Manufacturing USA® 2020 Impacts

FY 2020 Network Impacts

2,000+ Institute Members

500 Major R&D Projects

$425M State, Private & Federal Funds

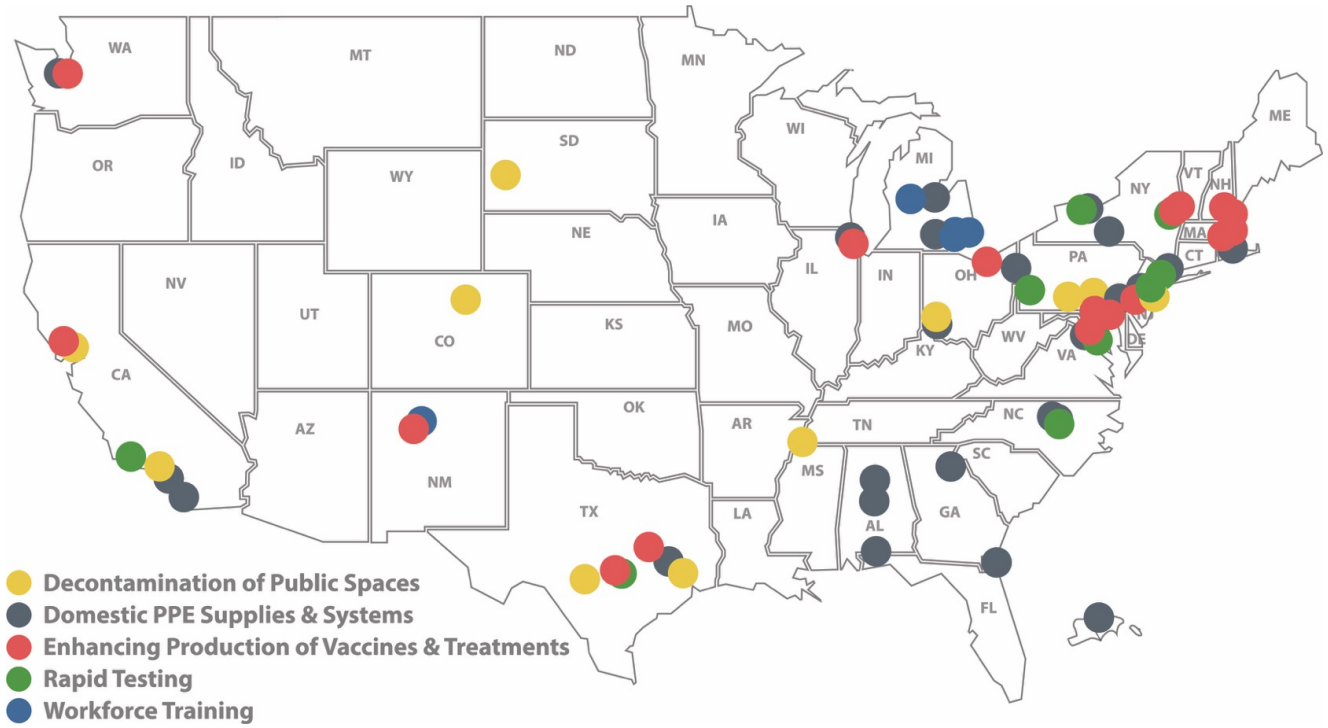
70,000 participants in advanced manufacturing workforce development & training

Annual Highlights Report

https://nvlpubs.nist.gov/nistpubs/ams/NIST.AMS.600-6.pdf

Manufacturing USA Pandemic Response

CARES Act projects with *national impact*



American Rescue Plan Act appropriated **$150M** to NIST for additional Manufacturing USA Pandemic Response Projects

- $90M for NIST NIIMBL (biopharma manufacturing)
- $60M for other MFG USA institutes

Special COVID-19 report

https://nvlpubs.nist.gov/nistpubs/ams/NIST.AMS.600-7.pdf

NIIMBL: DOC/NIST-Sponsored Institute

Accelerating Biopharmaceutical Manufacturing Innovation

Launched March 2017

5-year
$189M public-private partnership

> $75M portfolio technical + workforce development projects

189 members:
Biopharmaceutical manufacturers, CMOs, suppliers, small biotechs, non-profits, major research universities + community colleges, federal agencies

Whole-of-industry NIIMBL-led programs

End-to-end Process Intensification
launched 2020

Big Data
launched 2020

Vaccine Analytics and Assays
to launch 2021

Vector Manufacturing
to launch 2021

Representative Members

Catalent, SANOFI, AstraZeneca, Takeda, gsk, Genentech A Member of the Roche Group, MilliporeSigma, cytiva, Pfizer, SARTORIUS, AMGEN, MERCK, Lilly, Bristol-Myers Squibb, Bill & Melinda Gates foundation, janssen Pharmaceutical Companies of Johnson & Johnson

NIIMBL® The National Institute for Innovation in Manufacturing Biopharmaceuticals

NIIMBL Institute Renewal

MFG USA statute amendment (2019)

- DOC institutes can be renewed 'subject to a rigorous performance assessment'
- Renewal award period limited to original period of award (5-7 years)

Renewal Assessment Protocol

- Developed and piloted for NIIMBL in May 2021
- 16 performance standards aligned with MFG USA goals
- 2-day external evaluation panel of industry, academia, non-profit, government

'Panelists...expressed admiration for NIIMBL's achievements to date in bringing the secretive biopharmaceutical industry out into precompetitive collaborative space. '
- NIST Director's Report, May 2021

Outcome

- **Panel consensus: NIIMBL has met all performance standards for renewal,** NIST Director supports renewal, no gap in appropriations

NIIMBL® The National Institute for Innovation in Manufacturing Biopharmaceuticals

Compelling National Need for Institutes

National need for manufacturing technology hubs and creation of jobs and markets of the future

Advanced manufacturing is the basis of our economic and national security

Manufacturing provides living wage jobs and strengthens communities across the country

China: 16 innovation centers with plans for 40 by 2025

Germany: 72 Fraunhofer institutes, each on different topics

Manufacturing USA institutes position the U.S. for world leadership in advanced manufacturing

The 2018-2022 National Strategic Plan for Advanced Manufacturing, for example, describes several critical areas, all of which need additional support in manufacturing technology and workforce development

Critical Areas for U.S. Manufacturing
Intelligent Manufacturing Systems
Materials and Processing Technologies
Medical Products Manufacturing
Electronics Design and Fabrication
Food and Agricultural Manufacturing

Potential topics for new institutes include Artificial Intelligence in Manufacturing; Critical Materials Manufacturing; Continuous Manufacturing of Medical Products; Semiconductor Design Tools and Fabrication; Processing, Testing and Traceability in Food Safety

FY22 Plans

Congressional Authorizations

Endless Frontier Act: bill
Senate proposes ~15 additional NIST Manufacturing USA institutes

CHIPS Act: passed (via the FY2020 NDAA)
Authorizes a NIST Manufacturing USA institute on semiconductor manufacturing

Appropriations

FY22 President's Budget Request
FY22 budget requests two additional NIST-sponsored institutes

American Jobs and Manufacturing Plan
Administration proposes 10 NIST institutes, Manufacturing USA Education + Workforce Development program, work with MEP to support Technology Hubs

Well-proven, scalable model of two-stage institute competitions leveraging NIST unique authority for "open topic" institute competitions, allowing multiple institutes under a single competition

- "All-star team" proposals
- National priorities may be encouraged as selection factors
- Preferences may be given for equity and rural/underserved regions
- NIST technology roadmap competition to aid in institute planning and formation