that promote economic growth and an improved quality of life.														
			Program activities: Academic scientists and engineers can request GOALI funding either in conjunction with a regular proposal submitted to a standing NSF program or as a supplemental funding request to an existing NSF-funded award. NSF funding can be used for university research/education activities and may support activities of faculty and their students and research associates in the industrial setting. NSF funds are not permitted to be used to support the industrial research partner. GOALI projects focus on research that addresses shared interests by academic researchers and industrial partners. The research furthers scientific and engineering foundations to enable future breakthrough technologies with the potential to address critical industry needs.														
Website: https://www.nsf.gov/eng/iip/goali.jsp																	



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	ERC	<p>Program goals: ERCs support basic and translational research on national priorities such as water, clean energy, biotechnology and healthcare, advanced manufacturing, and critical civil infrastructure. The program aims to integrate engineering research and education with technological innovation to transform national prosperity, health, and security. ERCs create an innovative, inclusive culture in engineering to cultivate new ideas and pursue engineering discovery that achieves a significant science, technology, and societal outcome within the 10-year timeframe of NSF support.</p> <p>Program activities: The ERC program has three key elements: (1) cross-disciplinary and systems-oriented research; (2) education and outreach; and (3) industrial collaboration and technology transfer. Each ERC is established as a three-way partnership involving academe, industry, and NSF (in some cases with the participation of state, local, and/or other federal government agencies). Total annual funding for each Center ranges from \$3.1 to \$19.4 million, with NSF's contribution ranging from \$1.8 to \$4 million per year, averaging \$3 million per year.</p> <p>Website: http://erc-assoc.org/</p>														

Govt. need = government need; IP mgmt./ tech. transfer = intellectual property management/ technology transfer; Liability protn. = liability protection; NA = not available; Talent devt. = talent development; Tech. devt. = technology development; Tech. scouting = technology scouting.

Note(s)

The table summarizes policy and program information collected during the spring and fall of 2017 from federal staff for a selected set of U.S. agencies with major R&D and technology development activities. The table reflects agency responses and is not intended to be exhaustive.

Source(s)

National Science Foundation, National Center for Science and Engineering Statistics; SRI International, special tabulations of federal program information (2017).

Science and Engineering Indicators 2018