

Strategies for Acceleration: Strengthening User Pull

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NIST Mission – *America's Innovation Agency* NIST

To promote **U.S. innovation** and **industrial competitiveness** by advancing **measurement science**, **standards**, and **technology** in ways that enhance economic security and improve our quality of life.



World-Leading Scientific and
Engineering Research



Advanced Manufacturing
National Programs



Technology Transfer and
Innovation

NIST AT A GLANCE

Industry's National Lab



3,400+
FEDERAL
EMPLOYEES



5
NOBEL PRIZES



2 CAMPUSES
GAITHERSBURG, MD [HQ]
BOULDER, CO



3,600+
ASSOCIATES



12
COLLABORATIVE
INSTITUTES



Thousands
of BUSINESSES USING
NIST FACILITIES



NATIONAL OFFICE
COORDINATING 15
MANUFACTURING
INSTITUTES



51
MANUFACTURING
EXTENSION
PARTNERSHIP CENTERS



U.S. BALDRIGE
PERFORMANCE
EXCELLENCE PROGRAM

NIST Joint Institute and Center Locations



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)

Atomic Clock Signal Stations

NIST Ft. Collins CO WWV

NIST Kauai HI WWVH



NIST Centers of Excellence

Forensic Science

Disaster Resilience

Advanced Materials



NIST's Technology Transfer Leadership



- Policy coordination and promulgation of technology transfer regulation
- Lead for Interagency Workgroup for Technology Transfer (11 agencies) and Interagency Workgroup for Bayh-Dole
- Annual reports for the President, the Congress, and OMB on technology transfer across federal agencies
- Support Lab-to-Market NSTC Subcommittee
- Host Agency for the Federal Laboratory Consortium for Technology Transfer



Credit: Peter Cutts

Unleashing American Innovation Symposium

NIST has a unique role in promoting and reporting on the overall strength of federal technology transfer efforts

Return on Investment Initiative



RETURN ON INVESTMENT INITIATIVE

TO ADVANCE
THE PRESIDENT'S
MANAGEMENT
AGENDA

FINAL GREEN PAPER
APRIL 2019

UNLEASHING
AMERICAN
INNOVATION

NIST Special Publication 1234

NIST
National Institute of
Standards and Technology
U.S. Department of Commerce

- Developed with support of the Science and Technology Policy Institute (STPI) and with White House Office of Science and Technology Policy
- Carefully considered extensive stakeholder inputs
- Closely coordinated with interagency working groups
- Published as **NIST Special Publication 1234**

15 key NIST findings to inform actions that will help remove unwarranted impediments to innovation at the public-private sector interface, and streamline and accelerate technology transfer



NIST Finding 4 – Copyright of Government Software



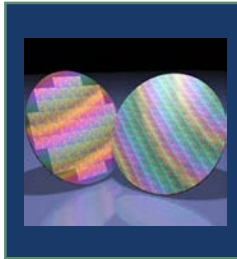
NIST Finding 9 – Expanded Partnership Mechanisms



NIST Finding 14 – Access to Federal Technologies, Knowledge, and Capabilities

- **Respect**
 - Reputation for excellence, expertise, partnership
 - Brand association - Innovation culture
- **Relationship**
 - Personal / institutional connections
- **Reach (In / Out)**
 - Communicate value propositions
 - Ecosystem engagement

Novel Consortia Partnerships Leverage “User Pull”



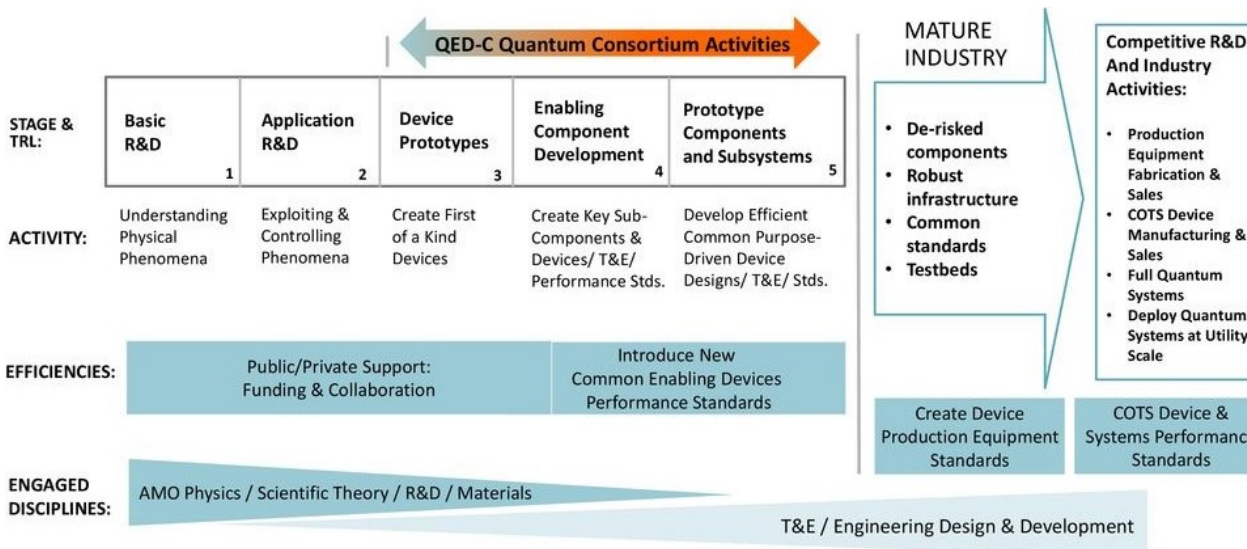
QED-C

The **Quantum Economic Development Consortium** brings together stakeholders to collaboratively identify and address gaps in quantum research, standards, and workforce development.



nSoft

nSoft is a consortium built around facilitating "expertise transfer," designed to overcome traditional technology transfer hurdles in utilizing neutron methods for "soft materials" research.

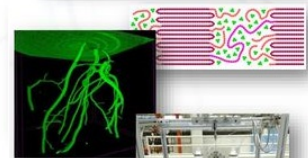


- Non-proprietary environment where soft materials manufacturers gain expertise, drive innovation in neutron measurements.

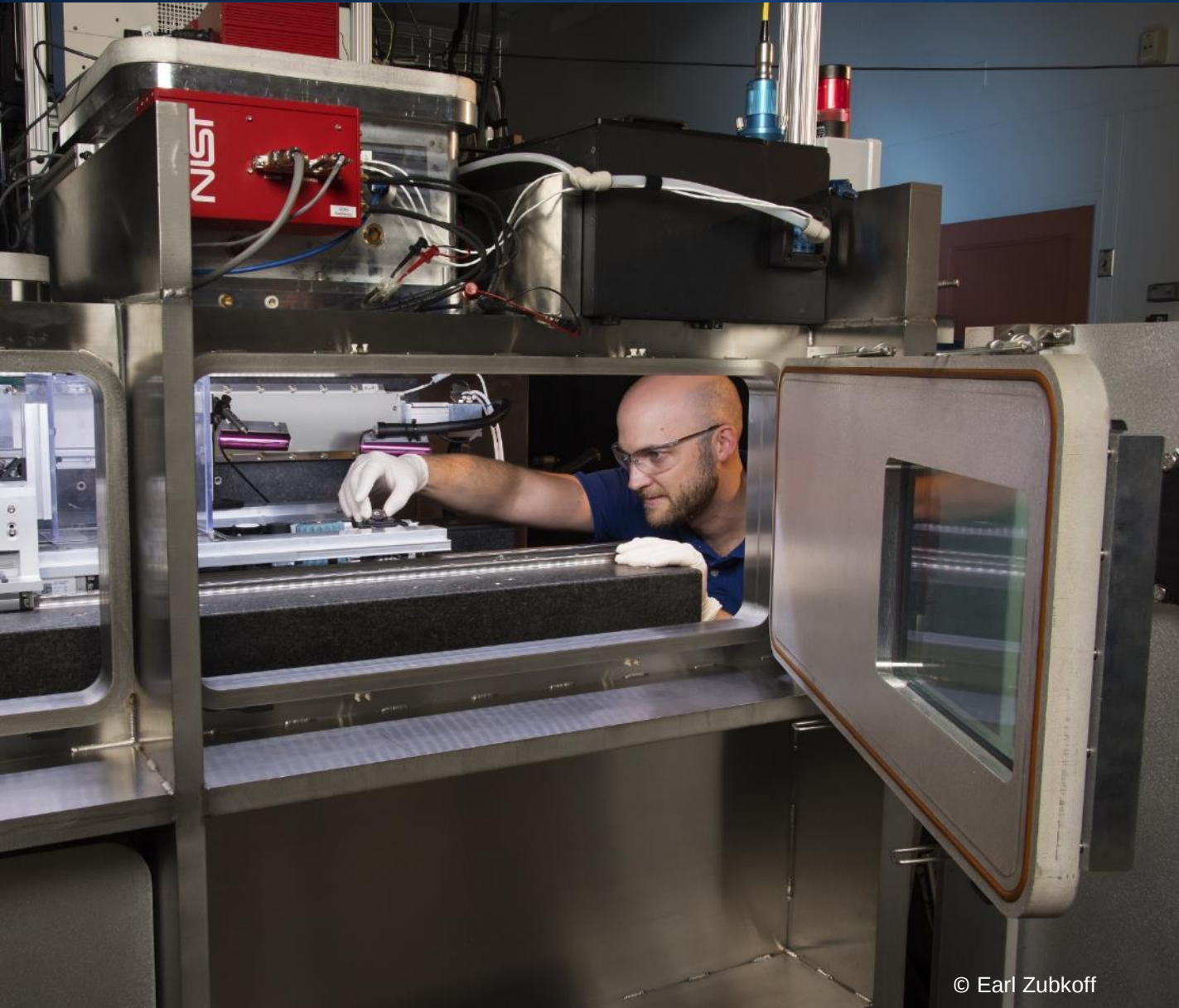


- Membership is fixed at \$25k USD/year, but companies can grow their investment for more impact as they see value
Post-docs on-site, materials synthesis, paid external collaborations, number of staff hours, proprietary access

- Connection point for NIST customers, NIST priorities, and NIST partnerships



NIST and Advanced Manufacturing



A partner to the nation's manufacturers for over a century, NIST helps them invent, innovate, and create through:

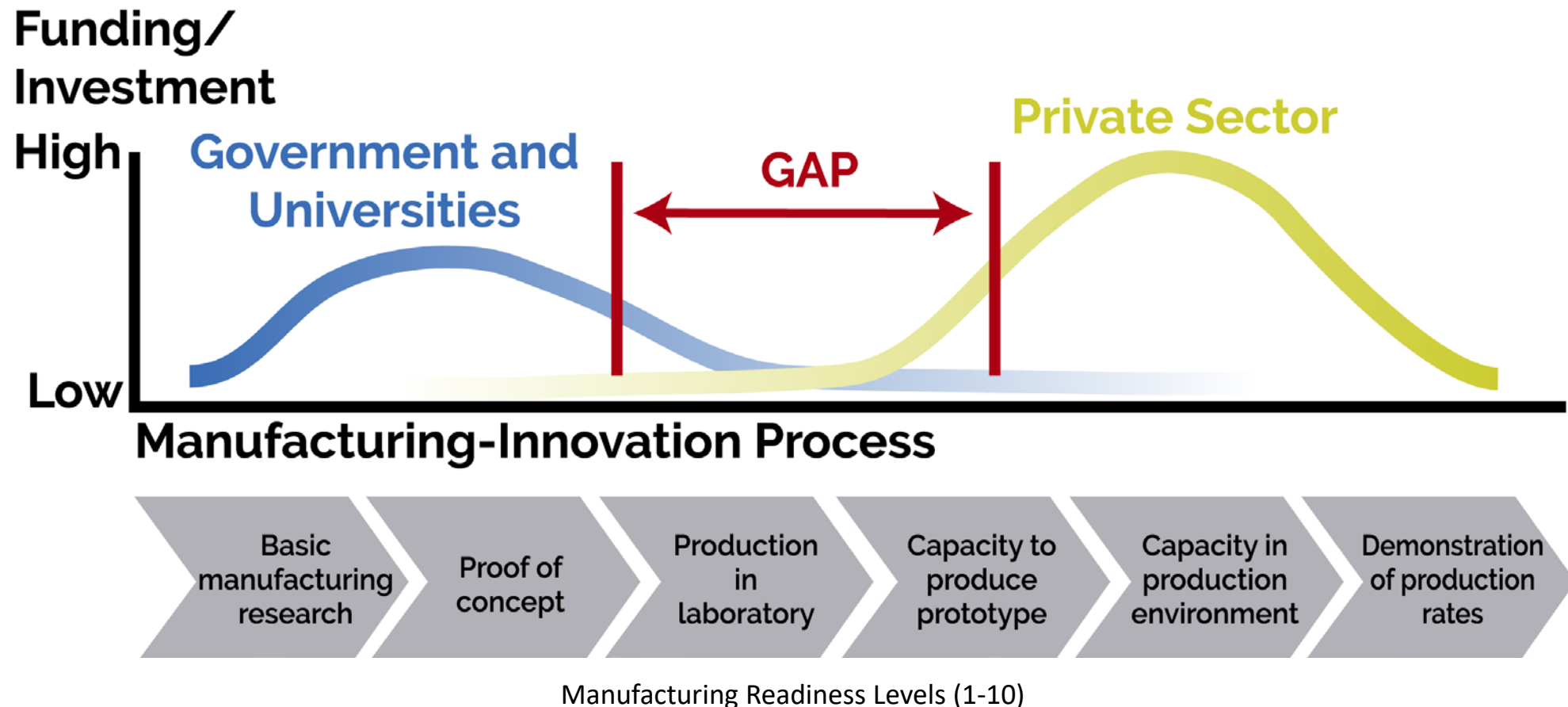
Precision measurements – manufacturers use NIST test methods, tools, and scientific data every day

Advanced materials – NIST is building a materials infrastructure to accelerate the design and deployment of new materials

Partnerships – collaborations with industry and academia help advance research and support US manufacturers

Manufacturing USA Institutes

Public-private partnerships creating neutral collaboration spaces for U.S. industry, government and academia



National Cybersecurity Center of Excellence

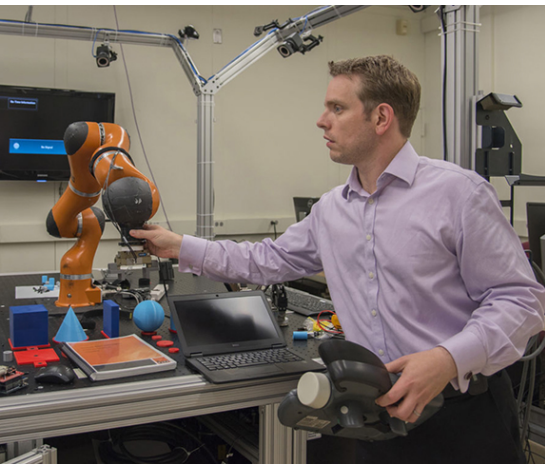
Currently engaged in research across eight industry sectors in collaboration with industry partners

Working to enable security in:

- **5G communications**
- **Mobile devices**
- **Industrial IoT**
- **Energy / Electric power grid**
- **Supply chain**
- **IT infrastructure**
- **Healthcare**

Documentary Standards

National Fire Research Laboratory



Essential Role

- NIST **coordinates U.S. government** engagement in standards – **U.S. Private Sector** leads the process
- **400+** NIST technical staff in **100+** standards organizations and in **1500+** standards technical committees
- Partnerships with industry **globally**

NIST's technical expertise results in improved standards for U.S. competitiveness

Smart Grid and Energy



Utilizing multiple approaches to continue NIST's century-long partnership with the energy industry



- Smart Grid Framework 3.0
- Transactive Energy Challenge
- Standards Coordination
- Interoperability Test Bed

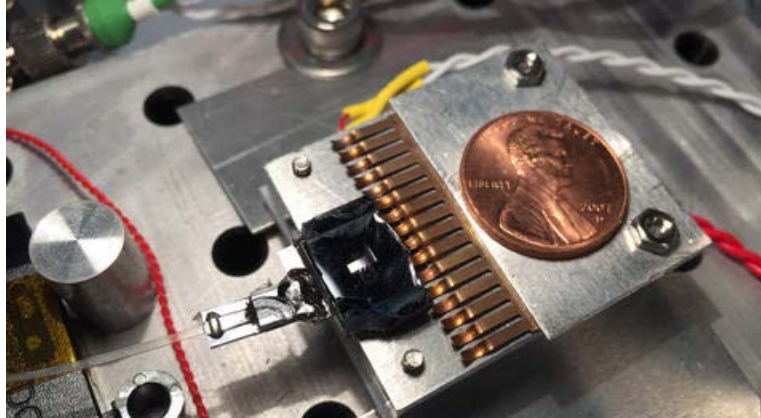
Technology Maturation



Technology Maturation Accelerator Program

Identify and fund high-impact NIST research to a TRL level that better enables commercialization.

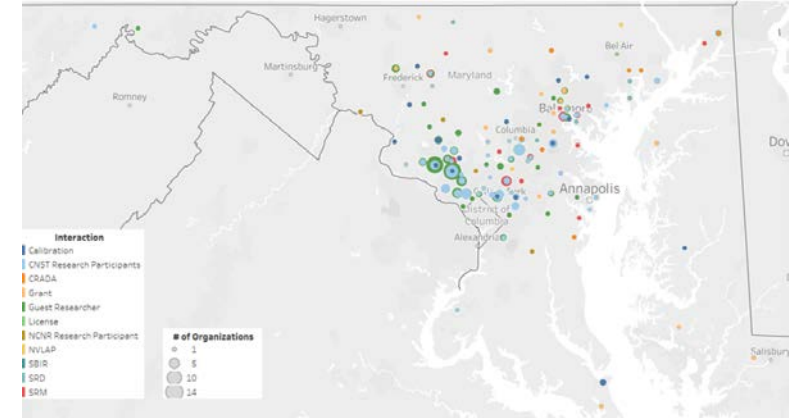
Private sector reviews and recommends investments.



NIST on a Chip

Portfolio-based approach to a suite of NIST measurement science technologies

Quantum devices with intrinsic traceability



Innovation Ecosystems

Focused engagement to bring together federal and state government, academia, and private sector

Basic Research to National Impact



NIST pulls in users from across the RD&D spectrum to help advance National Priorities

- Industry's National Lab AND Government's technology transfer convener
- Utilizing novel partnering mechanisms to help move industries forward
- Engaging internally and within regional ecosystems to bring promising technologies to the private sector
- Providing expertise along the entire technology pipeline, from basic research and standards development to manufacturing

Thank you!



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