

Entrepreneurial and Innovation Ecosystems in the United States

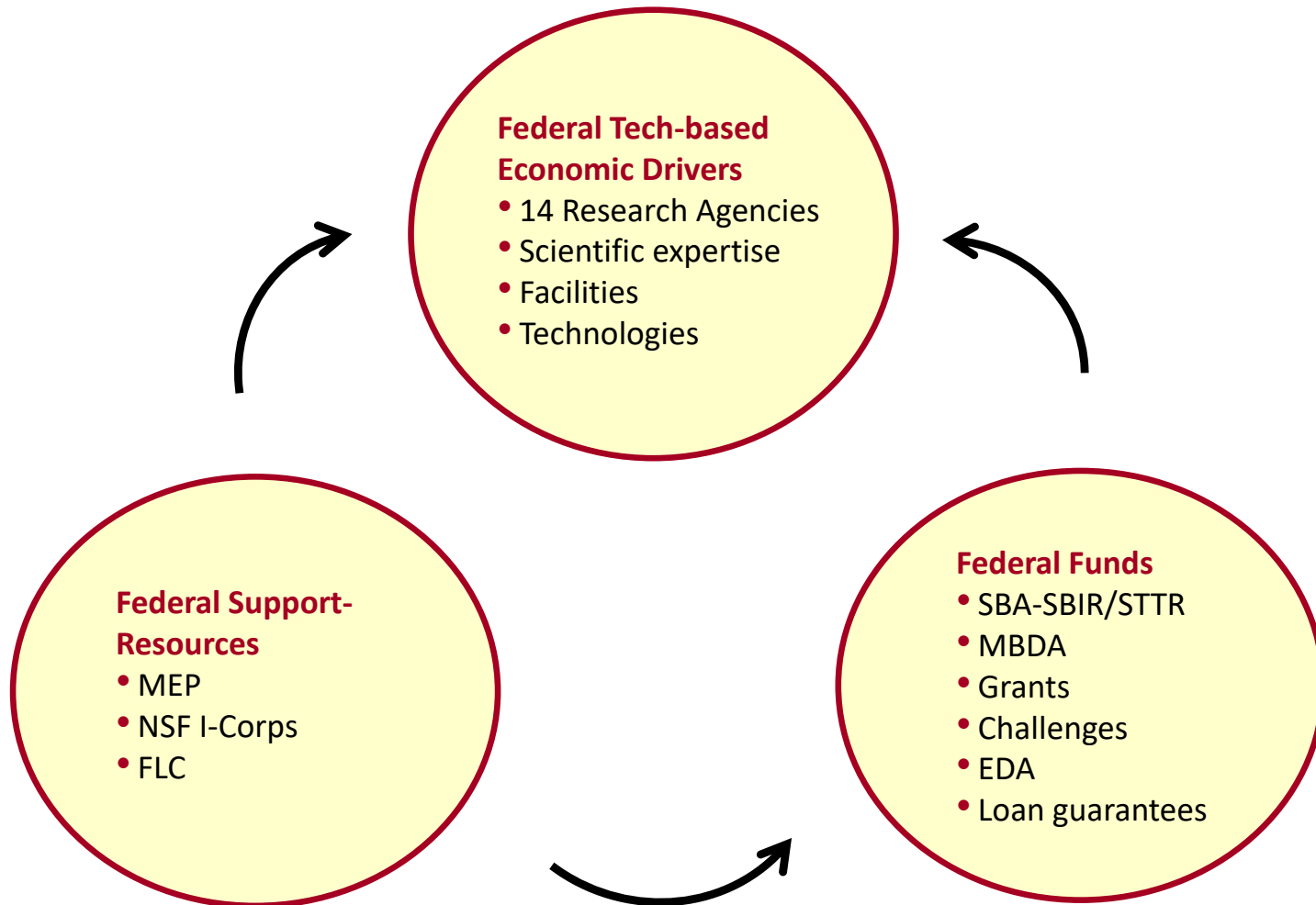
- It has a budget greater than one hundred forty-one billion dollars (\$141.0B) per year for research.
- Its institutions consist of 14 research entities spanning all scientific disciplines, covering the entirety of the Research and Development (R&D) continuum from basic research to applied science.
- It operates in each of the 50 States.
- It has Nobel Prize winners among its scientists and it has funded prize-winning research. A large majority of its senior scientists are fellows in their respective scientific disciplines.
- <https://www.nist.gov/nist-and-nobel>

Preliminary federal obligations for research & development, FY 2019

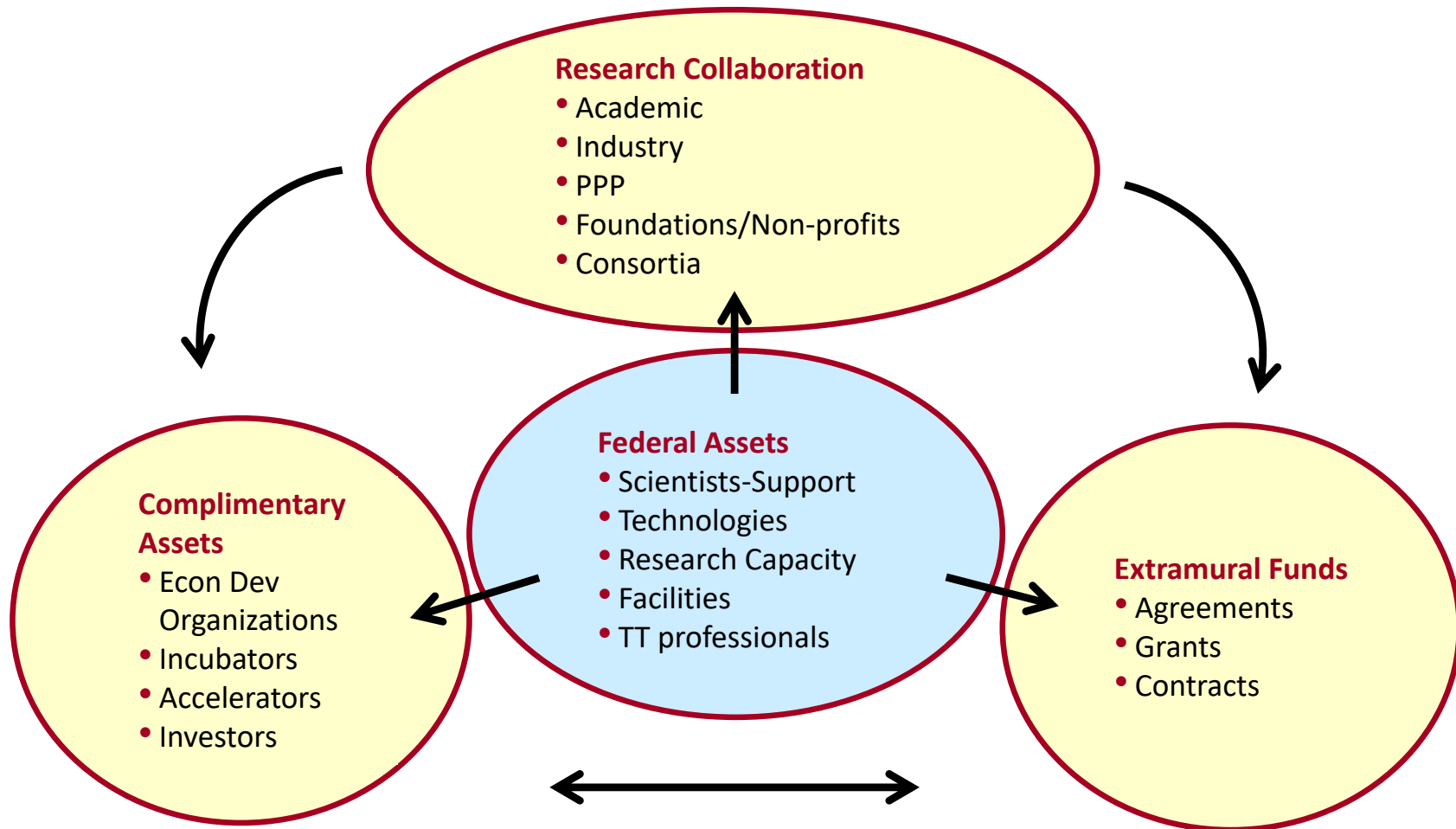


Agency	Total R&D	Intramural ^a	Extramural							Foreign
			United States and U.S. territories							
			Industry	Industry-administered FFRDCs	Universities and colleges	University-administered FFRDCs	Other nonprofits	Nonprofit-administered FFRDCs		
All agencies	141,500.9	39,565.0	43,577.8	5,457.6	33,359.2	6,130.6	8,880.1	3,283.4	435.4	811.7

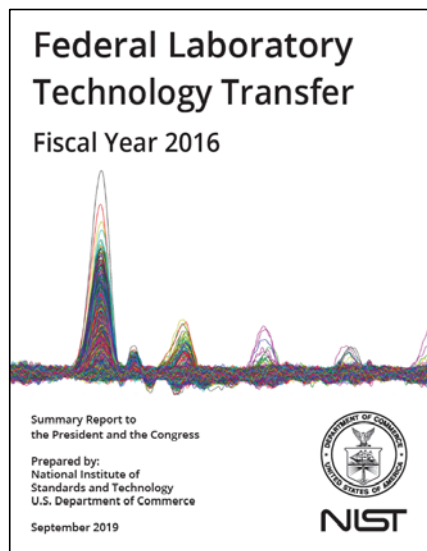
38.5% Intramural (including FFRDCs); 61.5% Extramural
(Dollars in millions)



Federal Agency R&D View (with external partners) **NIST**



Federal Labs as Innovation Ecosystem Drivers



	FY 2012	FY 2013	FY 2014	FY 2015	FY 2016
CRADAs, total active in FY	8,307	9,461	9,875	9,845	11,644
New inventions disclosed in FY	5,347	5,339	5,106	4,826	5,086
Patent applications filed in FY	2,576	2,579	2,694	2,481	2,596
Patents issued in FY	2,325	2,049	2,215	2,185	2,341
Licenses, total active in FY	3,893	3,774	3,997	4,123	4,156
New, executed in FY	501	436	383	567	572
Income from Licenses (\$\$M)	\$167	\$185	\$194	\$203	\$179

Federal Labs as Innovation Ecosystem Drivers



Over **300** laboratory facilities

Over **2600** user facilities

Nearly **19,500** technologies available for licensing from Federal Labs



Federal Entrepreneurial and Innovation Ecosystem Efforts



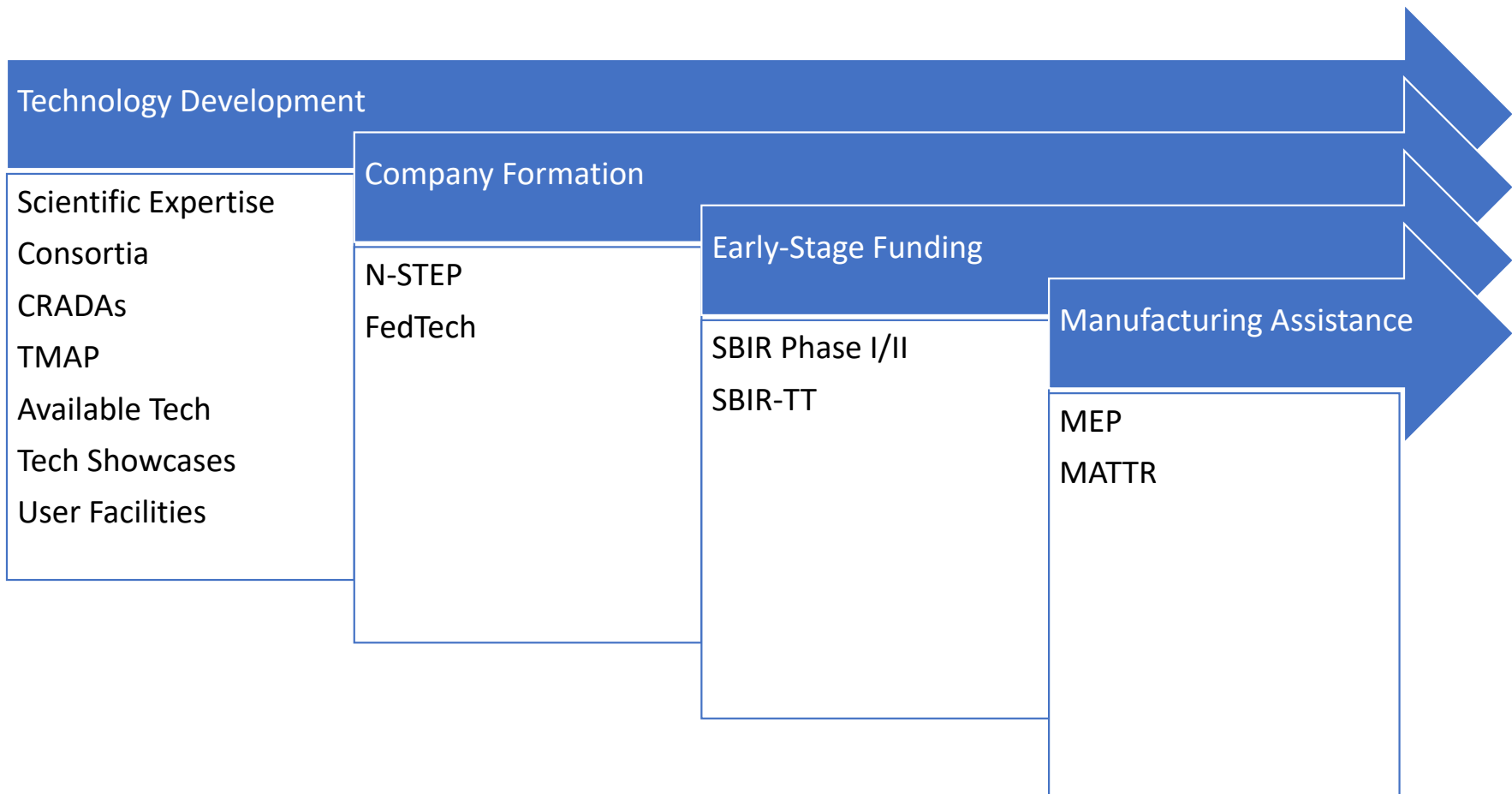
Entrepreneurial Ecosystems

- **ETIWG formed in 2019**
- **Entrepreneurial Training Portal**
- **NSF I-Corps**
- **Agency-based programs (e.g., N-STEP)**
- **FedTech**

Innovation Ecosystems

- **NIST MINT and Boulder Ecosystem Efforts**
- **Lab-to-Market Prize Competition**
- **State/Regional Networks (MD Department of Commerce, MCEDC, TEDCO)**
- **Technology Collaboratives Pilots**

NIST Innovation Ecosystem



NIST Partners Overlap with NIST Facilities



- NIST Campuses**
- Gaithersburg, MD
 - Boulder, CO
- Joint Institutes and Centers**
- National Cybersecurity Center of Excellence
 - Institute for Bioscience & Biotechnology Research
 - Joint Center for Quantum Information & Computer Science
 - Joint Quantum Institute
 - JILA
 - Hollings Marine Laboratory
 - Brookhaven National Laboratory
 - Joint Initiative for Metrology in Biology
 - Center for Spintronic Materials (SMART)
 - Center for Marine Debris Research
- Atomic Clock Signal Stations**
- NIST Ft. Collins CO WWV
 - NIST Kauai HI WWVH
- NIST Centers of Excellence**
- Forensic Science
 - Disaster Resilience
 - Advanced Materials

DC	5
DE	2
MA	17 4
MD	24 4
NJ	11
PA	14 1
RI	1
VA	30 3
VT	1 1

CRADA Partners
Licensees

Data from NIST Economic Analysis Briefs 9 (CRADAs) and 10 (Licensees)
<https://www.nist.gov/tpo/economic-analysis-briefs>

Pending National Legislation



- **NIST Return on Investment Legislative Package**
 - 10 proposals to modernize the Stevenson-Wydler Technology Innovation Act of 1980 – copyright in federal software, expanded tech transfer authorities, increased protection for CRADA information
- **Securing American Leadership in Science and Technology Act**
 - Proposes revisions to the S-W Act, modernizes STEM workforce, requires STTR agencies to provide grants for innovative technology transfer approaches for commercializing federally funded R&D
- **Endless Frontier Act**
 - NSF -> NSTF, establishes new technology directorate, creates University Technology Centers to advance directorate technology areas, expands Regional Innovation Programs and creates 10-15 new Regional Innovation Hubs in coordination with MEP centers or advanced manufacturing institutes
- **Innovation Centers Acceleration Act**
 - Creates cabinet-level committee to select and fund 9 new innovation centers across the country
- **America LEADS Act**
 - Proposes to address technology and economic issues related to competition with China, authorizes a NASEM study on US manufacturing requirements in technology transfer, directs the Secretary of Commerce to develop government-wide policies to strengthen US manufacturing requirements and requires MEP to be consulted in the waiver process

Thank you!



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