



# From Concept to Practice: The Manufacturing USA Annual Report

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An interagency team building partnerships  
with U.S. Industry and Academia



# Agenda

- Take-off – Mission/Vision/Goals, status
- Journey – 2016 Program Results
- Landing – Building on External Assessments



# Manufacturing USA Strategic Goals

## Vision

- U.S. global leadership in advanced manufacturing

## Mission

- Connecting people, ideas, and technology to solve industry-relevant advanced manufacturing challenges, thereby enhancing industrial competitiveness and economic growth and strengthening our national security

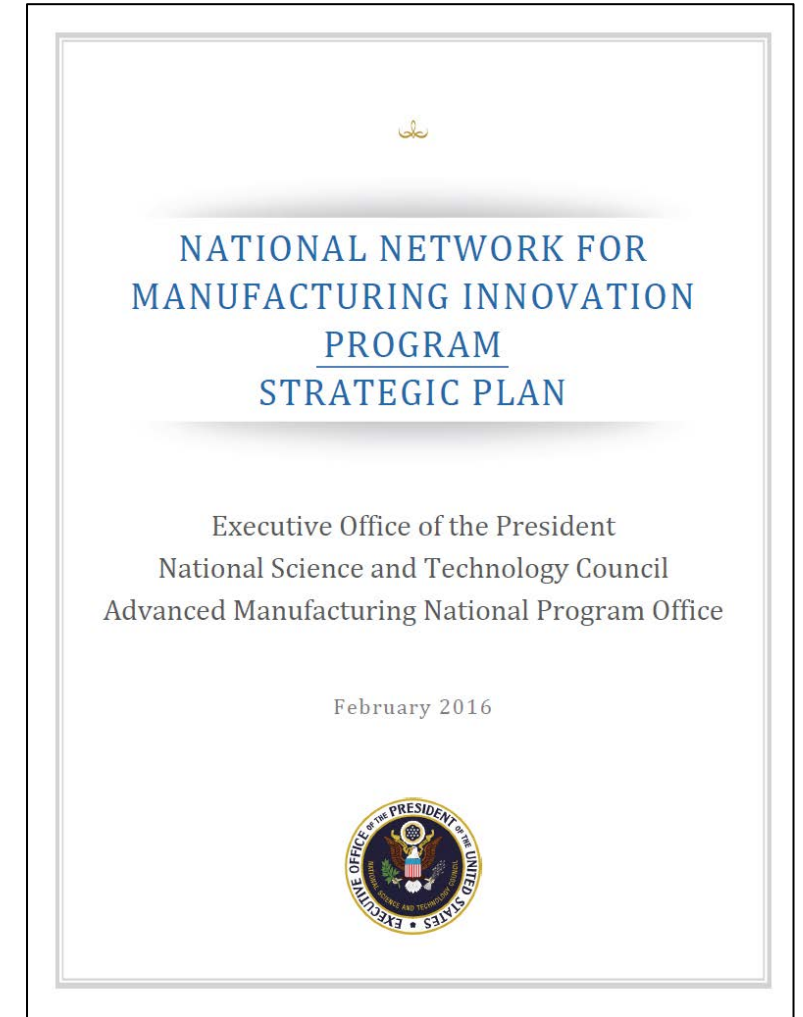
## Program Goals

### Competitiveness

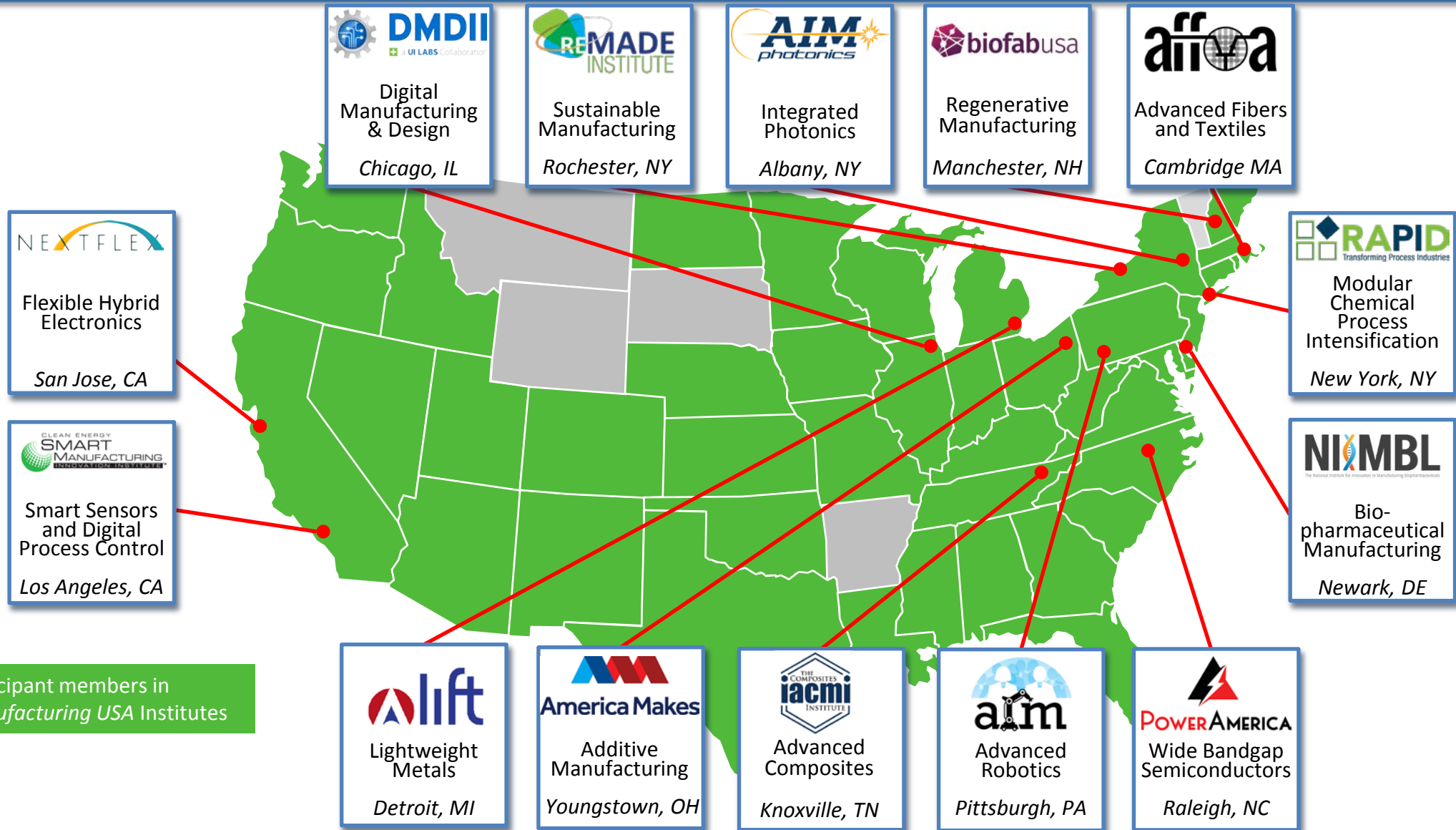
Technology  
Advancement

Workforce  
Development

Sustainability



# Manufacturing USA Today

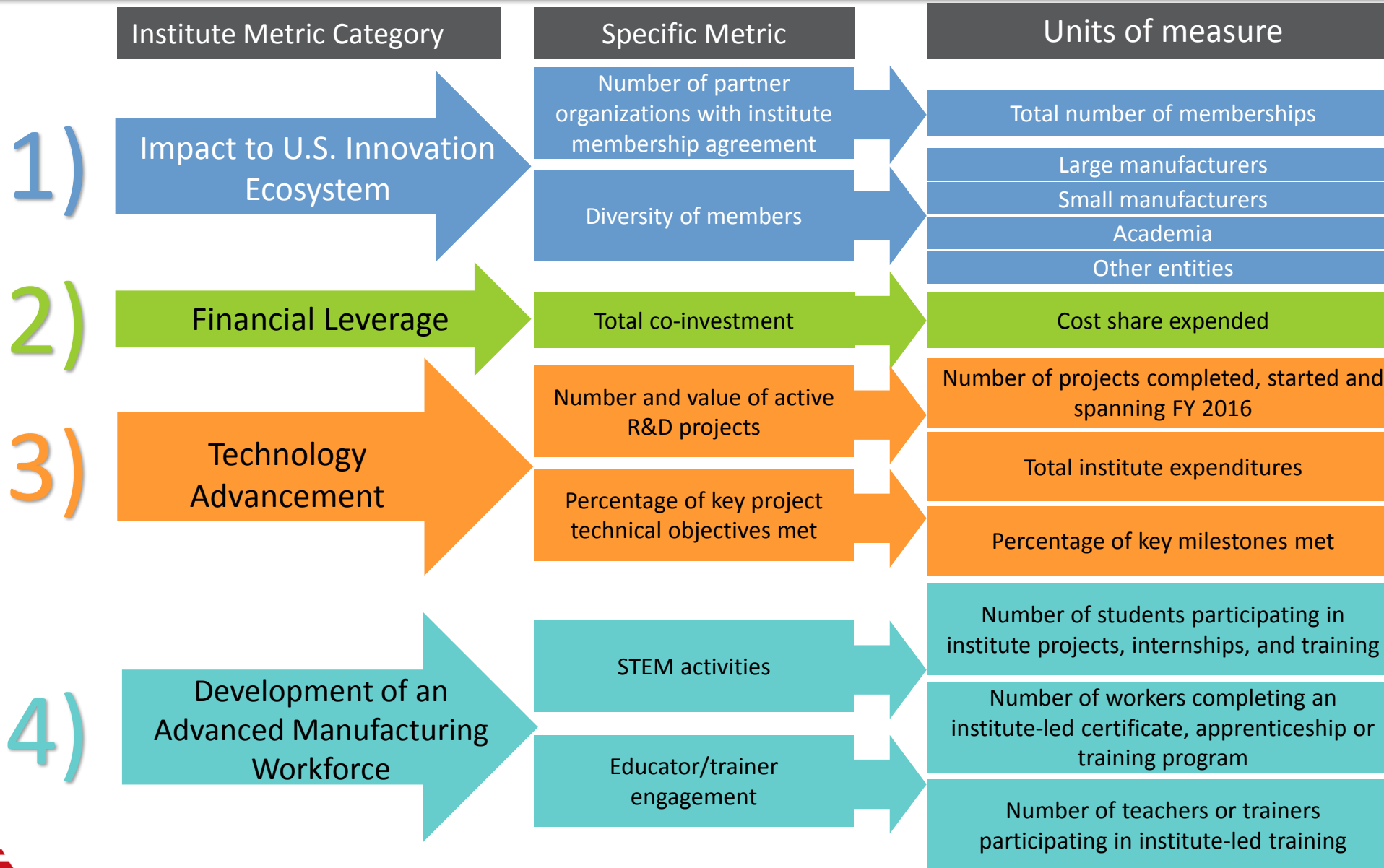


# Agenda

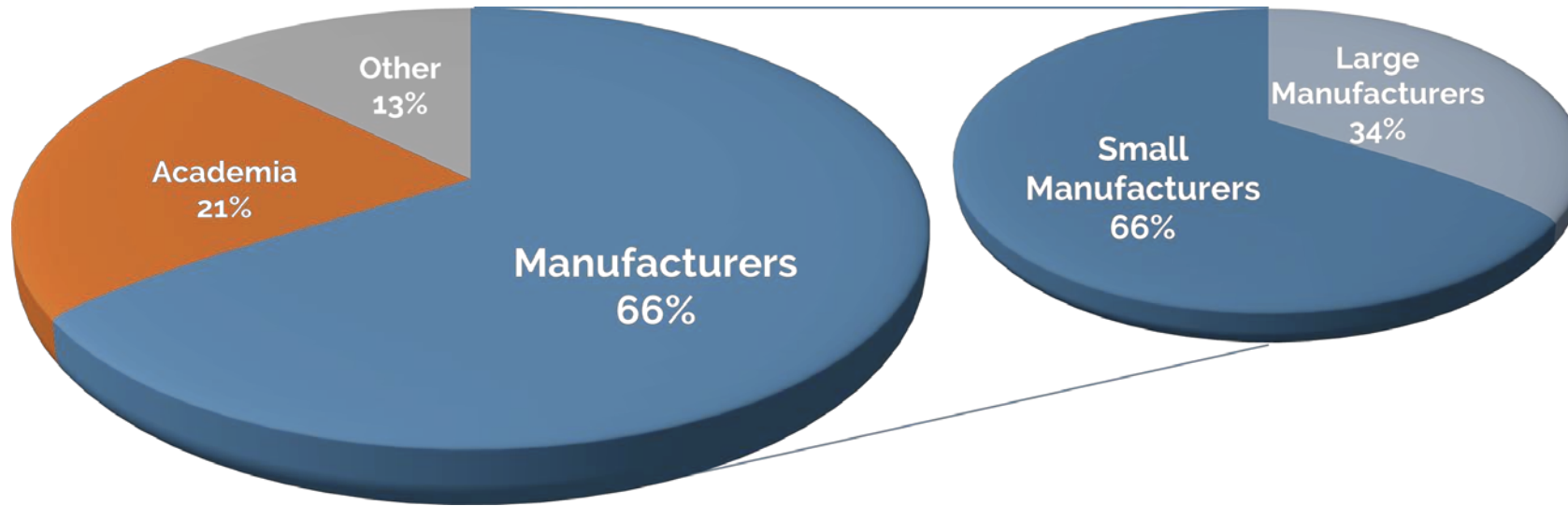
- Take-off – Mission/Vision/Goals, status
- Journey – 2016 Program Results
  - Impact to U.S. innovation ecosystem
  - Leverage
  - Technology Advancement
  - Workforce
- Landing – Building on External Assessments



# Measuring Performance



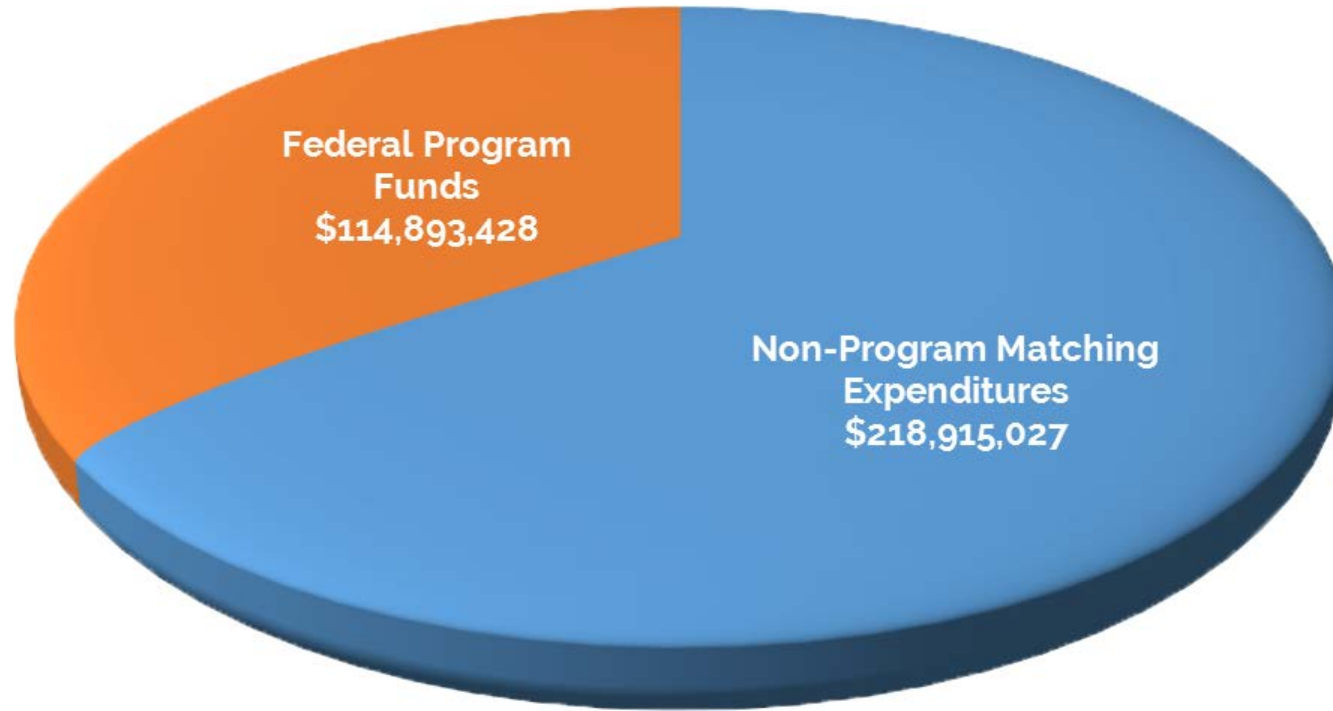
# 1) Impact to U.S. Innovation Ecosystem



- Manufacturing USA Institutes Have **830** Members – 66 % are Manufacturers
- 66 % of manufacturers (341) were small manufacturers.
- Other participants included:
  - **177** universities, community colleges, and other academic institutions
  - **105** other entities, including federal, state, and local government agencies, federal laboratories, and not-for-profit organizations.



## 2) Financial Leverage



- FY 2016 matching was nearly 2 to 1
- Of \$333,808,455 in total institute expenditures
  - 66 % of Institute Came from Non-Federal Matching Funds
  - 34 % came from non-program matching expenditures
- Expenditures funded all aspects of institute operation (e.g. technology advancement projects, education and workforce training efforts, and capital equipment)





# 3) Technology Advancement: Innovation Leads to U.S. Jobs

**FY 2016: 191 active research and development projects at institutes.**

## ***Example Project at PowerAmerica***

In under a year, researchers from John Deere and the Department of Energy National Renewable Energy Laboratory developed a prototype high power inverter for hybrid motors in heavy duty construction vehicles and trucks.

- Higher efficiency and lower heat-related breakdowns compared with traditional transformer-based inverters.
- Deere plans to hire American production workers in Fargo, ND to manufacture and sell inverters starting in 2019.



*“Through our collaboration with PowerAmerica, we believe our silicon carbide technology work has been advanced by five years.” — Brij Singh, John Deere*



# 3) Technology Advancement: Collaboration Improves Efficiency

## *Example Project at PowerAmerica*



- Digital Manufacturing Commons Hackathon
  - Participants developed and tested Digital Manufacturing Commons apps using 4.5 years worth of real-world factory floor data from Indiana-based ITAMCO
  - ITAMCO benefits from community analysis of their data, suggesting ways to optimize utilization, improve energy usage and manage machine health

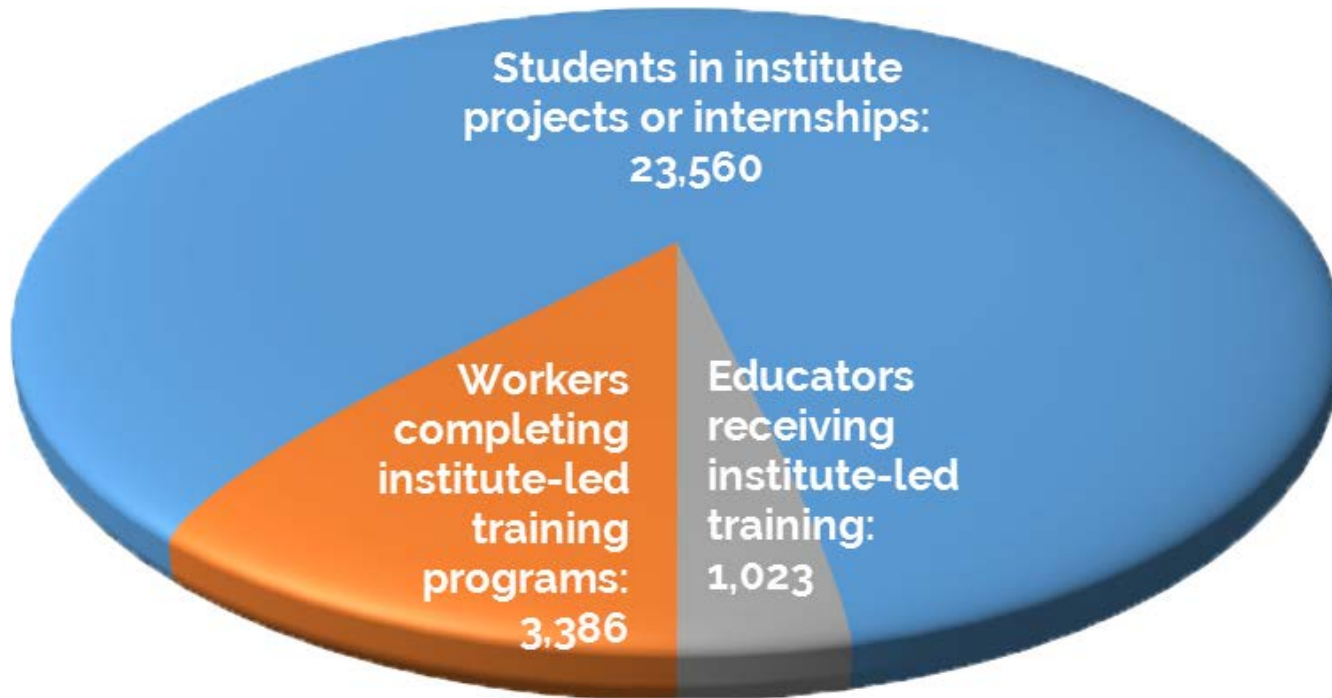


*“To develop new ideas and remain competitive, we need to break out of our silos - and that’s exactly what we’re able to do by working with DMDII. The DMDII network connects us with people we wouldn’t have been able to access otherwise - from large OEMs to entrepreneurs and hackers,” Joel Neidig, ITAMCO*

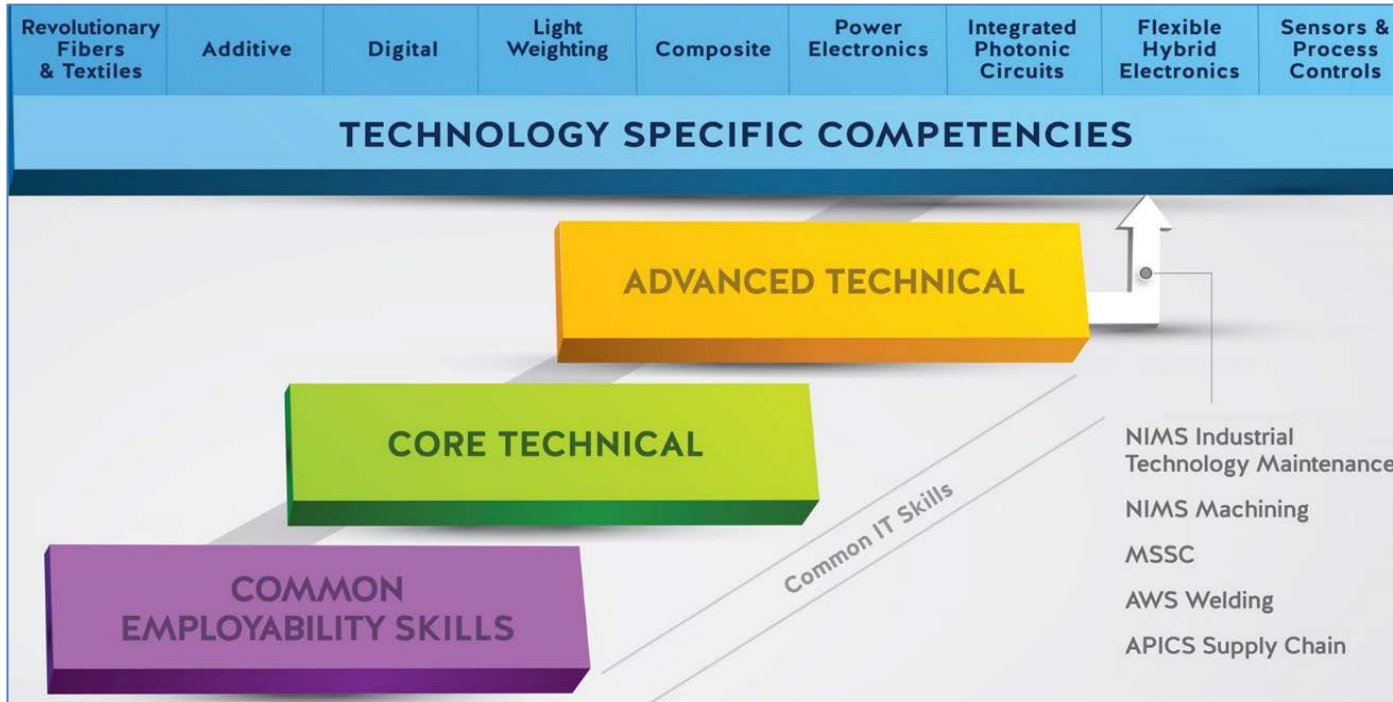


## 4) Development of an Advanced Manufacturing Workforce

- Nearly 28,000 participated in institute-led workforce programs, including
  - **23,560 students** in institute research and development projects, internships, or training
  - **3,386 workers** completed institute-led certificate, apprenticeship, or training programs
  - **1,023 teachers** and trainers in institute-led training for instructors



## 4) Workforce: The Role of the Network



- The Manufacturing USA Education and Workforce Development team identified common skills needed across advanced manufacturing technologies
- They developed a common training model, built around those core competencies
- Each institute then adopts, refines, or develops technology-specific modules to meet their industry's needs.
- The model evolves as institutes improve and share common materials across the network



# Agenda

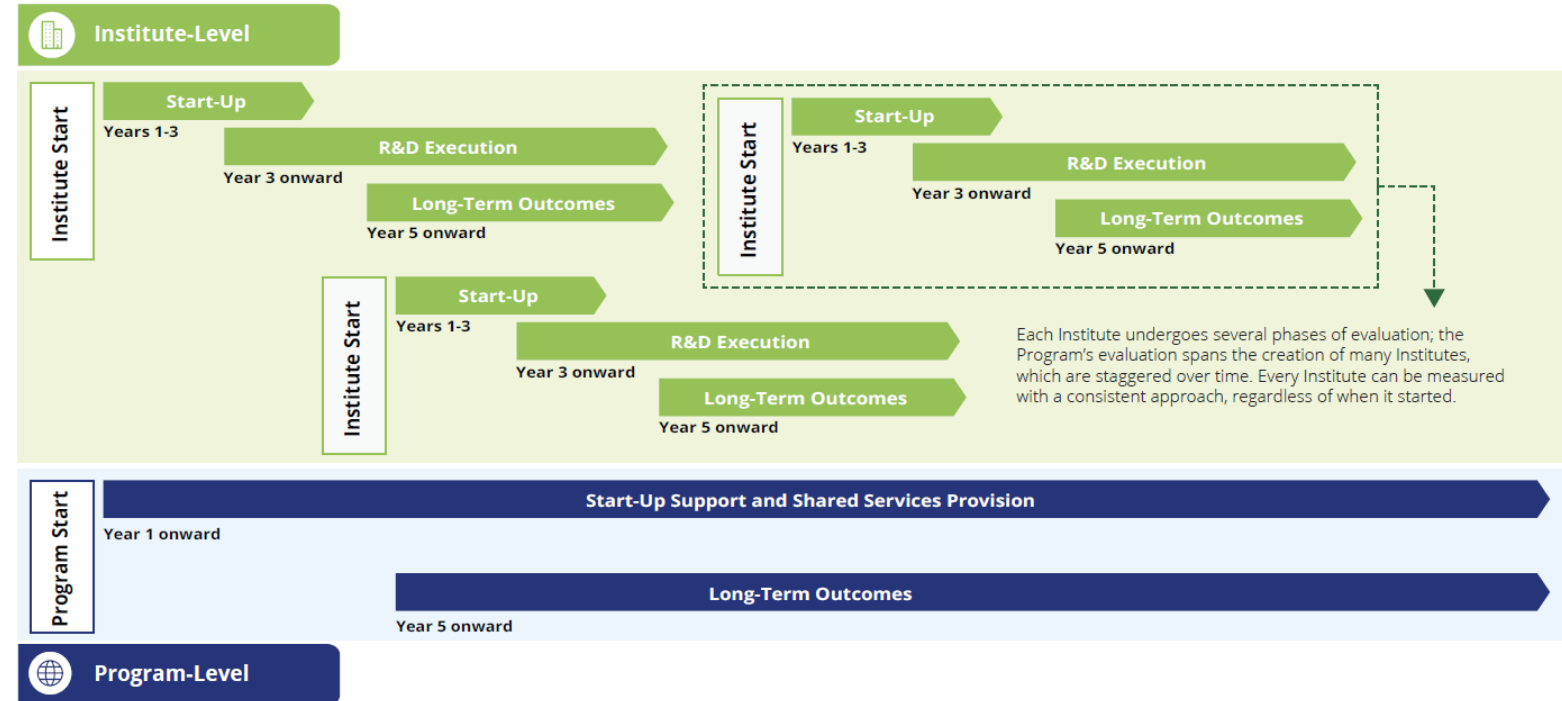
- Take-off – Mission/Vision/Goals, status
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- Landing – Building on External Assessments
  - Deloitte/private sector views
  - GAO/public sector views



# Building on External Assessments – Deloitte Recommendations

- Deloitte Recommendation: Develop strategies for long-term growth and sustainability, maintaining focus on U.S. national priorities.

— Manufacturing USA will build on Deloitte's recommendation for expanding and modifying metrics as the program matures





# Building on External Assessments – GAO Recommendations

- GAO: work with all non-sponsoring agencies whose missions contribute to or are affected by advanced manufacturing
  - Manufacturing USA has added Department of Labor, and Department of Health and Human Services (FDA and BARDA) to its interagency working team
- GAO: expand the Manufacturing USA governance document to detail roles and responsibilities of participating agencies that do not sponsor institutes
  - All participating agencies agree with this recommendation



# Conclusions

- Manufacturing USA is successfully achieving its program goals
- Manufacturing USA institutes are convening a diverse array of members and coordinating project activities
- Small business stand to benefit specifically
- Leveraging and collaboration improve effectiveness of institutes and provide multiplier effect for members





# Thank you!



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