

Advanced Manufacturing Across NIST

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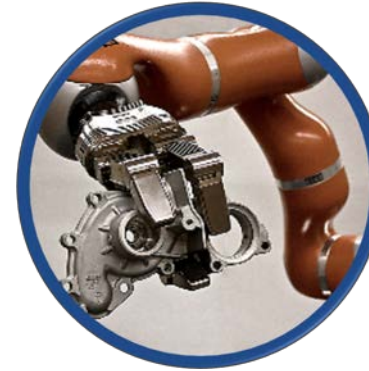
June 5, 2018

NIST and Advanced Manufacturing



NIST works with the nation's manufacturers to invent, innovate, and create by:

- **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



NIST labs develop measurements and tools for advanced manufacturing

Manufacturing USA is a nationwide network of public-private institutes to meet technical needs and create tomorrow's workforce



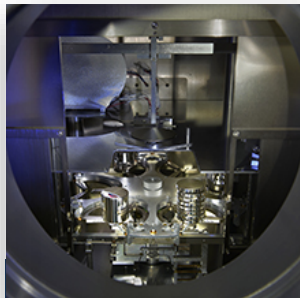
Hollings Manufacturing Extension Partnership centers in every US state provide services to small and medium manufacturers

Manufacturing across Laboratory Programs **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



**Material
Measurement
Laboratory**



**Physical
Measurement
Laboratory**



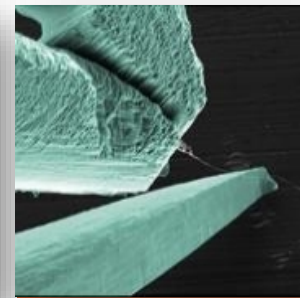
**Engineering
Laboratory**



**Information
Technology
Laboratory**



**Communication
Technology
Laboratory**



**Center for
Nanoscale
Science and
Technology**



**NIST Center
for Neutron
Research**



Advanced Materials



Smart Manufacturing



Advanced Sensing/
NIST on a Chip



Nanomanufacturing



Biomanufacturing

NIST Laboratory Programs

- Partner with Advanced Materials Center of Excellence
- Leverage & support Manufacturing USA (NNMI)
- Lead interagency Materials Genome Initiative

\$172.7 M in FY 2018

6% growth over FY 2017

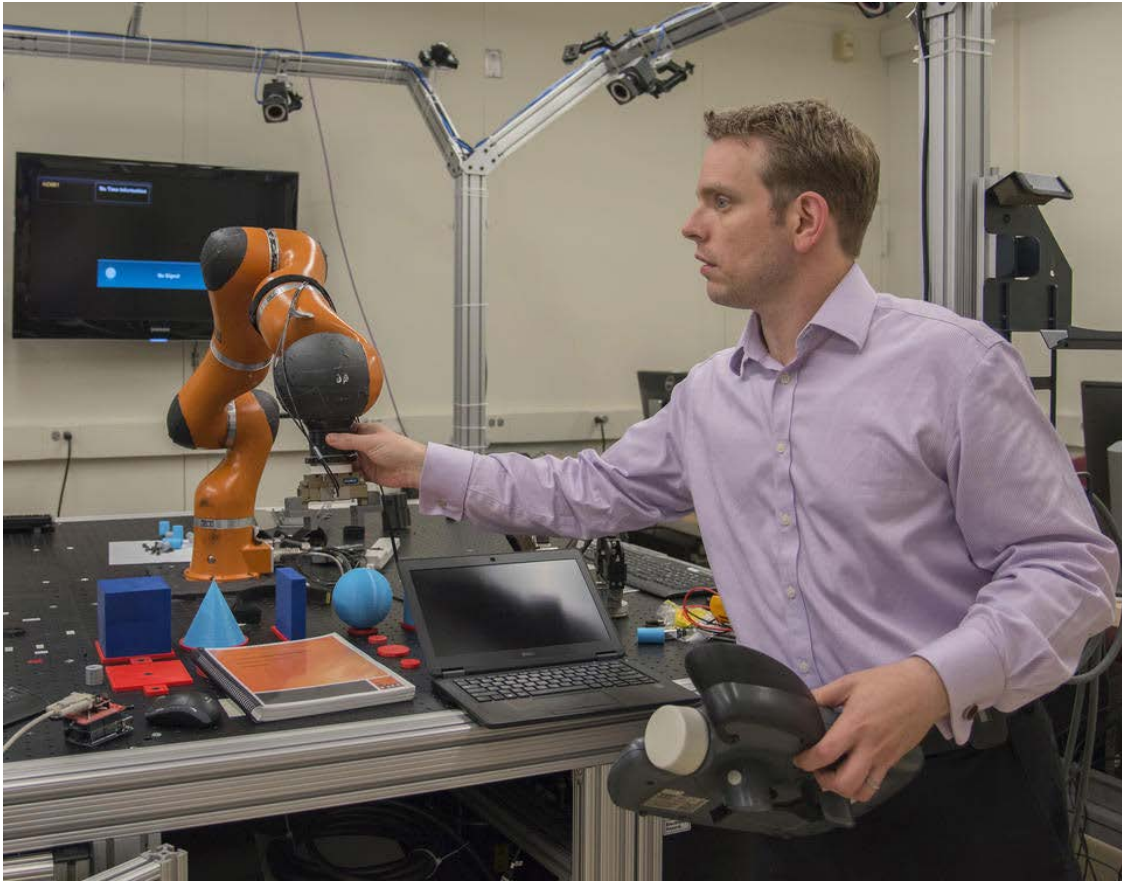
Smart Manufacturing

Synthesis of advanced manufacturing capabilities and digital technologies

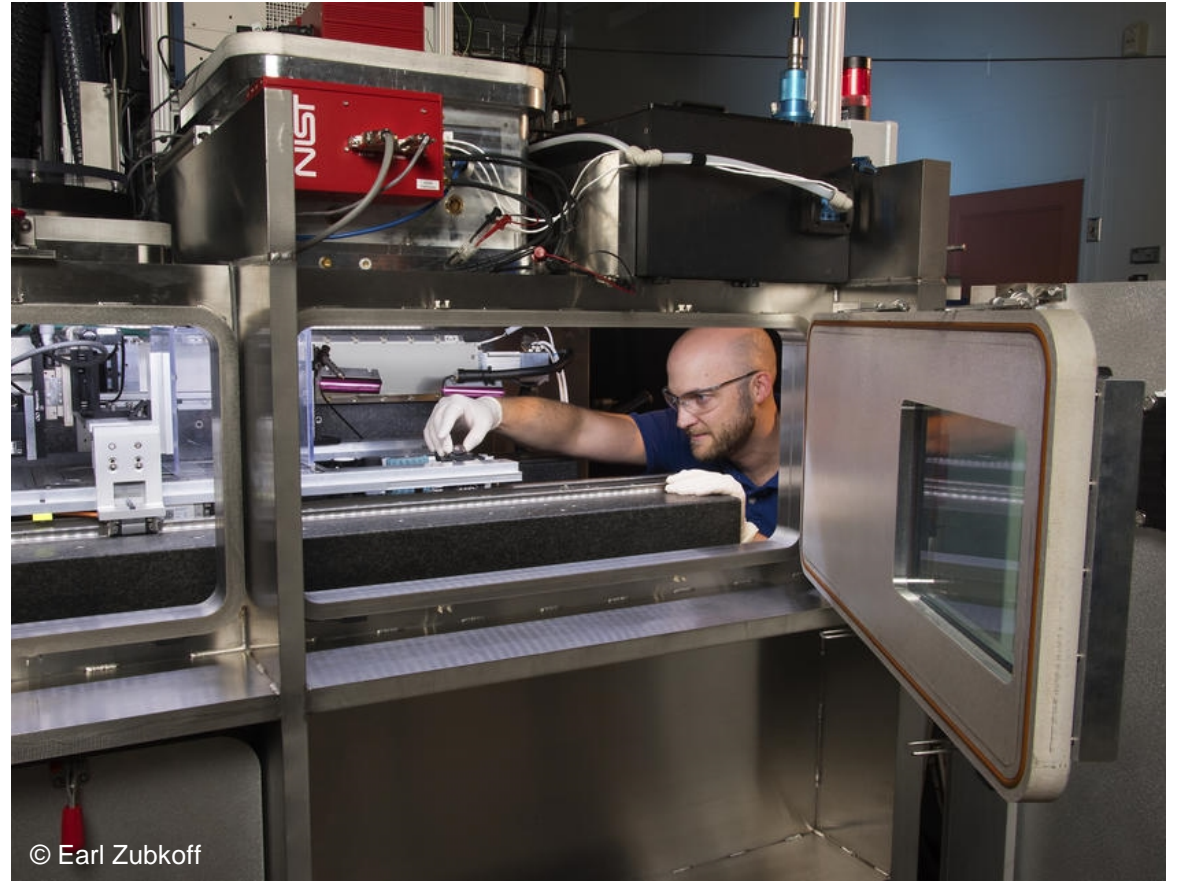


Smart Manufacturing

NIST



Robotics



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Additive Manufacturing

Advanced Materials and Biomanufacturing NIST



©Robert Rathe

Advanced Materials

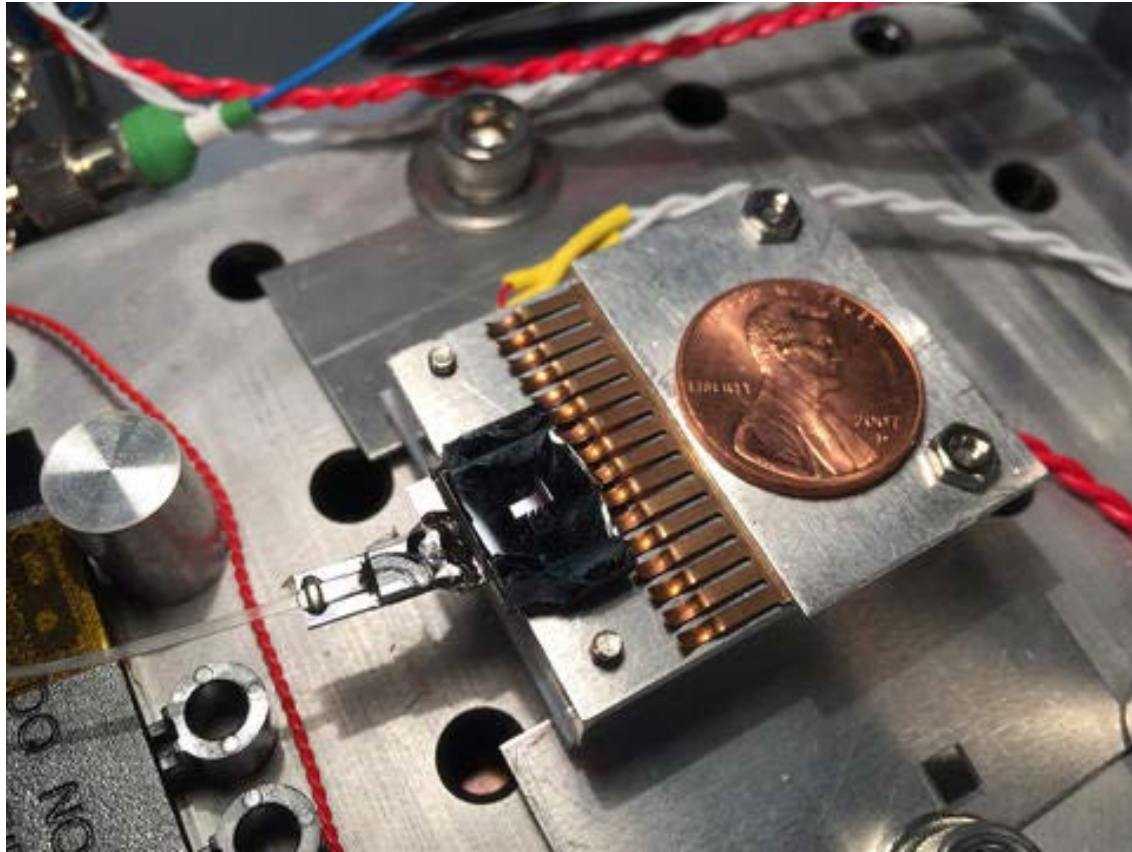


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Biomanufacturing

Quantum and Nanomanufacturing

NIST



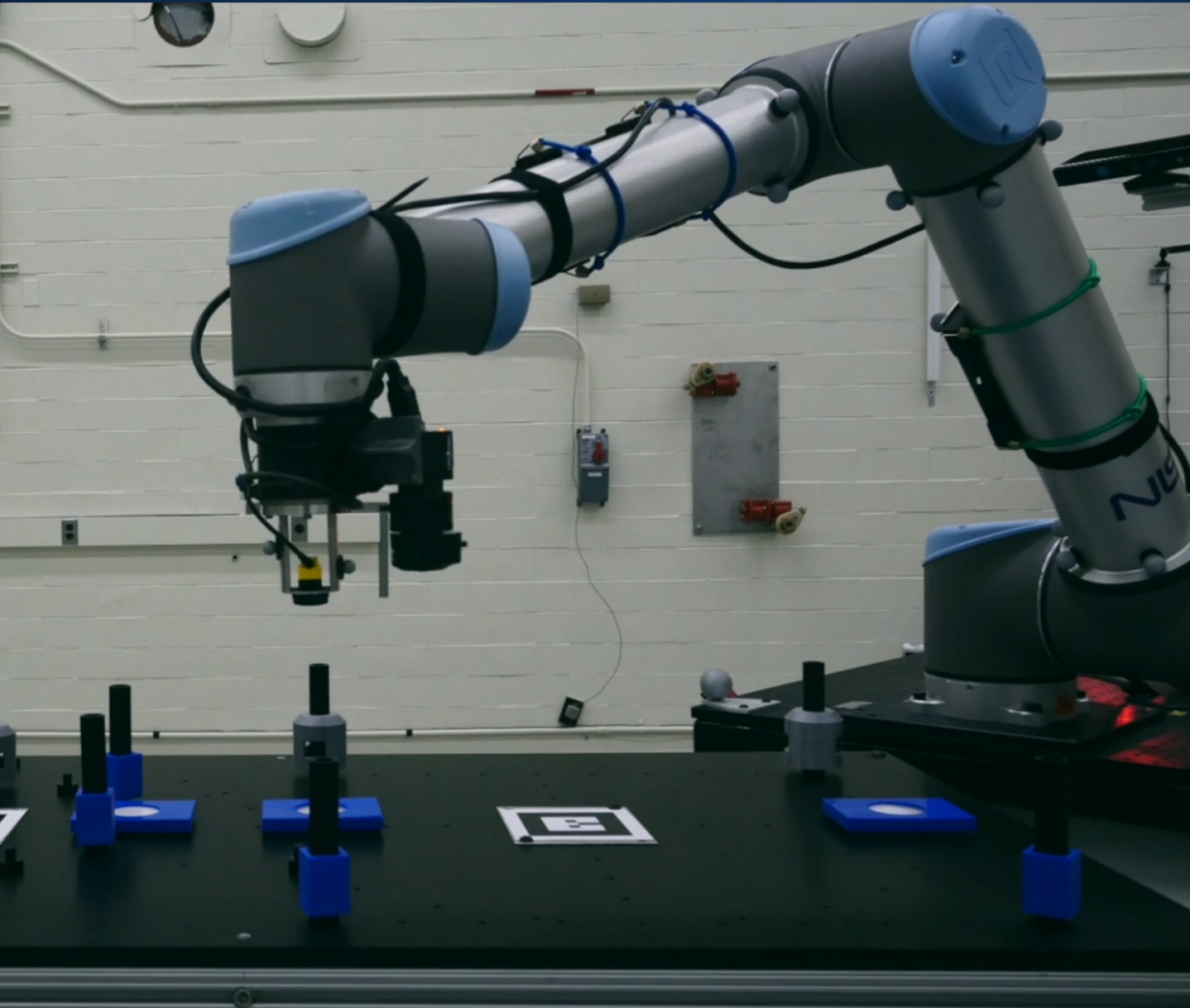
NIST on a Chip

Advanced Sensing/ Quantum



NanoFab

Nanomanufacturing



Important Role

- 400+ NIST technical staff in 100+ standard committees
- Leadership in international standards bodies

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

Manufacturing Extension Partnership

NIST



The Go-To Experts for Advancing U.S. Manufacturing



51 MEP Centers

In 2017:

Connected to 26,000+ manufacturers

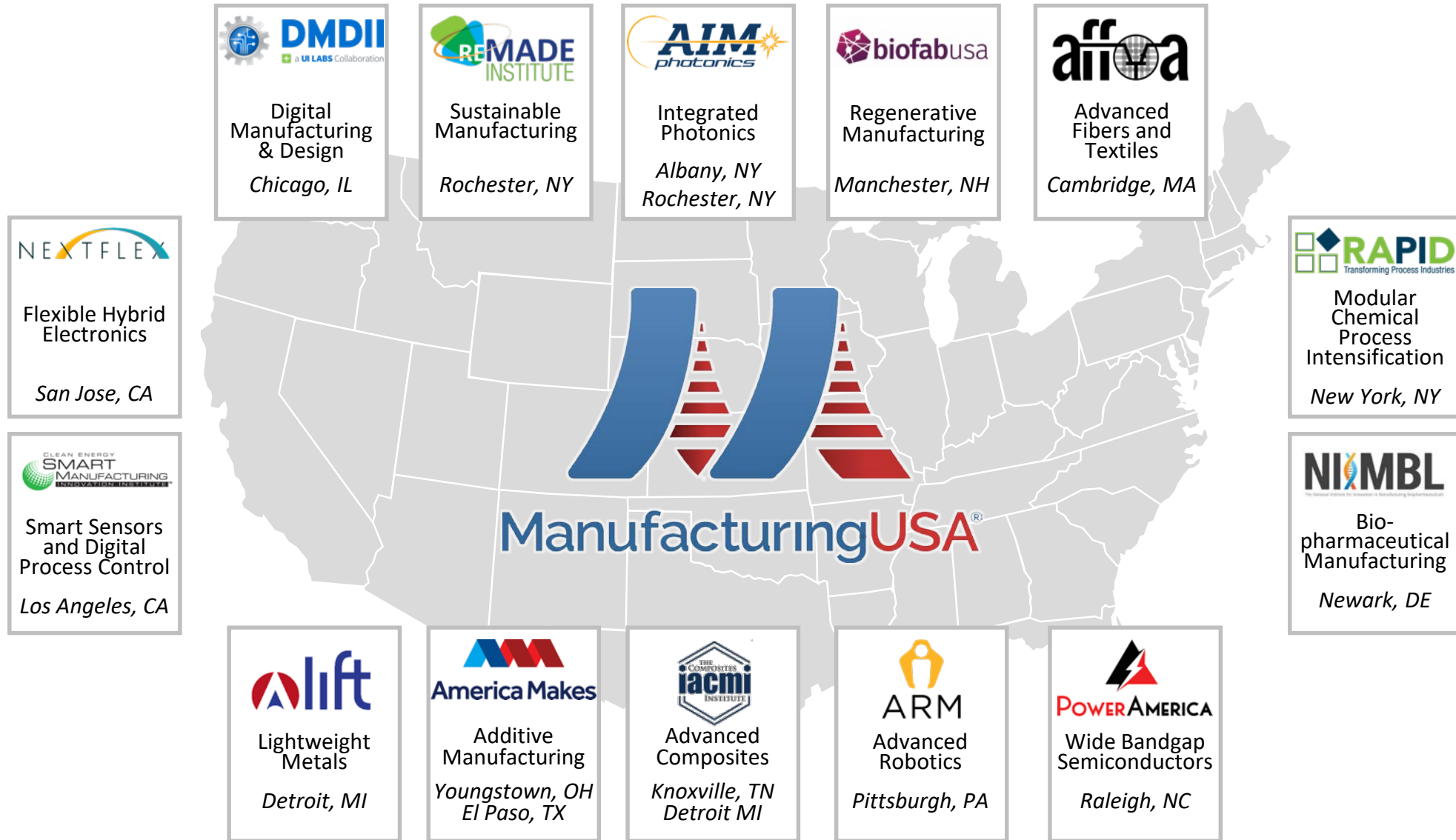
\$12.6 B in sales

\$1.7 B in cost savings

\$3.5 B in new client investments

100,000+ jobs created and retained

Manufacturing USA Network



Speakers



Carroll Thomas

Director, Manufacturing Extension Partnership



Frank Gayle

Deputy Director, Office of Advanced Manufacturing



Elena Messina

Group Leader, Manipulation & Mobility Systems Group, Intelligent Systems Division, Engineering Laboratory