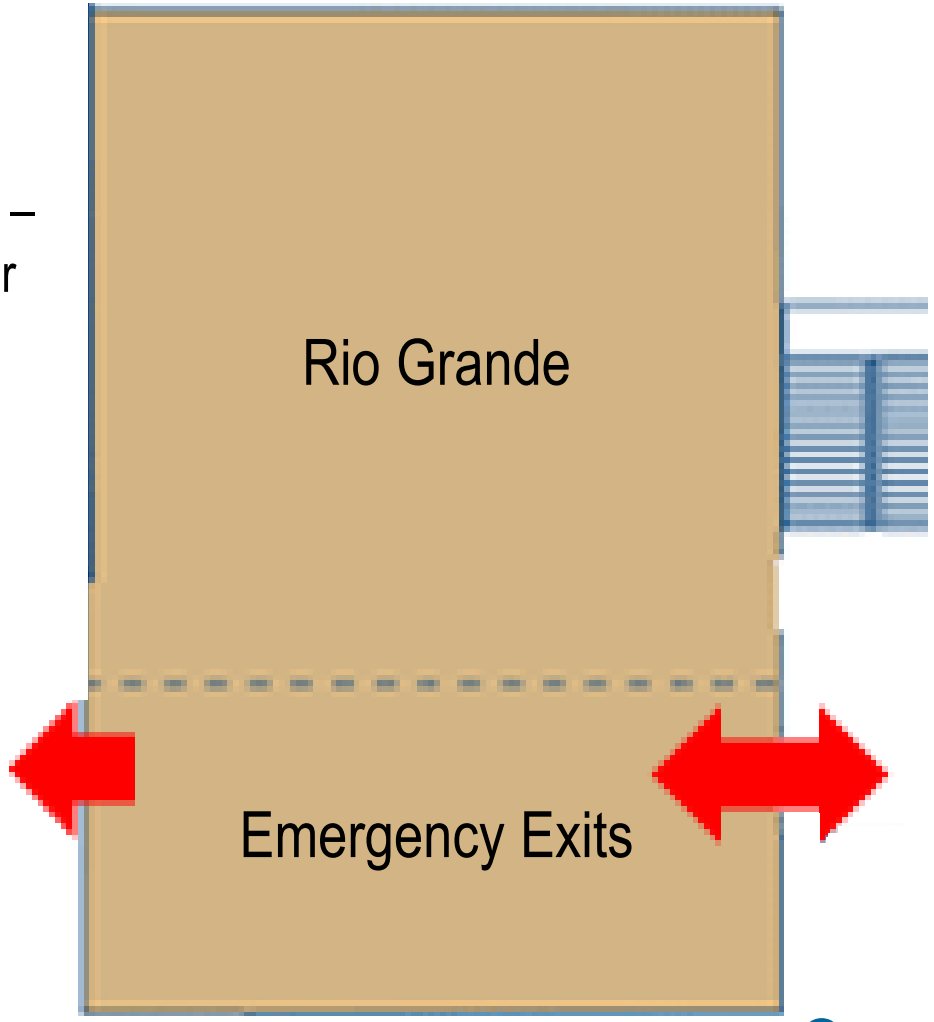
MEP Advisory Board Meeting

Wednesday, June 13, 2018

Welcome!

University of Texas at Arlington –
E.H. Hereford University Center
Meeting location:
Rio Grande, Second Level

Taxi/Uber Pick-up Address:
300 W. First Street



Wednesday, June 13, 2018: Meeting Agenda Details

9:00 – 9:05 a.m.	**Board Meeting Opening/Logistics**
9:05 – 9:50 a.m.	**Welcome and Introductions** • Opening Remarks • Welcome to the Campus of UTA • Welcome from Texas' MEP, TMAC • Welcome from NIST Leadership • Board and Audience Introductions
9:50 – 10:05 a.m.	**Update: MEP National Network Strategic Plan 2017-2022**
10:15 – 10:45 a.m.	**MEP Director's Update**
10:45 – 11:30 a.m.	**Interactive Working Session** • Spreading the Good Word – Best Practices for Powerful Advocacy
11:30 – 12:00 p.m.	**Presentation** • Update from the Manufacturing U.S.A. Institutes • *Board Feedback & Discussion*

Continued…

1:30 – 1:35 p.m.	**Welcome Back/Afternoon Overview**
1:35 – 2:20 p.m.	**Working Group Update:** • Supply Chain Development Working Group • *Board Feedback & Discussion*
2:20 – 3:05 p.m.	**Working Group Update:** • Performance/Research Development Working Group • *Board Feedback & Discussion*
3:20 – 4:00 p.m.	**Working Group Update:** • Executive Committee Working Group • *Board Feedback & Discussion*
4:00 – 4:30 p.m.	**Wrap-up/Public Comments**

Welcome and Introductions

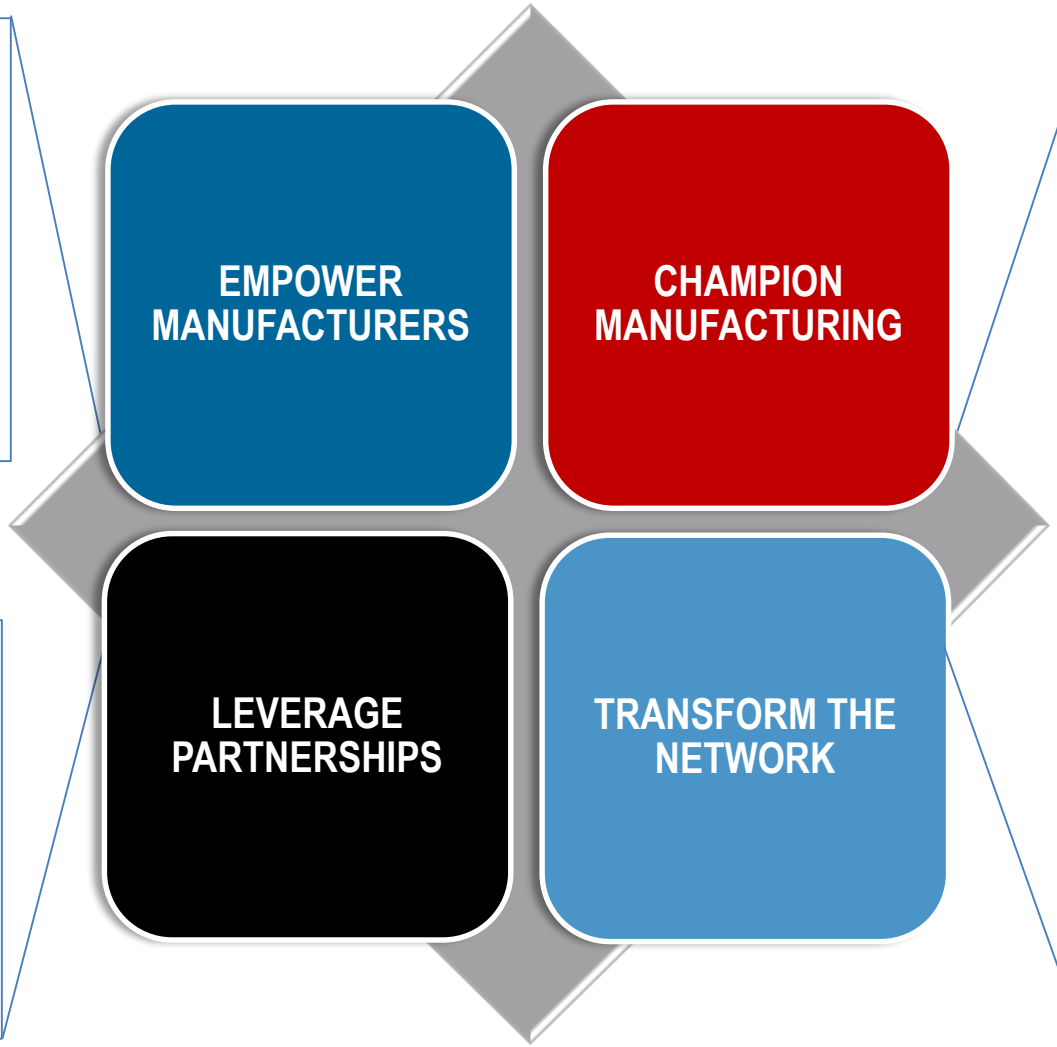
- **Bernadine Hawes**, MEP Advisory Board Vice Chair
- **Vistasp Karbhari, Ph.D.,** President, University of Texas Arlington
- **Mark Sessumes,** Director, TMAC
- **Carroll Thomas**, NIST MEP Director
- **Guests**
  - **Name**
  - **Name of Organization**
  - **How many years involved with MEP**

MEP National Network Strategic Plan
Future is Now: MEP National Network Framework

MEP NATIONAL NETWORK
STRATEGIC PLAN 2017-2022

MEP National Network™ 2017-2022 Strategic Goals

Objective— to assist U.S. manufacturers in embracing productivity-enhancing innovative manufacturing technologies, navigate advanced technology solutions and recruit and retain a skilled and diverse workforce.



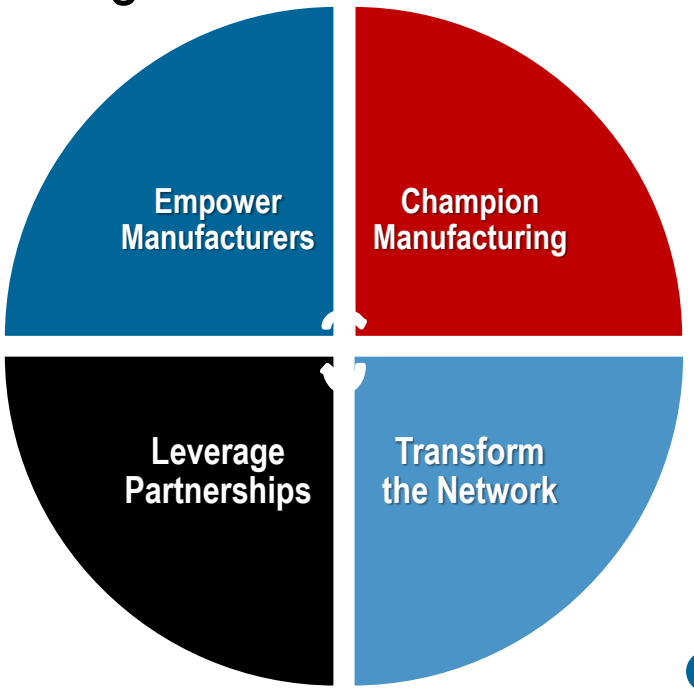
Objective— to actively promote the importance of a strong manufacturing base as key to a robust U.S. economy and for the protection of national security interests; create awareness of innovations in manufacturing; create workforce development partnerships to build a stronger and diverse workforce pipeline; and maximize market awareness of the MEP National Network.

Objective— to leverage national, regional, state and local partnerships to gain substantial increase in market penetration; identify mission-complementary advocates to help MEP become a recognized manufacturing resource brand; build an expanded service delivery model to support manufacturing technology advances.

Objective— to maximize National Network knowledge and experience to operate as an integrated national network; increase efficiency and effectiveness by employing a Learning Organization platform; and create a resilient and adaptive MEP National Network to support a resilient and adaptive U.S. manufacturing base.

Network Priorities for the Next 18 Months

- Create an integrated National Network Service Delivery System
- Update National-level Partnerships and Performance Support Services
- Define Areas of Focus for Manufacturing Technology Advances
- Develop Supply Chain National Services and Information and Technology Access
- Build Infrastructure for National Network Learning Organization



Defined Areas of Focus for Manufacturing Technology Advances

- **Cybersecurity -** National Network implementation and current assessment/future trends
- **Digital manufacturing -** National Network implementation and current assessment in industry and National Network/future trends
- **Automation and robotics -** current assessment in industry and National Network/future trends
- **Additive manufacturing -** current assessment in industry and National Network/future trends
- **IoT -** future trends for small and medium-sized manufacturers in advanced manufacturing
- **National and regional service portfolio coordination**
- **National Network workforce development plan**

Eighteen-Month Measures of Success- Baselines

- **Piloted integrated national networked approach to delivery system engaging 50% of Centers in multi-center delivery projects.**
  - FY 2017 baseline number of Centers in multi-center delivery projects- 17 Centers
- **Increased small/rural engagements through 3rd party partnerships by 10% and increased longer-term impactful projects with these smaller firms by 5%.**
  - FY 2017 baseline number for small manufacturers engaged through 3rd party partnerships- 507
  - FY 2017 baseline number for rural manufacturers engaged through 3rd party partnerships- 341
  - FY 2017 baseline impacts for impactful (transformational) projects - 1,100 clients, 21,612 jobs, $2.7B Sales, $484M cost savings, $762M investments.
- **Attained Operational Excellence in 25% of Centers' operations and in 50% of NIST MEP administrative support.**
  - Baseline number of Centers engaged – Centers monitored by NIST MEP
  - NIST MEP Divisions- Examples- SOPs in place, travel and T&A policies and procedures
- **Increased awareness of the MEP National Network brand by 10% over base brand recognition measurement a year after the Network launches the brand.**
  - February 2018 MEP National Network had 10 instances of branded searches
  - February 2018 MEP National Network webpage received 695 page views
  - February 2018 MEP National Network webpage had 14 backlinks

Eighteen-Month Measures of Success- Progress

- **Piloted integrated national networked approach to delivery system engaging 50% of Centers in multi-center delivery projects.**
  - 1st Quarter Progress for number of Centers in multi-center delivery projects- 17 Centers
- **Increased small/rural engagements through 3rd party partnerships by 10% and increased longer-term impactful projects with these smaller firms by 5%.**
  - 1st Quarter Progress for small manufacturers engaged through 3rd party partnerships- **244**
  - 1st Quarter Progress for number for rural manufacturers engaged through 3rd party partnerships- **152**
  - 1st Quarter Progress for impacts for impactful (transformational) projects - **580 clients 13,529 jobs, $1.1B Sales, $125.6M cost savings, $290M new investments**
- **Attained Operational Excellence in 25% of Centers' operations and in 50% of NIST MEP administrative support.**
  - 1st Quarter Progress for number of Centers engaged – Centers monitored by NIST MEP
  - 1st Quarter Progress for NIST MEP Divisions- Examples- SOPs in place, travel and T&A policies and procedures
- **Increased awareness of the MEP National Network brand by 10% over base brand recognition measurement a year after the Network launches the brand.**
  - 1st Quarter Progress - **MEP National Network had 20 instances of branded searches (up 100% over baseline)**
  - 1st Quarter Progress - **MEP National Network webpage received 793 page views (up 14% over baseline)**
  - 1st Quarter Progress - **MEP National Network webpage had 24 backlinks (up 71% over baseline)**

Morning Break

Director's Update

Carroll Thomas

NIST MEP Director

MEP Program Budget Outlook

(as of 6/13/18)

FY 2018 Appropriation Status

- Budget enacted on 3/23/18 at $140 million
- Automatic funding level from OMB of $93.6 million through 5/22/18
- Full access to Appropriation approved 6/1/2018

FY 2019 President's Budget Request

- Program proposed for elimination with $0 funds for wind-down
- House Full Committee Mark on 5/17/18 at $140 million
- Senate Sub Committee Mark TBD

NIST MEP FY 2018 Current Spend Plan

	($ millions)
Available Funding:	
Full Year Appropriation	$140.0
Carryover from FY 2017	$ 8.5
Total Available Funding	$148.5
Planned Expenditures:	
Center Renewals	$110.0
Supplemental Funding	$ 10.0
Strategic Competitions	$ 8.1
Contracts	$ 5.7
NIST MEP Labor	$ 8.3
NIST Overhead	$ 6.4
Total Planned Expenditures	$148.5

Reports to Congress

- Competition
  - *Pursuant to House Report 115-231 accompanying the Consolidated Appropriations Act, 2018 (P.L. 115-141), NIST shall provide the Committee on Appropriations with updates on the status of re-competition of the MEP Centers*
  - Provided by NIST on 5/23/18 for concurrence and transmittal to OMB

- Efficiency
  - Enabled given FY 2018 Budget Apportionment, now in development

American Innovation & Competitiveness Act (AICA): Required report and update on GAO interactions

- AICA requires the Government Accountability Office (GAO) to produce a report in consultation with the MEP Advisory Board:
  - Analyzing cost share effectiveness, engagement in services/characteristics including volume and type of services
  - Whether cost-share ratio change effects services provided by Centers
  - GAO to deliver report to Congress no later than January 6, 2019

- Current Status
  - Entrance Conference with GAO took place April 5th
  - Package of materials provided to GAO in response, including a matrix of MEP Center Characteristics for information gathering / interviews.
  - Chosen Impact Washington and MASS MEP to visit
  - Conference call with GAO focused on data took place May 15

MEP Economic Impact Analysis

In April 2018, the *W.E. Upjohn Institute for Employment Research* published a study that found the MEP Program generated a substantial return on investment of nearly **14.5:1** for the $128.0 million invested by the federal government.

You can access the full study on the NIST MEP Website: https://tinyurl.com/MEP-Upjohn-2018

State Manufacturing Policy Academy

- *Strengthening Your State's Manufacturers* will identify relevant manufacturing-related partnerships and policies to advance the economic development strategies for each participating state
- Policy Academy features state-based teams led by state economic development agency leaders and MEP Center Directors that will go through a year-long planning and implementation process
- NIST MEP will customize this process and expected outcomes by:
  - Helping states build on existing policy efforts and provide ideas about improving performance of existing approaches
  - Providing access to national subject matter experts
  - Providing means to discuss and refine ideas from other states facing similar challenges or opportunities
- Organized by SSTI and CREC; partnering with IEDC; other partners to be added as needed
- First Policy Academy to include cohort of up to 4 states from among 15 not holding 2018 gubernatorial elections (DE, IN, KY, LA, MS, MO, MT, NJ, NC, ND, PR, UT, VA, WA, WV)
- Second cohort will be selected in 2019-2020 from the remaining states

Alaska Competition

- MAKE Partnership host SWAMC has decided to voluntarily end their cooperative agreement in AK as of 12/31/18
- Alaska Information Forum held on 6/7/18 at the Denali Commission in Anchorage provided information about hosting an MEP Center
  - Targeted Forum marketing outreach took place via e-mail
  - 7 individuals attended the Forum in person, 2 attended by phone
  - 3 parties requested and participated in 20-minute one-on-one sessions
- NOFO currently being finalized, with publication anticipated soon
- New Alaska MEP Center expected to begin operations on 1/1/19

Advisory Board and NIST Staffing Updates

Advisory Board

- Current Board count = 14; 2019 next membership expires
- New Member in DOC Vetting Process
  - Patricia Moulton, President –Vermont Tech (Community College)

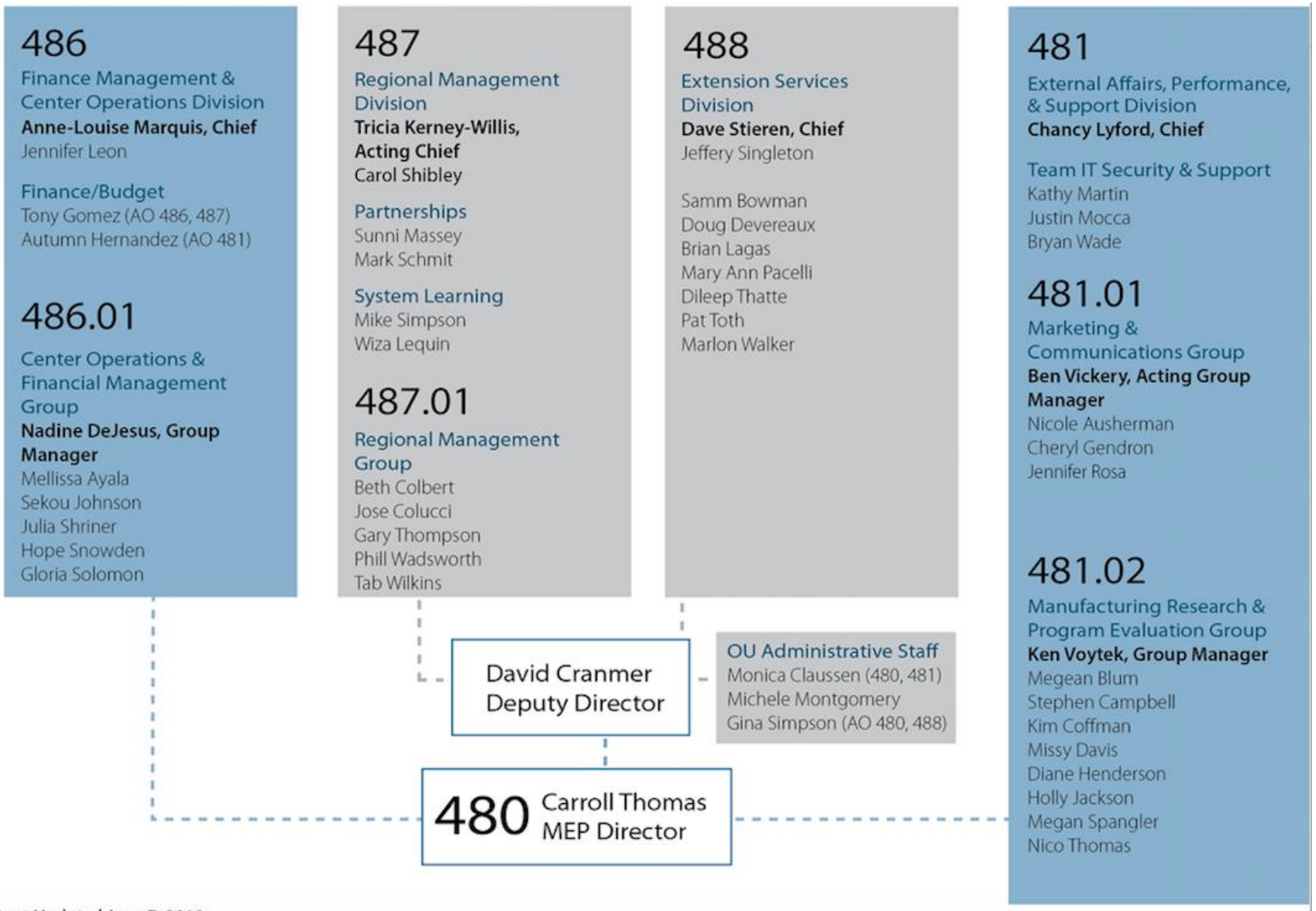
NIST MEP Staff

- Two New Federal Program Officers:
  - Sekou Johnson - Southwest
  - Julia Shriner - Midwest
- Several other positions in process, including new Regional Manager

Center Directors

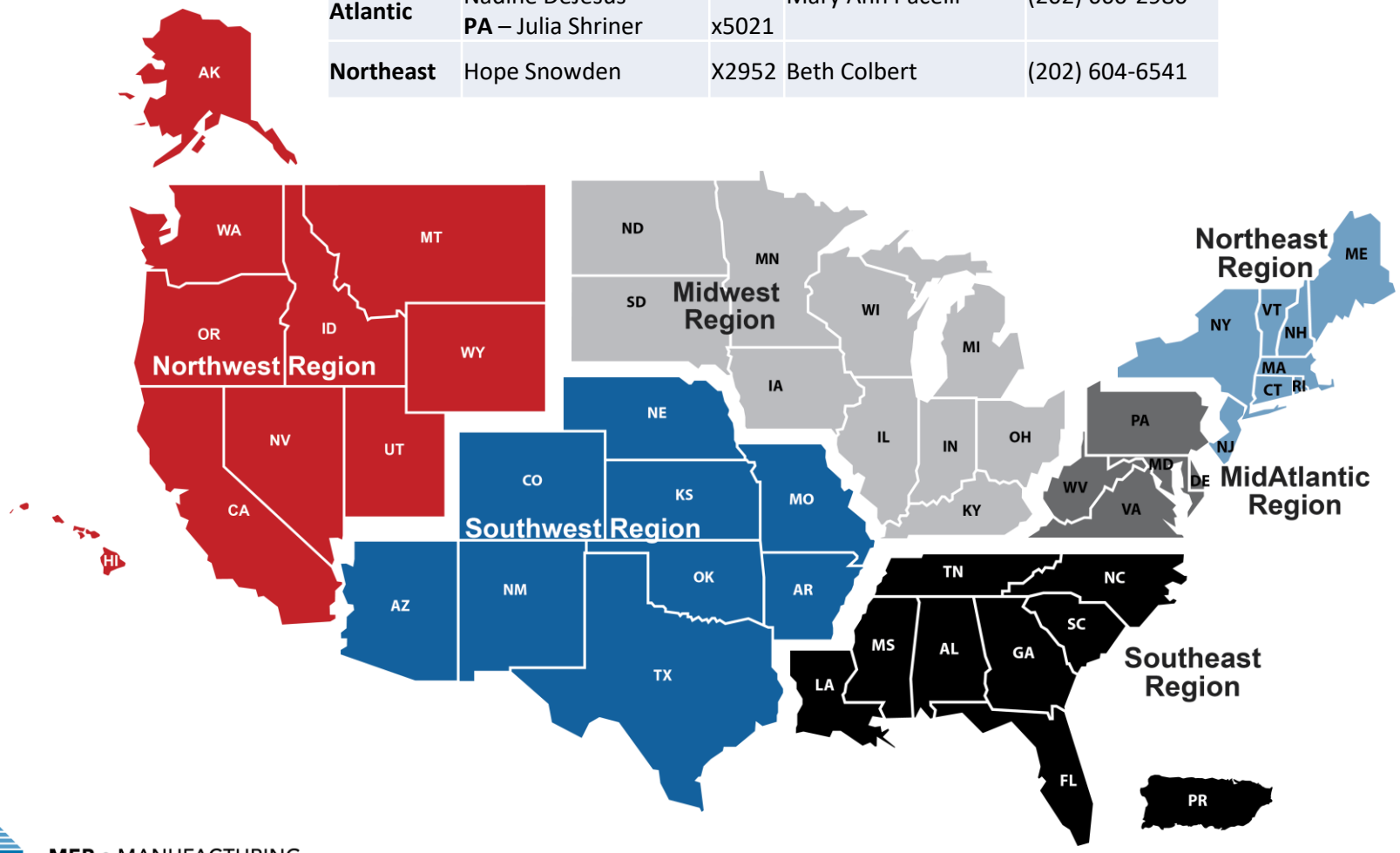
- LA - Willie Smith, Sr. (Acting Director, MEPoL)
- KS - Tiffany Stovall (Permanent CEO, MAMTC)
- NE – Matt Allmand (Selected by host as Permanent Director, NE MEP)
- TX – Mark Sessumes (Selected by host as Permanent Director, TMAC)

NIST MEP Org Chart (FY18)



Last Updated June 7, 2018

MEP Region	FPO	Ext	RM	
Northwest	Mellissa Ayala	X5771	Tab Wilkins	(301) 646-4069
Midwest	Julia Shriner	X5021	Phill Wadsworth	(240) 426-4649
Southwest	Sekou Johnson	X6975	Gary Thompson	(240) 483-2955
Southeast	Gloria Solomon	X5031	Jose Colucci	(202) 281-5456
Mid-Atlantic	**DE, MD, VA, WV** - Nadine DeJesus **PA** – Julia Shriner	X8322 x5021	Mary Ann Pacelli	(202) 660-2980
Northeast	Hope Snowden	X2952	Beth Colbert	(202) 604-6541



Future is Now
Establishing an Integrated National Network

Why an Integrated National Network?

Manufacturing is transforming, and we as a Network must shift to meet the manufacturing needs of our nation

What is an Integrated National Network?

An organization of MEP Centers, collaborating with NIST MEP and Partners, that collectively act on a national and regional basis to think more broadly about providing solutions to the unmet current and future needs of small and medium-sized manufacturers

Center Leadership Team & Implementation Committees Established

Roles

- **Chair**: Jim Watson
  Convening authority, drafts agendas, leads discussions (Carroll Thomas)
- **Vice Chair**: Bill Donohue
  Supports Chair as needed
- **Secretary**: Jennifer Hagan-Dier
  Handles scheduling and takes minutes
- **Outreach Liaison**: Tom Bugnitz
  Ensures consistent, branded, and proactive communications
- **Committee Champions**: Lead committees and report to CLT
  - **Knowledge Sharing Committee**: Buckley Brinkman (Mike Simpson)
  - **Communications Committee**: Ethan Karp (Ben Vickery)
  - **Manufacturing and Technology Solutions Committee**: Mike Coast (Dave Cranmer)
  - **Network Evolution Committee**: Bonnie Del Conte (Mark Schmit)
  - *Other committees to be established by CLT as needed*

Future is Now Next Steps

Priorities

1. Define vision of the network, develop value proposition and benefits
2. Provide guidance and oversight to centers and committees
3. Outreach and communications to the network

Actions

- Foundation for Manufacturing Excellence (FORME) create a sponsorship package
- Champions to engage potential committee members
    - Champions will provide any relevant feedback from member conversations
- Create boilerplate Terms and Conditions for multi-state engagements
- Champions send recommended Committee Members to Center Leadership Team

Performance-based Panel Review

- Intent
  - AICA requires a ***PERFORMANCE***-based review to satisfy statutory requirement
  - Provide analysis, diagnosis and feedback to Centers regarding their strengths and opportunities for improvement identifying deficiency areas, if any; performance is defined as market penetration, economic impact
  - Includes an evaluation of a Center's own Performance & Evaluation Management System effectiveness, use and self-assessment
  - Promotes the sharing of information across the Network
  - Identifies common Center performance gaps so the Centers can leverage internal and external resources to develop performance improvement practices

MEP's Data Reporting & Center Performance System

- **Operating Plan**: Annual plan (linked to the Center's strategic plan) that outlines the anticipated activities and results for the coming year
- **Quarterly Data Reporting**: Center reports progress and client project data quarterly plus staff, financial information, and other elements
- **Annual Review**: Each year prior to annual renewal of federal funding, the performance of the Center is reviewed comprehensively by NIST MEP
- ***External Panel Review**: In the 3rd and 8th year, the Center is reviewed by an external panel that assesses the Center performance and performance evaluation management system*
- **Third Party Client Survey**: NIST sponsors a national survey conducted quarterly by an independent third party that collects data from Center clients on the business impacts of the services provided by their local Center. NIST MEP uses this performance data as a core component in reviewing Center performance. The results also provide the Centers with a tool to measure their effectiveness, benchmark their performance against other Centers, and communicate their results to stakeholders.

Performance-based Panel Review Roles

- Panel Members – Who Reviews
  - Three Center Directors (MEP Center Leadership)
    - Role: Provide analysis, diagnosis and feedback to Centers regarding their strengths and opportunities for performance improvement identifying deficiency areas, if any; performance is defined as market penetration, economic impact
  - Panel Chair (NIST MEP Staff)
    - Role: Facilitate process and key discussions; ensuring Panel Members have a complete and clear picture of the Center's overall performance. Develops Panel Summary Report on behalf of Panel
- Panel Review Resources and Support
  - Regional Team (NIST MEP Regional Manager & Federal Program Officer)
    - Role: Provide clarifying and/or factual background information about the Center to the Panel Members
  - Panel Review Manager (NIST MEP Staff)
    - Role: Manages Panel Review process; incorporating lessons learned for continuous improvement. Reviews and analyzes outcome of each Panel Review to identify potential best practices and common challenges across the National Network

Performance-based Panel Review Inputs & Process

- **Panel Review Inputs**
  - Center Performance & Profile Report (CPPR)
  - Center's Strategic Plan
  - Center's Year 1 & 2 Annual Review Reports
  - Center's Response to Pre-Panel Questions
  - Center's Performance & Evaluation Management System Presentation
- **Panel Review Output**
  - Panel Summary Report
    - Panels feedback on Center Strengths and Opportunities for Performance Improvements including the adequacy of the Center's Performance & Evaluation Management System
- **Process**
  - Overall Process and key review documentation is automated and streamlined in the Review Module located within MEP's Enterprise Information System (MEIS)
  - The CPPR composed of Center data readily available in MEIS. Center is responsible for responding to key performance questions within the 7 categories

Performance-based Peer Panel Review Update

- Round 1 Complete
  - CO, CT, IN, MI, NC, NH, OK, OR, TN, TX, VA, and FL
- Round 2 reviews in process May – July 2018
  - AK, IL, ID, MN, NJ, NY, WA, WI, WV
- The 7 legacy centers (RI, AZ, MD, KY, SD, NE, and FL) will be the first Centers to undergo the 5th Year legislatively required Secretarial evaluation
  - To date, RI and MD have been completed; AZ is almost completed; and KY and SD are underway

MEP Cybersecurity Industry Efforts

- MEP Centers offer assistance to small manufacturers implementing 800-171
  - Training, Web-based resources, FAQs, 3rd Party Service Providers
  - Guidance and Tools: basic to advanced
- MEP collaborated with NIST Labs to develop 800-171A, "Building Effective Assessment Plans"
- MEP closely monitors DFARS developments, works with DOD to define compliance, holds events for SMMs, has begun training MEP Centers to deploy assessment and implementation of 800-171 compliance for DOD suppliers
- Signed MOU with the Procurement Technical Assistance Centers (PTACs)
  - National pilot collaboration with PTACs in multiple states to assist SMMs with DFARS compliance by end of December 2017
  - CO, CT, GA, MI, RI, VT, WA initial pilot states, with other events in other states
- Baldrige Quality Excellence Program creates Cyber Security Excellence Builder
  - Voluntary self-assessment tool that enables organizations to better understand the effectiveness of their cybersecurity risk management efforts
  - Blends the systems perspective of the Baldrige Excellence Framework with the Cybersecurity Framework
  - Incorporates the content outlined in the Cybersecurity Framework into the six elements of the Baldrige approach

Knowledge & Learning Management

Initial Goals/Objectives

1. Create a system to connect those who know, with those who want to know (Ask the Expert System)
2. Establish a structure of content collection for the Learning Management System (LMS)
3. Develop a system of rating that builds our abilities to meet today's and tomorrow's National Network and client needs

Getting the right information, to the right people, in the right media, at the right time!

Planning and Development

- Establish a Coordinating Committee (Steering Group)
- Create a framework that defines and aligns actions, roles and responsibilities
  - FORME LMS Platform (Launched June 2018)
  - Future is Now Knowledge Sharing Committee
  - NIST MEP System Learning
- Establish Small Teams to implement components of the plan

workcred Research Project

Examining the Quality, Market Value, and Effectiveness of Manufacturing Credentials

- The study will be released later this month, with anticipated findings to include:
  - Project will contribute to the body of knowledge for manufacturing related skills credentials
  - Project evaluates the quality of the credentials against national and/or international standards
  - Project identified the following:
    - Many choices of credentials
    - Significant lack of independent research
      - Quality
      - Market value
      - Effectiveness of manufacturing specific credentials
    - Skill gaps that could be filled by creating new credentials and replacing existing ones that are ineffective
    - Credentials being used by manufacturers that are representative of the industry
    - Need for new credentials
      - Scope and outcomes needed of the credential
      - What organizations might be willing and capable of creating the credential
  - Project determined the following:
    - Market value of credentials based on data from the credential issuer
    - How the credential is being used
    - How the effectiveness of the credential is being determined in work settings

Project Sponsored by MEP, in coordination with NIST SCO: engaged Workcred, an affiliate of ANSI

Workcred Summary Recommendations

- Improve understanding about the content and value of credentials
- Expand the use of quality standards for credentials
- Strengthen relationships between manufacturers, education and training providers, and credentialing organizations
- Add employability skills components to existing and new credentials
- Create credentials that focus on performance and address new roles
- Increase the number of apprenticeships and expand apprenticeships to more occupations

2017 Hurricane Disasters: MEP Assisted Manufacturers
(Hurricanes Harvey, Irma, Maria)

Five Awards to MEP Centers
(September 2017-January 2018):

- Texas
- Louisiana
- Florida
- Puerto Rico
- Georgia
  - $6.2 million total funding
  - Over 800 planned assessments
  - Used NIST Authority, Non-Competitive Award process, no cost share

FEMA Disaster Declared Counties:
# of Manufacturers- >41,000
# of Employees- >340,000 employees
Totaling- > $221 billion in manufacturing GDP

Objectives

- Identify obstacles keeping affected manufacturers from returning to normal operations
- Develop plans to support recovery
- Connect SMMs to local, state, and federal resources
- Collect information, best practices, etc., and disseminate
- Development of proactive strategies for risk avoidance by U.S. manufacturers
- Recovery planning for manufacturers across the U.S.

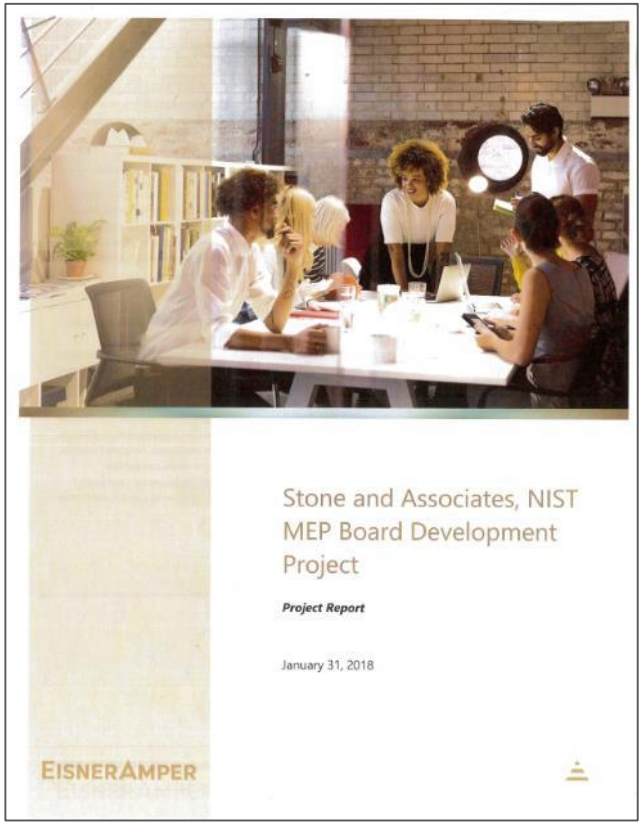
The MEP Program Marks a Major Milestone

1988 - 2018

Interactive Working Session

Spreading the Good Word – Best Practices for Powerful Advocacy

Lisë Stewart, Eisner Amper



MEP • MANUFACTURING
EXTENSION PARTNERSHIP

NATIONAL INSTITUTE OF
STANDARDS AND TECHNOLOGY

Spreading the Good Word – Best Practices for Powerful Advocacy!

Facilitated by Lisë Stewart

Question:

- What compelled you to be a part of this organization?

– What makes you proud? What do you like to share about this organization?

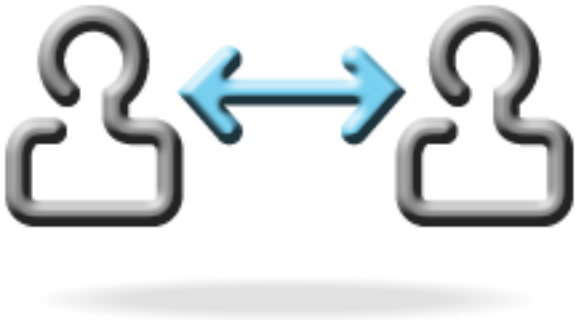
Great Boards…

- Have committed members – *"here because we really believe in the mission"*
- Understand their responsibilities
- Remain Strategic
  - "Don't buy a dog and then do the barking yourself".
- Set clear BOARD objectives (for the Board)
- Monitor against those objectives

Continued…

- Self evaluate, commit to continuous improvement
- Welcome robust conversations in service of the mission
- **Serve as advocates, mentors and true advisors (informed, active and engaged)**
- Refresh their membership regularly
- Value the contributions of the operational staff (and if not, resolve the issue).

Center and Manufacturing Advocate



- **Educate** and **Communicate** to major stakeholders and partners.
- Promote a manufacturing agenda across the region and across the nation!

What is Advocacy?

"Advocacy in democracy is about getting what you want out of the government. In a democracy, which is a collection of voices, it is everyone's job to use their voice to remind the government about what people want."

~ Matthew Kaplan

(former congressional staffer)

Why You?

- You are the unique and authentic link between the program, the community and the policy makers.
- A citizen advocate's voice matters more than most!

What makes a Powerful, Compelling Advocate?

- What can you do to be heard?

Simple Guidelines

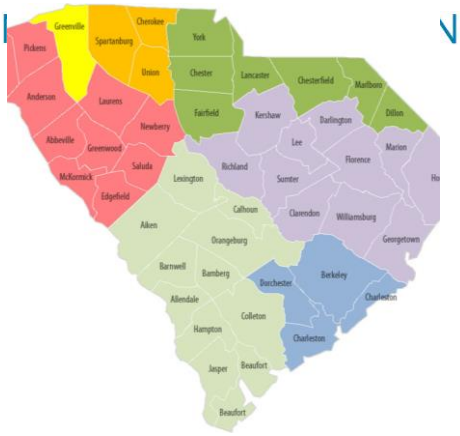
- Keep messages short and concise
- Be passionate, polite and positive
- Aim for the heart
- Don’t bury the lead
- Create curiosity
- Make it relevant
- Make it personal

Guidelines…

- Pictures really are worth a thousand words
- The numbers matter
- Stories reign supreme
- Stand in their shoes
- Make it viral
- Connect in the moment
- Link to timely issues
- Have a call to action
- Be prepared to follow up with more…

Be a part of something that makes you proud!

SC MEP
SOUTH CAROLINA MANUFACTURING EXTENSION PARTNERSHIP

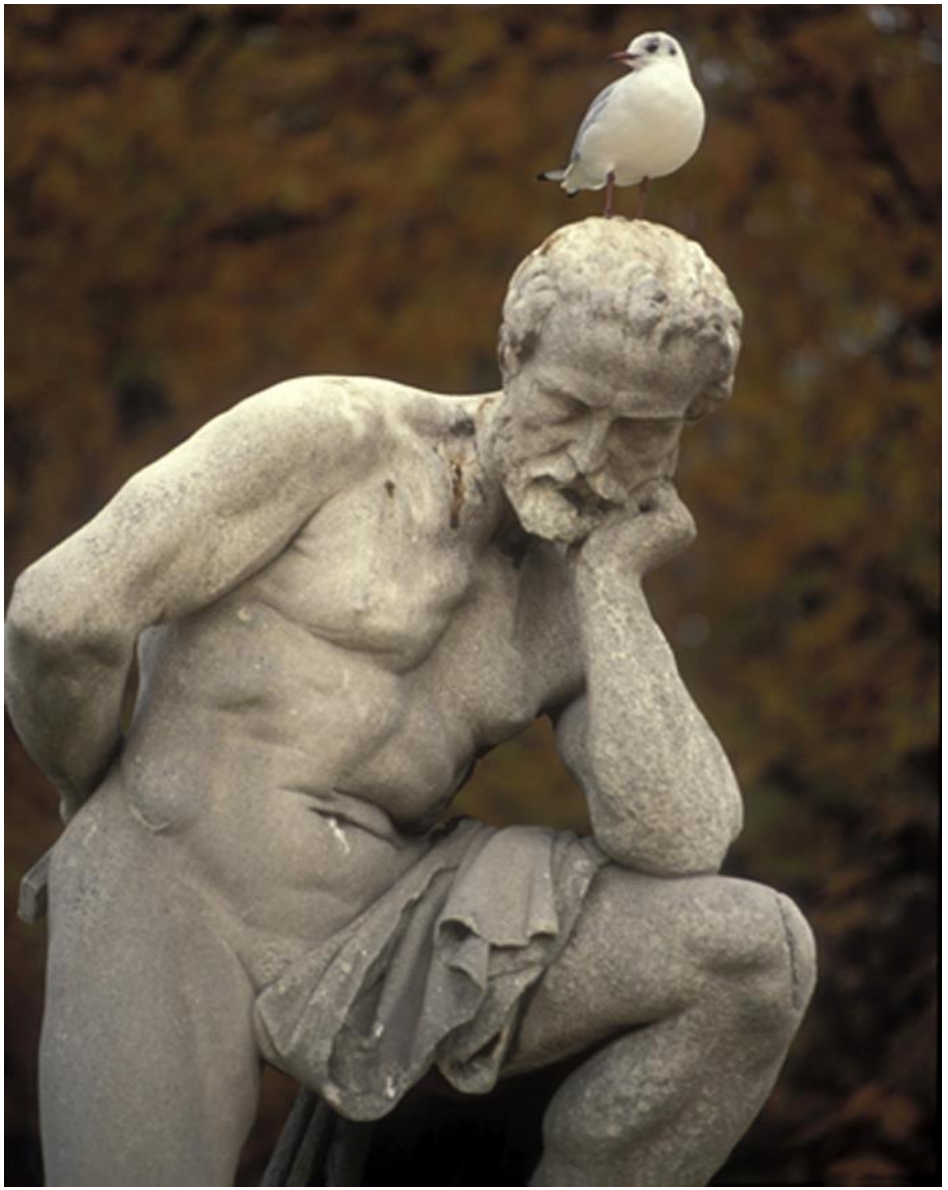


Overall Economic Impact

2015: $1 Billion!
2014: $504.4 M
2013: $441.9 M
2012: $234.8
2011: $240.6
2010: $277.7
2009: $214
2008: $254.8
2007: $357
2006: $441.5
2005: $88.5
2004: $96.4

MEP

What do you need to be successful advocates?



Thank you!

Lisë Stewart | *Director, Center for Family Business Excellence*

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EISNERAMPER

Presentation

Update from the Manufacturing U.S.A. Institutes

Dr. Frank Gayle, NIST Office of Advanced Manufacturing

MFG USA®

Manufacturing USA Program Update
MEP Advisory Board

June 13, 2018

Frank W. Gayle, Deputy Director
NIST Office of Advanced Manufacturing and the
Advanced Manufacturing National Program Office

An interagency team building partnerships with U.S. industry and academia

Topics

1. Manufacturing USA® Background
2. MEP Embedding Projects
3. What's Ahead

Manufacturing USA Background

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.

Vision: U.S. global leadership in advanced manufacturing

Addressing **National Needs**

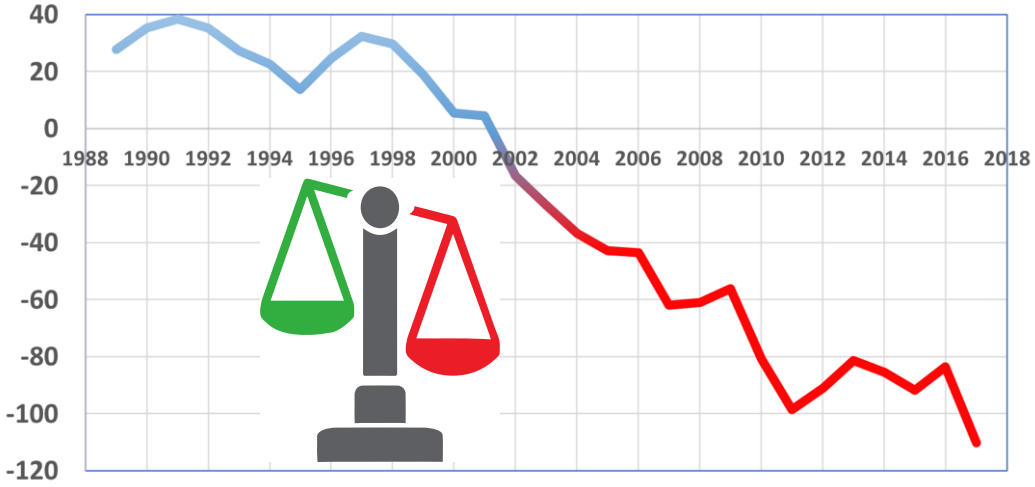
- The U.S. leads the world in innovation and inventions
- But the manufacturing capabilities and new products get developed in other countries instead

"Embracing technological innovation and speeding adoption are critical for U.S national security and economic competitiveness."

The Work Ahead
Council on Foreign Relations
April 2018

Why Manufacturing USA

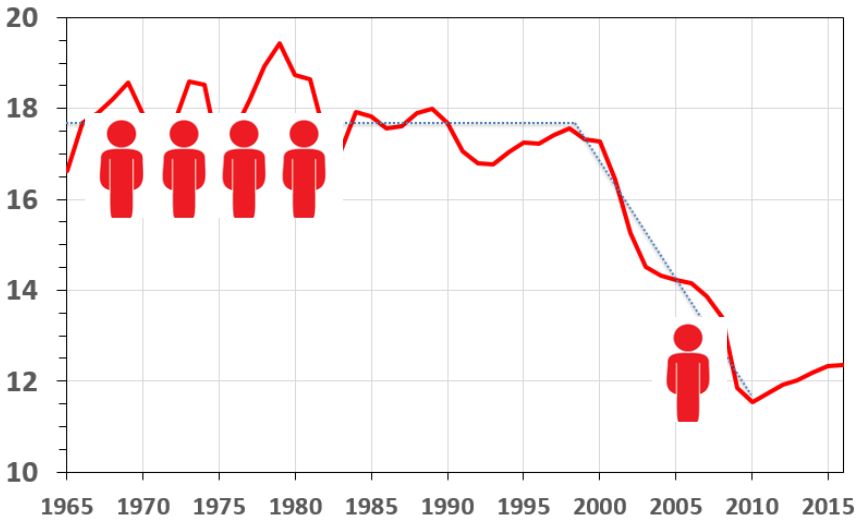
US Trade Balance for Advanced Technology Products (Billions)



Revitalize American Manufacturing and Innovation (RAMI) Act

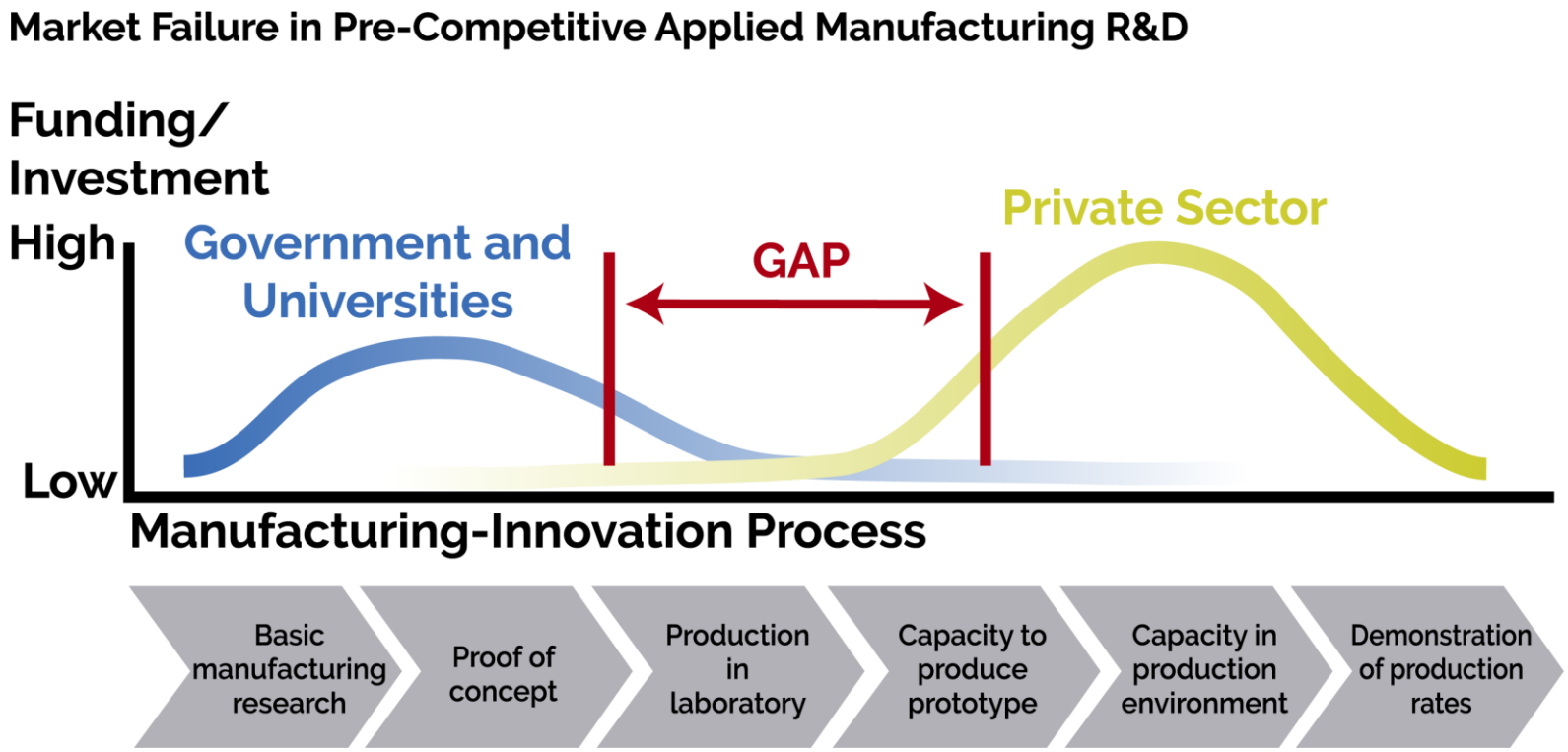
- 118 bipartisan co-sponsors
- Signed into law December 16, 2014

Manufacturing Employment (Millions)

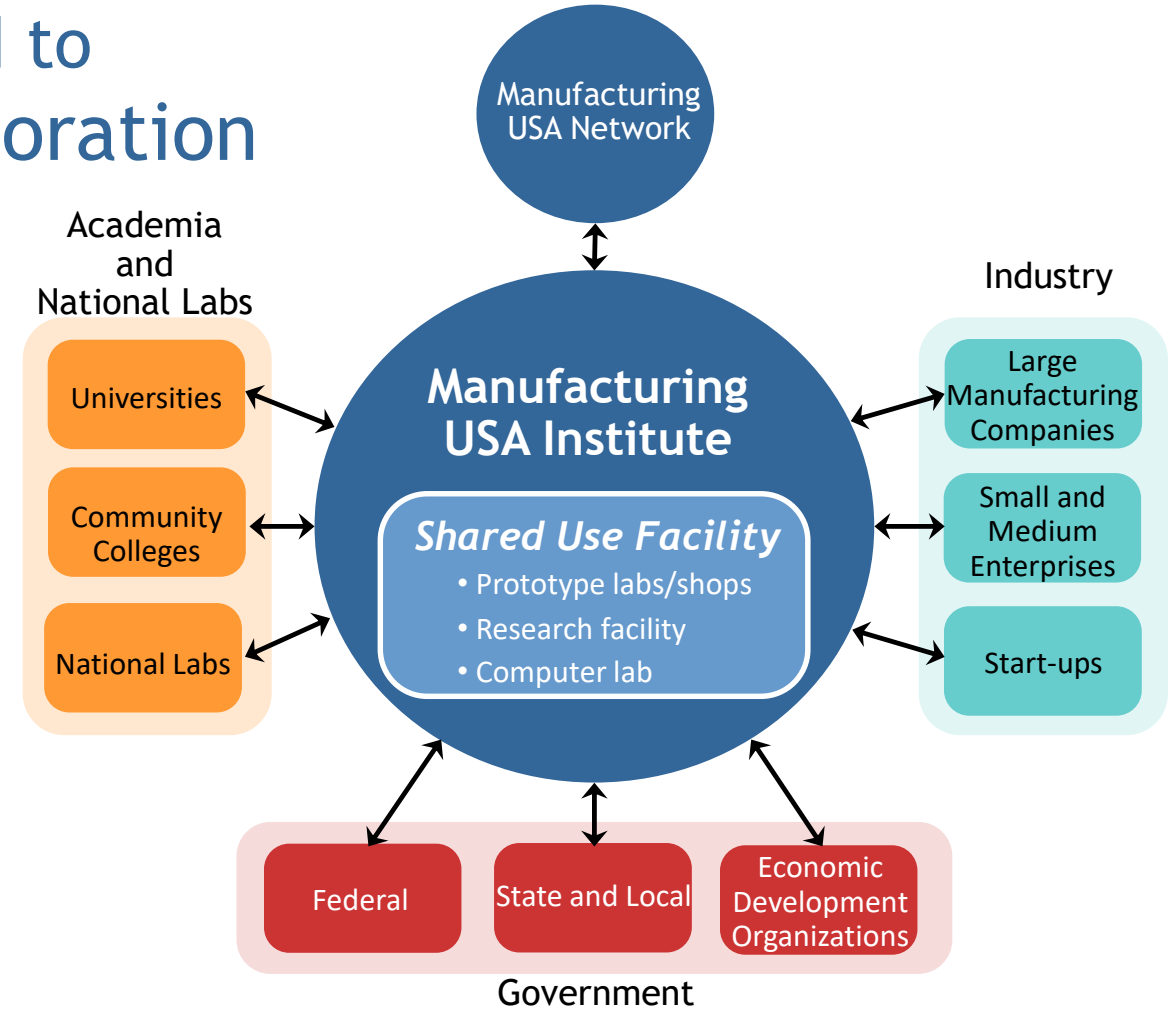


MFG USA

Manufacturing USA Technology Projects
Bridge Gaps



Institutes Designed to Transform Collaboration



Each Institute
Advances U.S. Manufacturing

1. Industry-led consortium with a clear mission based on critical industry need
2. Effective collaboration space for pre-competitive applied R&D, solving big challenges
3. Creates value for industry participation and funding
4. Federal start-up funding must catalyze at least 100% co-investment
5. Addresses the skills gap on education and workforce skills for their technology areas

MFG USA

Institute Manufacturing Technology
Digital Automation

America Makes

Additive manufacturing
- 2012
- DOD funded
- Youngstown, OH

DMDII
a UI LABS Collaboration

Digital manufacturing + design
- 2014
- DOD funded
- Chicago, IL

ARM
ADVANCED ROBOTICS FOR MANUFACTURING

Advanced robotics
- 2017
- DOD funded
- Pittsburgh, PA

MFG USA

Institute Manufacturing Technology
Electronics

Integrated photonics
- 2015
- DOD funded
- Albany + Rochester, NY

Flexible Hybrid Electronics
- 2015
- DOD funded
- San Jose, CA

Wide bandgap semiconductors
- 2015
- DOE funded
- Raleigh, NC

Institute Manufacturing Technology
Materials

Lightweight metals
- 2014
- DOD funded
- Detroit, MI

Advanced composites
- 2015
- DOE funded
- Knoxville, TN

Advanced fibers and textile
- 2016
- DOD funded
- Cambridge, MA

MFG USA

Institute Manufacturing Technology
Energy Usage / Environmental Impact

Smart sensors and digital process controls
- 2016
- DOE funded
- Los Angeles, CA

Sustainable manufacturing
- 2017
- DOE funded
- Rochester, NY

Modular chemical process intensification
- 2017
- DOE funded
- New York, NY

MFG USA

Institute Manufacturing Technology
Bio Manufacturing

Biofabrication + regenerative manufacturing

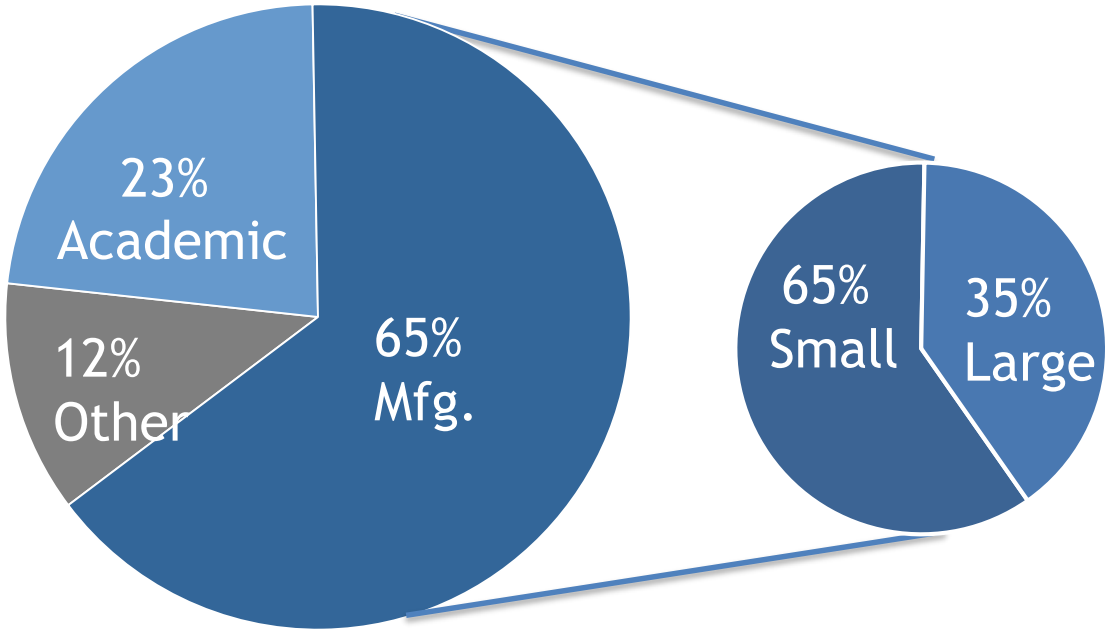
- 2016
- DOD funded
- Manchester, NH

Biopharmaceutical manufacturing

- 2017
- DOC funded
- Newark, DE

MFG USA

Led by Industry: Impact to U.S. Innovation Ecosystem



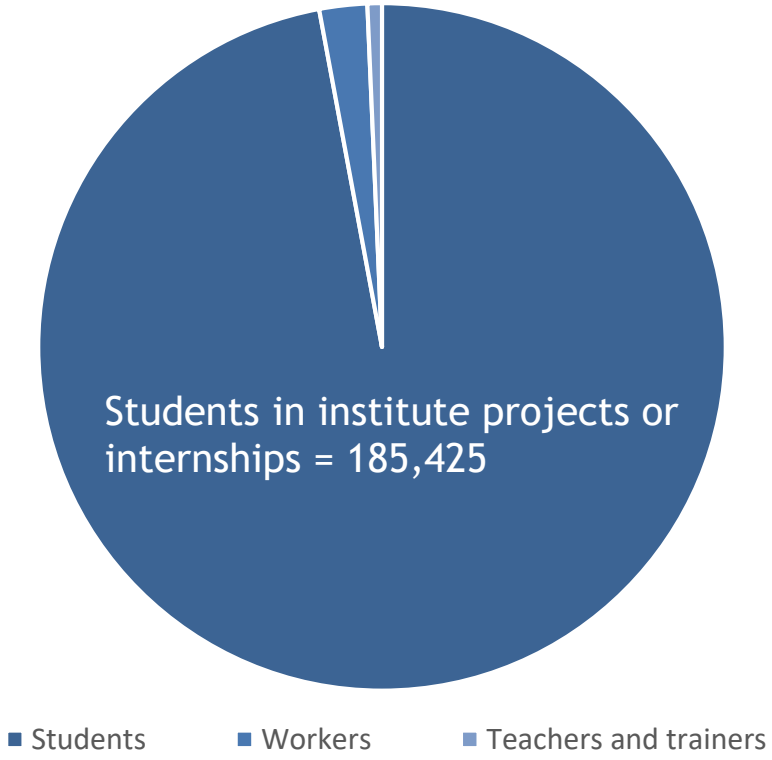
1,291 members (FY 2017)

- **+50% increase** in membership over 2016
- **65% from industry**
  - 65% of manufacturers are small and medium-sized
- **297** universities, community colleges, and other academic institutions
- **150** federal, state, and local government, federal laboratories, and not-for-profits

Membership breakdown of 12 institutes in FY 2017

MFG USA

Developing an Advanced MFG Workforce



Nearly **200,000 people** participated in workforce development training programs

→ **7X increase** from 2016

- **185,425 students** in institute research and development projects, internships, or training
- 4,302 workers completed institute-led certificate, apprenticeship, or training programs
- 1,299 teachers and trainers in institute-led training for instructors

MFG USA

Technology Advancement

273 Major Collaborative R&D Projects in FY 2017

- Many collaborative technology R&D projects can take several years to conclude
- High level of participation by industry + progress in meeting technical objectives are early indicators of success

NIST Congressional Responsibilities

Revitalize American Manufacturing and Innovation Act
RAMI Calls Upon the U.S. Secretary of Commerce to Establish:

- **Manufacturing USA Program:** to convene and support a network of institutes (network function)
- **National Program Office at NIST:** to oversee and carry out the Program (currently with 9 staff members and 3 detailees or fellows)
- **New Institutes:** using open topic competitions
- ***And*, established role of MEP**

NIST Functions Leading the **National Program Office**

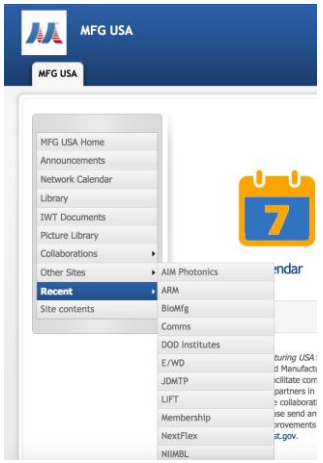
Coordination

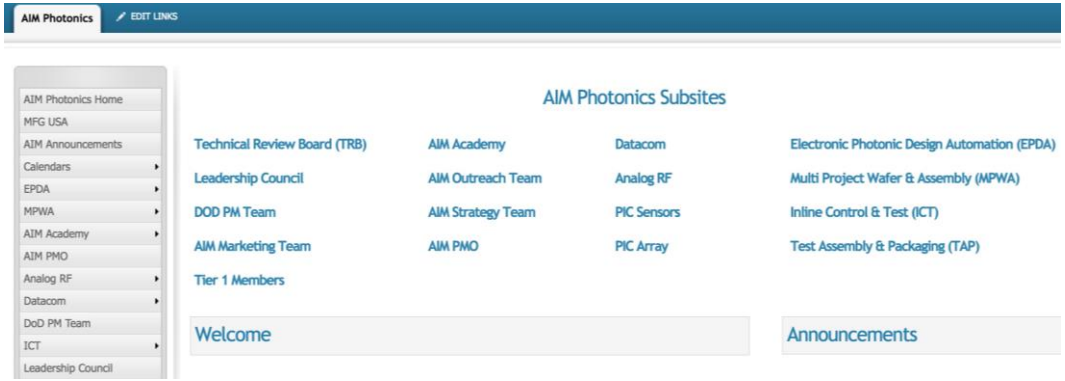
- Network meetings (semiannual)
- Institute Directors (monthly)
- Interagency meetings (biweekly)
- Communications Team (biweekly)
- Education/Workforce Team (biweekly)
- Task Teams (three)
- Institute Directors Council

NIST Functions Leading the **National Program Office**

Network Support

- Online Shared Services
- Resource of best practices, reference materials, program calendar
- 15 Secure Collaboration Sites
- Provided to all institutes and agencies
- Used by cross-institute teams, interagency teams





NIST Functions Leading the **National Program Office**

Communications

- ManufacturingUSA.com
- Manufacturing.gov
- Manufacturing USA Annual Report
- Manufacturing USA Strategic Plan

MFG USA

MEP
Embedding Projects

Manufacturing USA
Institutes & MEP

NextFlex
Flexible Hybrid Electronics
San Jose, CA

DMDII (a UI LABS Collaboration)
Digital Manufacturing & Design
Chicago, IL

REMADE Institute
Sustainable Manufacturing
Rochester, NY

AIM Photonics
Integrated Photonics
Albany, NY
Rochester, NY

biofabusa
Regenerative Manufacturing
Manchester, NH

AFFOA
Advanced Fibers and Textiles
Cambridge, MA

RAPID (Transforming Process Industries)
Modular Chemical Process Intensification
New York, NY

Clean Energy Smart Manufacturing Innovation Institute
Smart Sensors and Digital Process Control
Los Angeles, CA

NIIMBL
Bio-pharmaceutical Manufacturing
Newark, DE

LIFT
Lightweight Metals
Detroit, MI

America Makes
Additive Manufacturing
Youngstown, OH
El Paso, TX

The Composites Institute (IACMI)
Advanced Composites
Knoxville, TN
Detroit, MI

ARM
Advanced Robotics
Pittsburgh, PA

PowerAmerica
Wide Bandgap Semiconductors
Raleigh, NC

MFG USA

MEP Center Staff Embedded at **All 14 MFG USA Institutes**

- 14 NIST MEP-funded projects
- ~$17M investment
- Centers have successfully used the projects to learn more about the institutes' technology areas and position themselves with SMMs nationally
- Institutes benefit from MEP Centers' reach with SMMs

Project Highlight

Digitizing Legacy Equipment

Partners Develop New Computer Vision Toolkit

- Cameras read legacy displays + control dials to digitize information for emerging industry-standard format
- Software and hardware toolkit will cost <$1,000 per machine
- Even the smallest manufacturer can update processes without replacing costly legacy equipment
- Open source framework

DMDII
a UI LABS Collaboration

University of Cincinnati
Raytheon
Faurecia
ITI
TechSolve

MFG USA

DMDII Embedding Project

Joint collaboration between the MFG USA institute and MEP center:

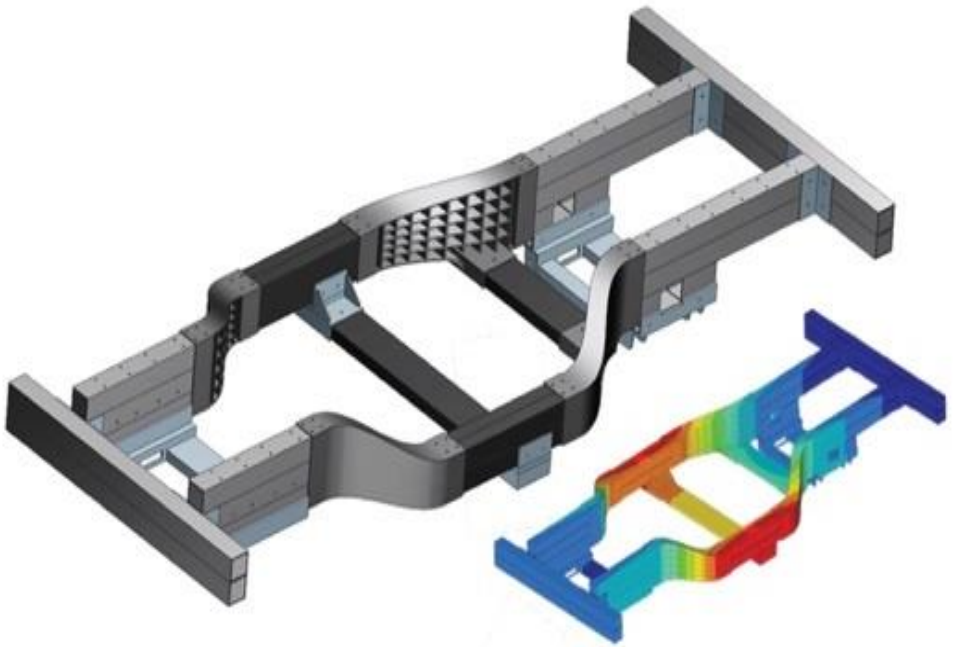
- New digital assessment tool
- Train the Trainer program
- Cybersecurity awareness + compliance

MFG USA

Lightweight Car Frame

Partners invent a lightweight aftermarket car frame

- C2 Corvette prototype (1963 to 1967)
- requires no welding
- reduces material cost



LIFT
IAMCI – The Composites Institute
Michigan Manufacturing Technology Center
Tennessee MEP
Industry Partners

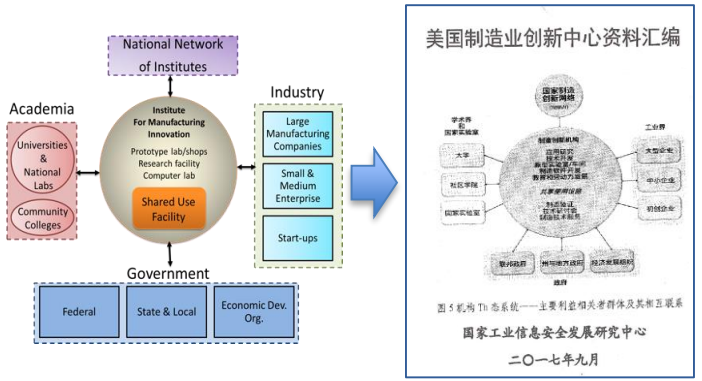
MFG USA

What's Ahead

Global Competition:
Reproducing MFG USA Elsewhere

China started up MFG USA-like institutes

- Planning 40 institutes by 2025
- China's 13th national 5-year plan puts China Manufacturing 2025 as one of six national priorities



Manufacturing USA reports promptly translated into Chinese

Canada: "advanced manufacturing superclusters"

- $950 million for five innovation 'superclusters' awarded 2018
- consortia of small and large businesses, academia, other groups
- 1:1 match required; actual $1.5 B match to date

After Network and Institute Start-Up

- Post-cooperative agreement institute performance
- Federal engagement in the long term
- RAMI changes
- Measuring technology diffusion + program success
- MEP Center support of the institutes
- New institutes

Securing AMERICA'S FUTURE

Making an Impact

- **14 institutes** developing new manufacturing techniques
- **65%** of members are from industry
- **~300 ongoing major collaborative R&D projects**
- **200,000 people trained** in advanced manufacturing
- $1B federal investment matched by over **$2B non-federal funds**

Join us: www.ManufacturingUSA.com @MFGUSA

MFG USA

Lunch Break

Return at 1:00 p.m.

Welcome Back - Meeting Agenda Continued

1:30 – 1:35 p.m.	**Welcome Back/Afternoon Overview**
1:35 – 2:20 p.m.	**Working Group Update:** • Supply Chain Development Working Group • *Board Feedback & Discussion*
2:20 – 3:05 p.m.	**Working Group Update:** • Performance/Research Development Working Group • *Board Feedback & Discussion*
3:20 – 4:00 p.m.	**Working Group Update:** • Executive Committee Working Group • *Board Feedback & Discussion*
4:00 – 4:30 p.m.	**Wrap-up/Public Comments**

MEP Advisory Board
Working Group Updates

Supply Chain Development Working Group

- Committee Members
  - Board Leadership
    - Matthew Newman
  - Board Members
    - LaDon Byars, Bernadine Hawes, Mary Isbister, Chris Weiser, Jeff Wilcox
  - NIST MEP Support
    - Dave Stieren, Phil Singerman, Mark Schmit

- Deliverable

Guidance and perspectives on the MEP National Network support and development of manufacturing supply chains with an emphasis on defense suppliers regarding Defense Industrial Base gaps; and expertise on who should be brought into the discussion to provide insight on defense supplier gaps

Discussion Topics for the Board

MEP National Network support for DOD Supply Chains encompasses many areas, highlighted by:

- Cybersecurity assistance
- Involvement in Defense Industry Adjustment efforts of the DOD Office of Economic Adjustment
- Working with the DOD-sponsored Manufacturing USA Institutes

NIST MEP is seeking Advisory Board perspectives on strategic importance of this work to MEP National Network, including focusing of the messaging to MEP Centers, the DOD, and most importantly, small U.S. manufacturers going forward

Background info follows on next 3 slides

MEP and DoD Supply Chain Support

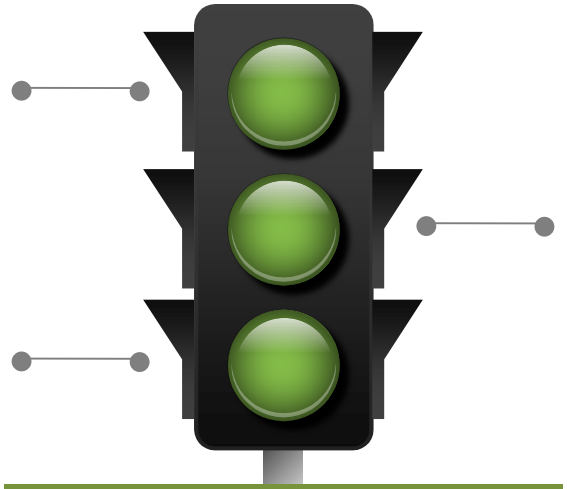
MEP National Network continues to maintain strong DoD relationships and support for DoD supply chains

- **Cybersecurity**
- Ongoing relationship with DoD's **Office of Economic Adjustment (OEA) Defense Industry Adjustment Program**
- Ongoing Embedding Projects with all 8 of **Manufacturing USA Institutes** sponsored by DoD – focused on engaging small manufacturers in technology focus areas of Mfg USA Institutes via hands-on assistance mechanisms and services offered by MEP Centers

MEP National Network Cybersecurity Program

>**1700** Small Manufacturers served, **150** projects conducted

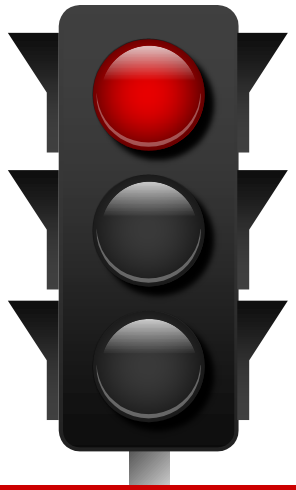
165 Awareness/Training Events



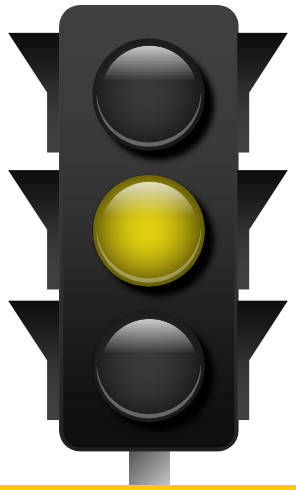
18 MEP Centers currently doing OEA Cyber project work, funded at $4.6M

MEP National Network Cybersecurity Progress

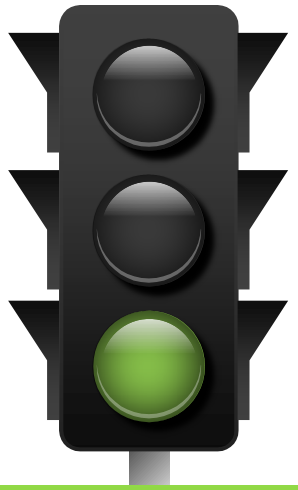
(06/13/18)



25%
of Defense Contractors DFARS/800-171 Compliant



40
MEP Centers in Cybersecurity WG



39/51
MEP Centers with Cyber Practice

MEP National Network Cybersecurity Progress – 06/13/18

Metric	Current Progress	Desired End State
MEP Centers with Cyber Practice	39	51
3rd Party Svc. Providers Partnering with MEP Centers	?	?
Cybersecurity Assistance Tools Utilized	3rd party svc providers using an array of tools; NIST MEP tools include NIST Handbook 162, assessment tool	100% of MEP Centers trained on use of NIST Handbook 162, other national tools
MEP Cyber Awareness / Training Events	165	?
U.S. Manufacturers Served in Cybersecurity	1700; 150 projects	10x in near term?
DOD OEA Activity	18 MEP Centers doing Cyber work, funded at $4.6M	MEP Centers participating as Cyber svc providers on all proposals doing cyber work
Cybersecurity Partnerships with Mfg USA Institutes	1	All 14?
States providing Cybersecurity Funding to MEP Centers	?	?
Defense Contractors Compliant w/DFARS Cyber Requirements	~25%	100%?
Auto Suppliers Compliant w/OEM Cyber Requirements	n/a	100%?
U.S. Suppliers Compliant w/Other OEM Cyber Requirements	n/a	?

One NIST: MEP Cybersecurity Connects

IT Laboratory

Excellent program and division level working relationships

Established bi-monthly coordination meetings

Participate in handbook publication development

- SP 800-171A final draft
- FY 19 "starter profiles"

Reduce to Practice

Baldrige Quality Program

Coordination meetings

Shared NIST MEP Cybersecurity Assessment Tool

Promoting use of Cybersecurity Excellence Builder in Manufacturing

Process Excellence

Engineering Laboratory

Coordination on meetings

CSF manufacturing profile

Jointly develop additional guidance for manufacturers

Additional Guidance

Performance & Research Development Working Group

- Committee Members
  - Board Leadership
    - Leslie Taito
  - Board Members
    - Jose Anaya, Carolyn Cason, Joe Eddy, Kathay Rennels, Jim Wright, Bernadine Hawes, Jeff Wilcox
  - NIST MEP Support
    - Ken Voytek, Chancy Lyford
- Deliverable

Input and guidance on the management portfolio and Program performance measurement processes of the MEP National Network. In addition, the Working Group will provide feedback and suggestions for establishing a research agenda that will support and enrich NIST MEP's performance and evaluation management system through improved Center evaluation processes, the promotion of system learning and by enhancing the portfolio of network information services for Centers

Deliverable Draft

- Draft pending Chair Review
- Share with rest of working group
- Final report to Board by September 2018
- Draft consists of 4 Sections
  - Background
  - Observations
  - Continuous Improvement
  - Recommendations (including some research suggestions)

Discussion Topics for the Board

With uneven Center performance across the Network; the number of clients and projects relatively flat; new initiatives taking shape and the creation of an integrated National Network

Seeking Board input and guidance:

- What factors are most important in explaining Center performance variation across the National Network?
- How can we improve Network efficiency and effectiveness with limited resources?
- Would it be worth the Program's investment to engage outside resources to capture lessons learned from Center's new initiative engagements; perhaps developing a manufacturing research agenda?
- How can we accurately capture multi-center delivery of client impacts to ensure proactive collaboration by Centers involved and not be a roadblock to collaboration?

Executive Committee Working Group

- Committee Members
  - Board Leadership
    - Jeffrey Wilcox, Chair of MEP Advisory Board
    - Bernadine Hawes, Vice-Chair of MEP Advisory Board
  - Board Members
    - Carolyn Cason
    - Mitch Magee
    - George Spottswood
  - NIST MEP Support
    - Carroll Thomas, Cheryl Gendron, Gary Thompson, Wiza Lequin

- Deliverable

Guidance on future Advisory Board leadership and insights from the Board Assessment; Board membership; Board role in regards to MEP Center Boards

Discussion Topics for the Board

New Member Support

- Mentoring (informal)
- Job Roles & Responsibilities Document (in development)
- Glossary (in development)
- Onboarding Presentation (currently in practice)
- Other?

Discussion of Current Bylaws

- Right amount of prescriptive direction
  - Attendance at Meetings: Expectations
  - Succession (Chair & Vice Chair)
  - Specific Member Types Outlined in Statute
- Collecting ideas for future changes
  - Communicate any suggested changes to the Executive Committee Working Group
  - Process for change is extensive

Future Meeting Schedule

2018

- September 12, 2018 – Kansas City, MO
  - Mark your calendar for 9/11-13/2018 to join us for the MEP's National Network Update Meeting plus the Board Meeting.
    - *Also option to stay for the Foundation for Manufacturing Excellence (FORME's) Best Practice Conference through Friday at noon*

2019 (dates subject to change)

- February 27, 2019 – Washington, DC
- June 18, 2019 – Location TBD*
- September 11, 2019 – Possible Post-Summit*

*Calendar invites sent once confirmed

Thank You

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