

# 2018

## **NIST MEP ANNUAL REPORT**

*1988-2018: THE MEP  
PROGRAM TURNS 30*

*Making an Impact on  
U. S. Manufacturing*



**MEP • MANUFACTURING  
EXTENSION PARTNERSHIP®**

# TABLE OF CONTENTS

1	<b>Letter from the MEP Director</b>
2	<b>About the MEP National Network</b>
3	<b>1988-2018: The MEP Program Turns 30</b>
4	<b>FY 2018 MEP National Network Economic Impacts — An Impressive Year of Growth</b>
5	<b>W.E. Upjohn Institute Study</b>
6	<b>MEP National Network 2017-2022 Strategic Plan</b> <ul style="list-style-type: none"><li>• MEP National Network Measures of Success</li></ul>
9	<b>MEP Advisory Board</b> <ul style="list-style-type: none"><li>• About the Manufacturing Extension Partnership Advisory Board</li><li>• 2018 MEP Advisory Board Activities</li><li>• 2018 Advisory Board Members</li></ul>
17	<b>2018 Working Group Updates</b> <ul style="list-style-type: none"><li>• Advisory Board Executive Committee Working Group</li><li>• Performance/Research Development Working Group</li><li>• Supply Chain Development Working Group</li></ul>
18	<b>MEP National Network Brand Update</b>
19	<b>NIST MEP 2018 Highlights</b> <ul style="list-style-type: none"><li>• Alaska MEP Center Competition</li><li>• American Innovation and Competitiveness Act Update: GAO Cost Share Report</li><li>• Center Leadership Team (formerly Future Is Now Initiative)</li><li>• Competitive Awards Program</li><li>• Cybersecurity</li><li>• Embedding MEP into Manufacturing USA Institutes</li></ul>

<b>NIST MEP 2018 Highlights Cont.</b>
<ul style="list-style-type: none"><li>• Food Industry Services and Food Safety</li><li>• Manufacturing 4.0</li><li>• Manufacturing Disaster Assessment Program Awards</li><li>• MATTR</li><li>• Performance-Based Peer Panel Reviews</li><li>• Research Report on Credentialing in the Manufacturing Industry</li><li>• Support for Defense Manufacturing Supply Chains</li><li>• Additional FY 2018 Activities<ul style="list-style-type: none"><li>Manufacturing Day 2018</li><li>NIST Return on Investment in Technology Transfer</li><li>Strategy for American Leadership in Advanced Manufacturing</li></ul></li></ul>

31	<b>Coming Next: FY 2019</b>
	<ul style="list-style-type: none"><li>• 2019 MEP National Network Summit: MEP United State of Manufacturing</li><li>• Center Leadership Team</li><li>• Cybersecurity</li><li>• Embedding MEP into Manufacturing USA Institutes</li><li>• Food Industry Services and Food Safety</li><li>• Manufacturing 4.0</li><li>• Manufacturing Day 2019</li><li>• MATTR</li><li>• MEP National Network Brand</li><li>• NIST Return on Investment in Technology Transfer</li><li>• Performance-Based Competitive Awards Program (CAP)</li><li>• Support for Defense Manufacturing Supply Chains</li></ul>

35	<b>MEP Centers</b>
----	--------------------

# DIRECTOR LETTER

## LETTER FROM THE DIRECTOR

This year marks 30 years that the Manufacturing Extension Partnership Program has served its mission of strengthening and empowering small and medium-sized U.S. manufacturers (SMMs). I am honored and excited to see how the Strategic Plan's four principal goals to **Empower Manufacturers, Champion Manufacturing, Leverage Partnerships and Transform the Network** have taken shape as we launched our new MEP National Network™ brand. I am even more excited this year because this effort has grown from a handful of engaged Center leaders to over half of the 51 MEP Centers – along with the MEP Advisory Board, NIST MEP staff, MEP Center boards and the Foundation for Manufacturing Excellence (FORME) leadership – all committed to bringing the entire MEP National Network together.

A key focus area for the Network is to engage all 51 MEP Centers in providing assistance to SMMs and helping them protect our national security through cybersecurity assistance. Our capabilities and capacities continue to build, with the goal of achieving nationwide coverage in 2019. As of September 2018, 41 MEP Centers in the Network are participating in the NIST MEP Cybersecurity Working Group and 39 of the 51 MEP Centers are operating a cybersecurity practice. NIST MEP partners closely with several Department of Defense (DoD) programs as they leverage Centers to help ensure defense contractors implement cybersecurity protections in the defense manufacturing supply chains.

NIST MEP and the NIST Standards Coordination Office (SCO) funded and partnered with Workcred, an American National Standards Institute (ANSI) affiliate, to study how U.S. manufacturers use and value manufacturing credentials. July marked the release of their report “Examining the Quality, Market Value, and Effectiveness of Manufacturing Credentials in the United States.” The report features recommendations for multiple stakeholders including manufacturers, credentialing organizations, educators, accreditors and policymakers. This important report was cited by numerous organizations and trade publications during 2018, including the American Society of Mechanical Engineers (ASME), the Committee for Economic Development of the Conference Board (CED), IndustryWeek and Quality Magazine.

NIST MEP issued the first-ever Manufacturing Disaster Assessment Program (MDAP) awards between September 2017-January 2018 to MEP Centers in Florida, Georgia, Louisiana, Puerto Rico and Texas totaling \$6.2 million. Centers in hurricane-impacted areas are providing assessment support. By the end of 2018, more than 800 total assessments had been conducted in Puerto Rico alone!

In April 2018 the W.E. Upjohn Institute released an updated study which again found the MEP National Network generated a substantial economic and financial return of nearly 14.5:1 for the \$128 million investment in fiscal year 2017 by the federal government. The study also found that MEP Center projects resulted in over 219,000 jobs created or retained than would have been the case without the Program. Using our new networked approach to facilitate MEP Centers leveraging their manufacturing expertise across regions and the country has already shown how it can increase the effectiveness and efficiency of the MEP program.

I look forward to what's ahead!

Sincerely,



---

Carroll Thomas, *MEP Director*

# NATIONAL NETWORK

## ABOUT THE MEP NATIONAL NETWORK

The Omnibus Trade and Competitiveness Act of 1988 created the National Institute of Standards and Technology (NIST) Manufacturing Extension Partnership Program (MEP) to improve the competitiveness of U.S.-based manufacturing by making manufacturing technologies, processes and services more accessible to small and medium-sized manufacturers (SMMs). In 2018, the MEP program, now as the MEP National Network, boldly moves ahead as it marks thirty years of success in helping manufacturers innovate and grow. The focus is on bridging the manufacturing productivity gap, identifying opportunities for growth and encouraging technology deployment.

The Network has grown from a pilot project of just three MEP Centers to one Center in every state and Puerto Rico — building a network of organizations to provide manufacturers with a wide array of comprehensive and critical services for their manufacturing business including: cost saving process improvements, workforce hiring and training, cybersecurity practices, market development and new technology adoption, all of which enhance their customers' value within supply chains.

The MEP is a program within the National Institute of Standards and Technology (NIST), an agency of the U.S. Department of Commerce. Through collaborating with partners including state governments, universities, community colleges, non-profit entities, associations and private consultants, MEP Centers provide manufacturers with the services needed to reduce bottom-line expenses and grow top-line profits, both of which are necessary to thrive in today's global marketplace.



“*Our Mission: To strengthen and empower U.S. manufacturers*”

# 30<sup>TH</sup> ANNIVERSARY 1988-2018:

## THE MEP PROGRAM TURNS 30

On Aug. 23, 1988, President Ronald Reagan signed the Omnibus Trade and Competitiveness Act (P.L. 100-418) which created the foundation for what would become the MEP National Network.

Over the past 30 years, the MEP program with its MEP Centers and their selection of service offerings have evolved to address the challenges of SMMs who make up almost 99 percent of U.S. manufacturers and account for about 62 percent of the nation's manufacturing gross domestic product (GDP). Since its establishment in 1988, MEP has worked with 102,443 manufacturers, leading to \$127.3 billion in sales and \$20.5 billion in cost savings, and it has helped create or retain more than 1,107,346 jobs. For every dollar of federal investment, the MEP generates \$29.50 in new sales growth and \$31 in new client investment. This translates into \$3.8 billion in new sales annually. For every \$1,065 of federal investment, the MEP program through its partnership with MEP Centers creates or retains one manufacturing job.

We held several recognition and educational events to mark this milestone. The events memorialized 30 years of MEP achievements and featured remarks and discussion among leaders from NIST, MEP Centers and their clients, as well as industry and important stakeholders. Events focused on the critical role the MEP program has played in advancing U.S. manufacturing over three decades and included screenings of the Heroes of American Manufacturing video series featuring MEP Centers' work with their manufacturing clients.



# NATIONAL NETWORK

## ECONOMIC IMPACTS

### AN IMPRESSIVE YEAR OF GROWTH

#### FISCAL YEAR 2018 IMPACT STATEMENT:

For each dollar of federal investment in fiscal year (FY) 2018, the MEP generated \$29.50 in new sales growth and \$31 in new client investment. This translates into \$3.8 billion in new sales. During this same time, for every \$1,065 of federal investment, MEP created or retained one manufacturing job.



**National Network**  
One Center in Every State and Puerto Rico

Over  
**1,300**

  
Manufacturing Experts

Nearly  
**2,100**  
  
Service Providers & Partners

Over  
**400**  
  
Service Locations

Interacted with  
**27,707**  
  
Manufacturers

In FY 2018, the MEP National Network made important gains in its economic impacts. The Network has a major and growing impact on the U.S. economy. Most impressively, in FY 2018 alone, the MEP National Network helped to create or retain more than 122,000 jobs – up from 100,000 jobs the prior year. During this same period, the Network produced \$16 billion

in new and retained sales, an increase of nearly \$4 billion over the prior year. Also in FY 2018, the Network realized \$4 billion in new client investments, up from \$3.4 billion the year before, and achieved \$1.7 billion in cost savings while interacting with 27,707 U.S. manufacturers.

# W.E. UPJOHN INSTITUTE STUDY

In April 2018 the W.E. Upjohn Institute released the latest study on the MEP impact data that found the MEP National Network generated a substantial economic and financial return of nearly 14.5:1 for the \$128 million invested in FY 2017 by the federal government.

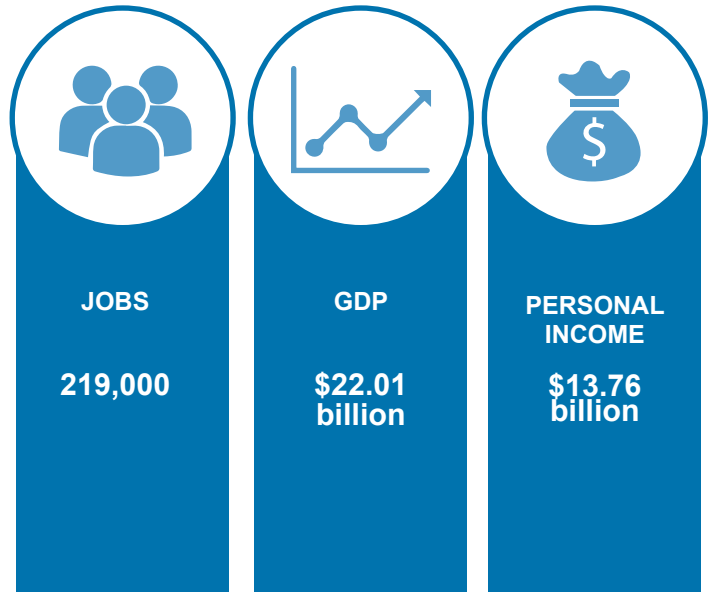
The study also found that total employment in the U.S. was over 219,000 higher because of MEP Center projects than without the Network. The Upjohn study examined additional areas of economic impact not previously reported. Due to the MEP National Network:

- Personal income is \$13.76 billion higher.
- GDP is \$22.01 billion larger, translating to an increase of \$1.86 billion in personal income tax revenue to the federal government.

*The Upjohn Institute Report Shows a Nearly 14.5:1 Return on Investment for MEP*

## ABOUT THE W.E. UPJOHN INSTITUTE

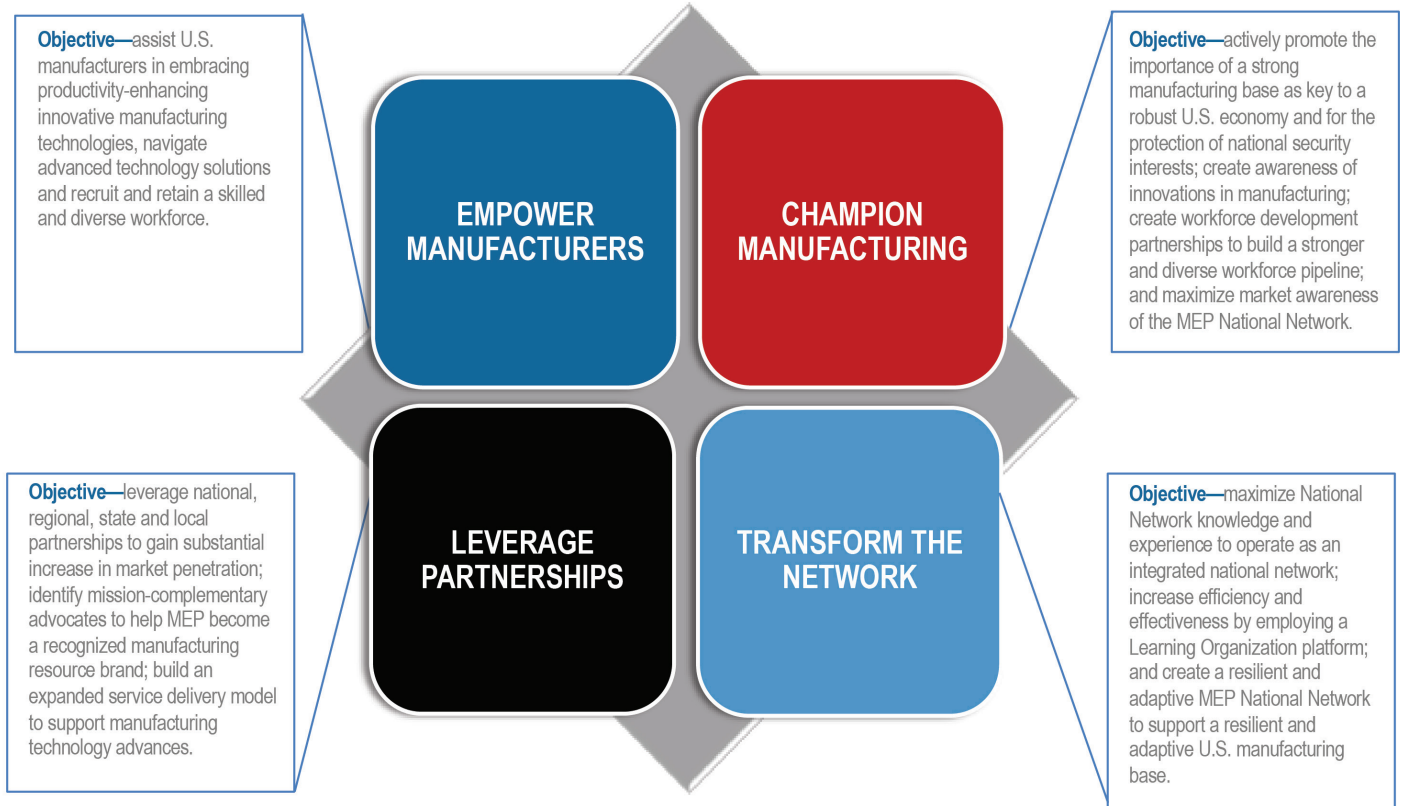
The Upjohn Institute is a private, nonprofit, nonpartisan, independent research organization devoted to investigating the causes and effects of unemployment, to identifying feasible methods of insuring against unemployment, and to devising ways and means of alleviating the distress and hardship caused by unemployment.



# MEP NATIONAL NETWORK 2017-2022 STRATEGIC PLAN

The MEP National Network Strategic Plan continues to serve as a critical “North Star” of the MEP National Network as it guides the Network forward from 2017-2022. Developed in conjunction with the MEP Advisory Board, MEP Center leadership and NIST MEP staff, the strategic plan creates a sharp focus for each component of the Network with four expansive goals supporting the Network’s important mission and vision. Throughout 2018, updates to MEP Centers and the MEP Advisory Board detailed Network priorities along with measurable results outlining continuing progress. Download the full MEP National Network 2017-2022 Strategic Plan from the NIST MEP website.

*The strategic plan’s four principal goals include:*





# MEP NATIONAL NETWORK ROLES FOR STRATEGIC PLAN GOALS

## EMPOWER MANUFACTURERS

Primary  
51 Centers/CLT

Collaborative Support  
Extension Services

Important Support  
NIST MEP Leadership  
R&S Partnerships  
Network Learning & Comp  
M&C  
PEER  
FM/Center Ops  
Admin  
IT/Security

## CHAMPION MANUFACTURING

Primary  
51 Centers/CLT  
NIST MEP

- NIST MEP Leadership
- Extension Services
- M&C
- R&S Partnerships
- Advisory Board
- Center Boards
- ASMC/FORME

Collaborative Support  
Network Learning and Comp  
PEER

Important Support  
FM/Center Ops  
Admin  
IT/Security  
Staff Resource Mgmt

## LEVERAGE PARTNERSHIPS

Primary  
51 Centers/CLT  
NIST MEP

- NIST MEP Leadership
- R&S Partnerships
- Extension Services
- M&C
- Center Boards
- ASMC/FORME

Collaborative Support  
Advisory Board  
ASMC/FORME  
PEER

Important Support  
Admin  
FM/Center Ops  
IT/Security  
Staff Resource Mgmt

## TRANSFORM THE NETWORK

Primary  
51 Centers/CLT  
NIST MEP (All)

Collaborative Support  
Advisory Board  
Center Boards  
ASMC/FORME

# MEP NATIONAL NETWORK MEASURES OF SUCCESS

## 18-MONTH MEASURES OF SUCCESS:

---

- Piloted integrated MEP National Network approach to delivery system engaging **50%** of Centers in multi-Center delivery projects.
- Increased small/rural engagements through third-party partnerships by **10%** and increased longer-term impactful projects with these smaller firms by **5%**.
- Attained Operational Excellence in **25%** of Centers' operations and in **50%** of NIST MEP administrative support.
- Increased awareness of the MEP National Network brand by **10%** over base brand recognition measurement a year after the Network launched the brand.

## FIVE-YEAR VIVID DESCRIPTION:

---

As the go-to resource, trusted advisor for U.S. manufacturers:

- Recognized by SMMs as a valuable and essential resource for delivering advanced technology solutions and cited by key manufacturing stakeholders (local, state and federal) as integral to growing U.S. manufacturing ecosystems.
- Increased market penetration as an integrated national network by **20%**.
- Integrated digitalization and cybersecurity assistance to dispersed supply chains and embraced Industry 4.0 in our own operational excellence.

## SIGNIFICANT LONG-TERM GOAL:

---

The MEP National Network is known and recognized by U.S. manufacturers and stakeholders as an indispensable resource whose trusted experts help them grow and embrace manufacturing technology advances. A doubling of federal and state funding in the Network along with a strategic expansion in the number of current members results in the MEP National Network:

- Becoming **known and recognized** by U.S. manufacturers as the go-to resource for manufacturing.
- **Tripling** the number of manufacturers served annually.
- Increasing its impact numbers **four-fold**.

# ADVISORY BOARD

## MEP ADVISORY BOARD

### ABOUT THE MANUFACTURING EXTENSION PARTNERSHIP ADVISORY BOARD

*The statutory purpose of the Board is to provide advice and recommendations to the NIST Director on the:*

- Activities, plans and policies of MEP.
- Soundness of MEP's plans and strategies.
- Current performance in relation to MEP plans.

The MEP Advisory Board members represent the interests and needs of the manufacturing sector and are each appointed by the NIST Director. By law, at least two members sit on an Advisory Board for an MEP Center and at least five members are from U.S. small businesses representing the manufacturing sector. Additionally, the law states at least one Board member must represent a community college. Board terms consist of a limit of two consecutive three-year terms and Board members are ineligible for reappointment during the one-year period following the expiration of their second term. In addition, the law requires the Board to meet at least biannually.

The Board gained a new community college representative when Patricia Moulton, President of Vermont Technical College, joined in June 2018. She brings important perspectives from her personal background and extensive experience as a leader in both technical and community education as well as in economic and workforce development.

The current Board members represent the diversity of the U.S. manufacturing industry, from CEOs and executives at various-sized manufacturing companies to academic leaders at both state and community college institutions of higher education. The important perspectives of these volunteer Board members will continue to positively impact MEP into the future.

## 2018 MEP ADVISORY BOARD ACTIVITIES

*In FY 2018, the MEP Advisory Board met three times, in March, June and September, to perform its chartered functions.*

### **March 7, 2018, Washington, D.C.**

1. The first FY 2018 MEP Advisory Board Meeting featured a roundtable meeting for local MEP Center board leaders, Center directors and MEP Advisory Board members. The roundtable format encouraged discussion which focused on the Center board leaders' experiences, challenges and thoughts on the goals of the MEP National Network's strategic plan. The MEP Advisory Board also participated in a discussion with Eric Chewning, Deputy Assistant Secretary of Defense, Manufacturing and Industrial Base Policy, DoD. Chewning's presentation focused on Executive Order 13806, which calls for a better understanding of the risks to the nation's defense industrial base and supply chain resiliency. The group talked in depth about the potential role the MEP National Network can take to address the manufacturing production challenges facing the nation. Another topic discussed was the concept of MEP Centers coming together as a unified national network.

### **June 13, 2018, Arlington, Texas**

2. Prior to the second MEP Advisory Board meeting, Board members toured both the Lockheed Martin Aeronautics facility in Fort Worth, Texas and the University of Texas at Arlington's technical education facilities. The MEP Advisory Board meeting included representatives from NIST, NIST MEP and MEP Centers, and provided key opportunities both inside and outside of the formal meetings for the MEP Advisory Board members to increase their knowledge of the latest trends in manufacturing and advise and support the Program while actively engaging with the MEP National Network. The June meeting also featured an interactive presentation from an expert on expanding the Board's engagement through advocacy as well as the latest updates from the Manufacturing USA program.

### **Sept. 12, 2018, Kansas City, Missouri**

3. The third meeting provided additional opportunities for Board members to learn about trends in manufacturing while engaging with the Network. A unique aspect of this meeting was interaction with the Government Accountability Office (GAO). The American Innovation and Competitiveness Act (AICA) mandated a GAO study and report within two years of enactment about the impact of the cost-share change to the Program and incorporating the Board's views. A conference call conducted between the GAO and the MEP Advisory Board during this meeting provided the Board's insight prior to the report's issuance. Additionally, Board members could attend the MEP National Network's Update Meeting and the Foundation for Manufacturing Excellence's (FORME) Best Practice Conference which preceded the Board meeting. These meetings both included roundtable discussions, plenary speakers and specialized working group meetings and the Board received detailed updates from the MEP Director on the state of the Program as well as progress on the strategic plan. The Board members also engaged in high-level discussions on various topics integral to the Program and provided updates from the Board's working groups.

# BOARD MEMBERS

## 2018 ADVISORY BOARD MEMBERS

### Jeffrey Wilcox, Chair

Second Term Expires: May 2019



Jeff Wilcox is Vice President for Digital Transformation at Lockheed Martin. He oversees the Digital Transformation Office (DTO) and is responsible for the design, development and implementation of Lockheed Martin's operations strategy. This office is charged with leveraging emerging digital technologies to transform systems design, production and sustainment, as well as ensuring the workforce and systems are in place to enable successful transformation.

Previously, Mr. Wilcox served as vice president for Engineering and Program Operations at Lockheed Martin. In this capacity, he was responsible for the effectiveness and efficiency of the engineering, program management, production operations and sustainment functions across the enterprise. Prior to that role, Mr. Wilcox served as vice president for corporate engineering where he was responsible for the engineering enterprise, ensuring that the right people, processes, tools and technologies were in place to successfully deliver innovative engineering solutions to customers' most complex challenges. Prior to joining Lockheed Martin, Mr. Wilcox served for 17 years with Science Applications International Corporation (SAIC).

Mr. Wilcox earned his Bachelor of Science in biomedical engineering from Case Western Reserve University and his Master of Science in electrical engineering from Drexel University. He holds an honorary Doctor of Engineering from Stevens Institute of Technology. In addition to being chairman of the MEP Advisory Board, he serves on the Advanced Robotics for Manufacturing (ARM) Institute Board as well as on multiple industry and university advisory boards. Mr. Wilcox is an adjunct professor at Miami University in Oxford, Ohio, an associate fellow of the American Institute of Aeronautics and Astronautics and a senior member of the Institute of Electrical and Electronics Engineers.

### Bernadine Hawes, Vice-Chair

Second Term Expires: May 2020



Bernadine Hawes is an executive-level nonprofit professional and economic development specialist working in the areas of project management, strategy development, compliance and evaluation. Her most recent achievement has been the authorship of a best practices manual for small business and economic development, which was funded in part through a grant from the U.S. Small Business Administration to American Cities Foundation. Ms. Hawes began her career at the University City Science Center in Philadelphia, starting as a senior-level project administrator and later becoming vice president. Currently, she is a senior research analyst for Community Marketing Concepts. Ms. Hawes is Chairwoman of the Delaware Valley

Industrial Resource Center, which is part of Pennsylvania MEP. She also serves on the board of the PEC Community Development Corporation, which focuses on community development initiatives in Philadelphia, is chair of the PEC Foundation, and serves on the advisory board of the Philadelphia Urban League Entrepreneurship Center.

Born and raised in Washington, D.C., Ms. Hawes has a Master of Science from the University of Pennsylvania. She is a summa cum laude graduate of Lincoln University in Pennsylvania. She has been the national co-chair of Penn's Black Alumni Society and is a former member of the University of Pennsylvania's Brister Society for Diversity Inclusion.

## Jose Anaya

First Term Expires: July 2019



Jose Anaya oversees the El Camino Community College District's Community Advancement Division and Business Training Center as the dean. Prior to joining the staff at El Camino College, he directed economic development programs at Cerritos College. Under Mr. Anaya's guidance, Cerritos College received numerous honors and recognition related to workforce development. These included a best practices award for its partnership with Lockheed Martin and selection by the Corporation for a Skilled Workforce and its partners as one of five national exemplary models for expanding postsecondary education and training opportunities for Hispanic workers.

Mr. Anaya's earlier experiences include work in the private sector with corporations such as Honeywell, ITT Industries and DataCard. He has broad experience and expertise in the areas of product design, manufacturing and management, as well as economic and workforce development. Mr. Anaya has a Bachelor of Science in mechanical engineering from California State Polytechnic University, Pomona and a Master of Business Administration with an emphasis in entrepreneurship from the University of Southern California.

## E. LaDon Byars

First Term Expires: February 2020



LaDon Byars is the president and CEO of Colonial Diversified Polymer Products, LLC of Dyersburg, Tennessee. Colonial Diversified produces high-quality rubber products for a wide variety of industries including automotive, defense, commercial building, construction, farm equipment, aerospace, computers, medical, telecommunications, recreation, health, entertainment, plumbing, refrigeration and many more. She started out as a financial analyst and rose to become president of the company. Ms. Byars is very active in the manufacturing community, has received many awards, and is on the advisory board of the University of Tennessee Center for Industrial Services which houses Tennessee MEP, the MEP Center in Tennessee.

## Carolyn Cason

Second Term Expires: May 2020



Carolyn Cason, professor emerita at the University of Texas at Arlington, has had a distinguished career as a scientist, teacher, academic leader and innovator. She began her professional career as a critical care nurse and has held university teaching appointments for over 35 years. She joined the University of Texas at Arlington in 1997 as professor and associate dean for research in the College of Nursing and served as the university's vice president for research from 2010-2015. She envisioned and built the nation's first comprehensive healthcare simulation research and development center, the Smart Hospital, creating the prototype for the nation. She led the efforts that created Smart Care, a living laboratory dedicated to developing noninvasive, pervasive technology to monitor health changes and support independent living,

and the Shimadzu Institute for Research Technologies, a \$25 million core facility supporting chemistry, biology, nanotechnology and material science research. In 2014, she was named a charter fellow, National Academy of Inventors and in October 2015, she was inducted as a fellow of the American Academy of Nursing. She serves on a number of boards, including the board of Tech Fort Worth, a seed incubator/accelerator supporting entrepreneurs commercializing innovative technologies.

## Joe Eddy

First Term Expires: [March 2020](#)



Joe Eddy is executive vice president at Justrite Safety Group and president/CEO of Eagle Manufacturing. Both companies are leaders in the safe storage, transfer, use and disposal of flammable and hazardous liquids for over 100 years. As executive vice president of Justrite's North American Chemical Safety business unit, Mr. Eddy is responsible for both Eagle and Justrite's legacy operations groups. He is past chairman of the West Virginia Manufacturers Association (WVMA), president of the WVMA Educational Fund Board, vice president of the Foundation Board at West Virginia Northern Community College, on the advisory board at the McDonough Center for Leadership and Business at Marietta College, vice president of the Regional Economic Development Partnership Board, on the Federal Reserve Bank of Richmond's Charleston Industry Roundtable, on the board of the National Association of Manufacturers, on the West Virginia Economic Development Authority Board and founded the Joseph and Debra Eddy Foundation, as well as the Joseph Eddy Technology Fund at West Virginia Northern Community College.

## Mary Isbister

First Term Expires: [March 2020](#)



Mary Isbister is President of GenMet Corporation, a custom metal fabricating company located in Mequon, Wisconsin. After graduating with a Bachelor of Science in chemistry, she worked at Pfizer, in Groton, Connecticut for 11 years. During her tenure at Pfizer she held positions in medicinal chemistry, clinical research and senior organizational development. In 1997, she moved to Wisconsin and founded Synergy Solutions, an organizational development and strategic planning consulting business, which she ran until 2001. In 1999 Ms. Isbister and her husband purchased GenMet Corporation, a custom manufacturer specializing in high value-added metal fabrications and enclosures. From 2010-2014 Ms. Isbister also served on the U.S. Manufacturing Council, reporting to the Secretary of Commerce.

## Mitch Magee

First Term Expires: [March 2020](#)



Mitch Magee is director of the Global Advanced Manufacturing Team for PPG's Aerospace business unit. He has over 30 years of manufacturing experience, having served in capacities from front-line plant operations to global quality and environment, health and safety roles in PPG's automotive, industrial and food and beverage package coatings business units. Mr. Magee is also actively engaged in workforce development as the past chair of the Delaware Manufacturing Association and led the development of Delaware's first Pathways to Prosperity high school manufacturing technology program. This program was developed in conjunction with Governor Jack Markell's administration, Delaware Technical and Community College and local high schools. Mr. Magee has also served on the Delaware Workforce Development Board, boards of Western Pennsylvania Air and Waste Management Association, Delaware Technical Community College-Terry Campus, Central Delaware Chamber of Commerce and as a Pickaway County, Ohio trustee. He has a Bachelor of Science in Liberal Arts from Allegheny College, a Master of Science in Chemical Engineering from the University of Pittsburgh and is a licensed Professional Engineer.

## Patricia Moulton

First Term Expires: June 2021



Patricia Moulton was appointed president of Vermont Technical College by the Vermont State Colleges Board of Trustees in March 2017. Pat served as interim president from September 2016-March 2017. Vermont Technical College is part of the Vermont State College System and the only technical college in Vermont. Prior to joining the college, Ms. Moulton served as secretary of the Vermont Agency of Commerce and Community Development (ACCD).

Ms. Moulton has served in a variety of appointed positions in Vermont state government, having been appointed by four different governors. She has served as commissioner of labor in addition to several economic development-related appointments. She has also served as appointed chair of an environmental regulatory board for the state of Vermont. Ms. Moulton spent 35 years in the practice of economic development on the local, regional and state levels. She has worked as executive director of four different regional economic development corporations in Vermont. She also ran her own economic development consulting company for several years. Ms. Moulton is a graduate of the University of Vermont with a degree in political science.

## Matthew Newman

First Term Expires: March 2020



Matt Newman is the director of business management for Covanta. He joined Covanta in 2008 and has over 25 years of experience in the energy industry which includes renewable energy, natural gas, exploration and production, electricity generation, asset optimization, risk management and public relations. In his current position, Mr. Newman is responsible for all business matters pertaining to the financial management and public affairs initiatives of the Covanta Tulsa Renewable energy facility located in Tulsa, Oklahoma. In addition, Mr. Newman plays an integral role in advancing Covanta's corporate programs for the company's extensive fleet of energy-from-waste facilities across the U.S.

## Kathay Rennels

First Term Expires: March 2019



Kathay Rennels is the associate vice president for engagement at Colorado State University (CSU) and works to advance collaborative networks across the state and create economic development opportunities. She has significant experience fostering public and private partnerships in regional and rural workforce development, with particular attention to Larimer and Weld Counties. Ms. Rennels previously served three terms as a Larimer County commissioner and is now leading the Food and Agriculture Key Industry Network for the state of Colorado. Ms. Rennels helped initiate the "Value Chain of Colorado Agriculture" study released in February 2013 and co-authored the November 2014 follow-up study, "The Emergence of an Innovation

Cluster in the Agricultural Value Chain along Colorado's Front Range." She also initiated the Advancing the Agricultural Economy through Innovation summit, held at CSU in March 2015. Ms. Rennels was the president of Colorado Counties Inc. and named commissioner of the year. She currently serves on the Community Foundation of Northern Colorado, El Pomar Foundation and Manufacturer's Edge, the Colorado MEP Center, as a board member.



## George Spottswood

First Term Expires: May 2020



George Spottswood is owner and CEO of Quality Filters, Inc. (QFI) in Robertsdale, Alabama. QFI was incorporated in 1981 in Gulf Shores, Alabama. Mr. Spottswood and his father, Horace Spottswood, purchased the business in 1983. At the time of purchase, QFI employed eight associates and operated out of a 10,000-square foot rented facility, manufacturing a single HVAC air filter product. Today, QFI employs 150 associates and operates out of a 70,000-square foot corporate-owned facility. He has served two terms as associate council president of the National Air Filtration Association (NAFA) as well as served on several NAFA committees in varying roles. Mr. Spottswood has been involved with the Alabama Technology Network (ATN), Alabama's MEP Center since 2005. He was

named 2005 ATN Business Innovator of the Year for the state of Alabama. Other corporate awards include the 2011 Innovator of the Year Award for Alabama by the Southern Growth Policy Board.

## Leslie Taito

First Term Expires: July 2020



Leslie Taito is currently the senior vice president for corporate operations for Hope Global, a manufacturer of products and engineering of textile solutions. She is responsible for operations improvement, mergers and acquisitions, product and service development and marketing strategy deployment. Ms. Taito has 25 years of management and manufacturing experience having served as the first director of regulatory reform for the state of Rhode Island in the Office of Management and Budget and held the CEO position for Rhode Island Manufacturing Extension Services, Inc., formerly Rhode Island MEP.

## Chris Weiser

First Term Expires: March 2020



Chris Weiser is the owner and President of J.V. Manufacturing, Inc. Since 1978, J.V. Manufacturing has provided the best equipment solutions for America's waste and recycling needs. J.V. Manufacturing provides safe, quality products made in the USA. Known for their excellent customer service which has made Cram-A-Lot one of the most respected brands in the industry, J.V. Manufacturing has over 200 employees, two manufacturing locations, and three remote service locations. Upon graduating from the University of Arkansas, Mr. Weiser moved to Louisiana and worked for Freeport-McMoRan, a minerals and oil and gas producing company. In 1985, he moved back to Arkansas to help his family run J.V. Manufacturing, Inc. Since 1996, he has been president, CEO and owner of the company. Mr. Weiser is passionate about the waste and recycling industry and about service to his community.

## Jim Wright

First Term Expires: March 2020



Jim Wright is the vice president of operations for Proof Research, located in Columbia Falls, Montana. Proof Research is an industry leader that designs and manufactures state-of-the-art carbon fiber composite firearms for both military and commercial applications. Mr. Wright has over 25 years of experience in manufacturing engineering and production management across the aerospace, automotive, semiconductor and firearms industries. Through his professional career, he has spent a significant amount of time abroad working with European and Asian companies and brings a passion to apply best-in-class concepts and lean manufacturing principles to help improve manufacturing within the U.S. He holds a Bachelor of Science and Master of Business Administration from Southern Illinois University and was a member of the Montana Manufacturing Extension Center advisory board for six years, serving in both the vice president and president roles. He is active in the local community and serves on the board of directors for the Kalispell City Chamber of Commerce.

# 2018 WORKING GROUP UPDATES

## ADVISORY BOARD EXECUTIVE COMMITTEE WORKING GROUP

This standing working group offered guidance on future MEP Advisory Board leadership and membership recruitment, provided insight into cultivating strong board governance, and explored ways to expand the MEP Advisory Board's role regarding the local MEP Center boards. The Executive Committee Working Group includes the following MEP Advisory Board members: Jeff Wilcox, lead, Carolyn Cason, Bernadine Hawes, Mitch Magee, George Spottswood and NIST MEP staff support.

The group discussed the importance of equipping all MEP Advisory Board members with basic orientation information on the MEP National Network as well as individual Board member roles and responsibilities to help new members actively engage in activities as soon as possible. While an orientation program delivered by NIST MEP staff was previously in practice, additional resources were added to the toolbox this year. A mentoring program was initiated, allowing longer-term Board members to join the orientation call and be available for follow-up questions. Two new documents were created and shared with the Board this year, including a paper outlining Board member roles and responsibilities as well as a detailed glossary and acronym workbook with terminology used throughout the MEP National Network. While specifically aimed at new Board members coming into service, these deliverables have proven helpful to the more seasoned members as well.

## PERFORMANCE/RESEARCH DEVELOPMENT WORKING GROUP

This working group offered guidance on strategies to NIST leadership to build on the MEP National Network including developing and establishing a research agenda to support learning and network information services for Centers, to enrich MEP Center evaluation with the Performance and Evaluation Management System and through improved Center evaluation processes, and to enhance the portfolio of network information services for Centers. The Performance/Research Development Working Group included the following MEP Advisory Board members: Leslie Taito, lead, Jose Anaya, Carolyn Cason, Joe Eddy, Bernadine Hawes, Kathay Rennels, Jeff Wilcox, Jim Wright and NIST MEP staff support.

The working group was convened in January 2018, met several times over the year and presented a draft report to the entire Board at the September meeting. The working group's draft report is expected to be brought before the MEP Advisory Board for approval at the first meeting of FY 2019.

## SUPPLY CHAIN DEVELOPMENT WORKING GROUP

This working group offered guidance and perspectives on MEP National Network support and development of manufacturing supply chains. The emphasis is on defense suppliers regarding defense industrial base gaps and providing expertise on who should be brought into the discussion to give insight on defense supplier gaps. The Supply Chain Development Working Group includes the following MEP Advisory Board members: Matt Newman, lead, LaDon Byars, Bernadine Hawes, Mary Isbister, Chris Weiser, Jeff Wilcox and NIST MEP staff support.

The working group met over the course of the year and discussed how the MEP National Network supports DoD supply chains in cybersecurity assistance and with defense industry adjustment efforts of the DoD Office of Economic Adjustment (OEA) and through DoD-sponsored Manufacturing USA Institutes. These efforts to increase cybersecurity awareness and expand assistance to manufacturers across the country are catalyzed by the requirements of the Defense Federal Acquisition Regulation Supplement (DFARS). NIST MEP and MEP Centers nationwide, with strategic advice from the MEP Advisory Board, look to continue these important efforts and increase the Network's impacts on U.S. manufacturers through the coming year.

# BRAND UPDATE

## MEP NATIONAL NETWORK BRAND

The MEP National Network brand was launched during the last MEP national summit in Denver in 2017 with discussion of what makes NIST MEP unique. The value of our brand is that it helps amplify the message that the MEP National Network provides “The Go-To Experts for Advancing U.S. Manufacturing” with a mission to be trusted advisors solely to strengthen and empower U.S. manufacturers.

In 2018, NIST MEP worked to educate, socialize and enroll MEP Center staff on the value of our brand. A significant component of communicating and strengthening the MEP National Network brand involved a national awareness campaign. The campaign was launched to create awareness of the MEP Centers and the assistance they provide to a greater number of SMMs with the goal of demonstrating the breadth and depth of experience leveraged across the Network.

NIST MEP is leveraging trade media, including IndustryWeek, Industry Today, Advanced Manufacturing, and Modern Machine Shop, to reach a larger number of manufacturers with articles, blog posts, white papers and webinars from the MEP National Network to increase awareness of MEP Center activities.



# 2018 HIGHLIGHTS NIST MEP 2018 HIGHLIGHTS

## ALASKA MEP CENTER COMPETITION

In 2018 the Southwest Alaska Municipal Conference (SWAMC), host of the Alaska MEP Center MAKE Partnership, decided to voluntarily end their cooperative agreement with NIST MEP as of Dec. 31, 2018. To locate a new host for the MEP Center in Alaska, the NIST MEP Alaska Information Forum was held in Anchorage, Alaska on June 7, 2018 to provide information on the opportunities and responsibilities of hosting an MEP Center. The announcement of a funding opportunity was made on Aug. 24, 2018 via Federal Register Notice and a Notice of Funding Opportunity (NOFO) with a closing date of Oct. 23, 2018. NIST MEP conducted an informational webinar on Sept. 6, 2018 to provide prospective proposers an overview of the MEP National Network and a review of the Alaska funding opportunity. After the closing date, proposals will be evaluated and the process will begin for selecting a new Center host as quickly as possible to avoid an interruption in services to Alaska's manufacturers.

## AMERICAN INNOVATION AND COMPETITIVENESS ACT UPDATE: GAO COST SHARE REPORT

For years, NIST MEP worked under the advice of the MEP Advisory Board to change the cost share model from 2:1 to 1:1 for MEP Centers (i.e., two non-federal dollars matched for each federal dollar versus one non-federal dollar matched by one federal dollar). This change would enable Centers to work with smaller companies and offer a broader array of programs. In 2012, the MEP Advisory Board analyzed the 2:1 cost share requirement and identified the problems it caused. Issues included accounting difficulties that drove Centers to focus on the match rather than on service. The 2:1 match also limited the ability of Centers to partner with other organizations in regional activities. A change in cost share was finally implemented in early 2017 with the signing of PL 114-329, the American Innovation and Competitiveness Act (AICA).

The AICA required the GAO under the comptroller general's lead and in consultation with the MEP Advisory Board to analyze three outcomes:

- The effectiveness of the changes in the cost share to Centers.
- The engagement in services and the characteristics of services provided by Centers, including volume and type of service.
- The effect of the cost-sharing ratio change on the services provided by either type of Center.

GAO first contacted NIST to begin this study in May 2018 and began interviewing MEP Center staff while NIST MEP provided documentation throughout the summer. The full MEP Advisory Board engaged with the GAO and provided input for the report during the September 2018 Board meeting in Kansas City, Missouri. The Board expressed unanimous concern that MEP Centers consistently struggled with the older cost share model, especially Centers with less funding – the 2:1 model forced Centers to work with larger manufacturers to generate sufficient revenue.

The Board noted to GAO that a goal of NIST MEP Centers is to work with SMMs to become competitive, improve their performance and achieve growth. Since smaller firms have limited means to pay the cost, the Board told GAO the 2:1 cost share model limited Centers' ability to assist small firms, despite this manufacturing segment being most desperately in need of MEP Center services. The Board stated their collective belief that the AICA would show positive results for the Program. A final report will be issued in early 2019.

## CENTER LEADERSHIP TEAM (FORMERLY FUTURE IS NOW INITIATIVE)

In September 2016, MEP Centers were asked to work with NIST MEP to help define and shape the future of service delivery to manufacturers based on major shifts and changes in advanced manufacturing. Twenty Center directors volunteered their time to create a framework for how NIST and the MEP Centers could become a truly integrated national network, capable of sharing resources and expertise throughout the country. During 2017, a smaller group of six Center directors along with NIST MEP staff developed a framework for transforming the MEP system into a fully-integrated MEP National Network. The framework defines the MEP National Network and describes specific roles in the Network and the network ecosystem for each participant including NIST MEP. The framework outlines the critical challenges the Network faces as Centers commit to using a networked approach and how the Network would be able to better serve U.S. manufacturers. Behavioral expectations for participation in the Network were included as were success measures needed to evaluate the Network as it matures.

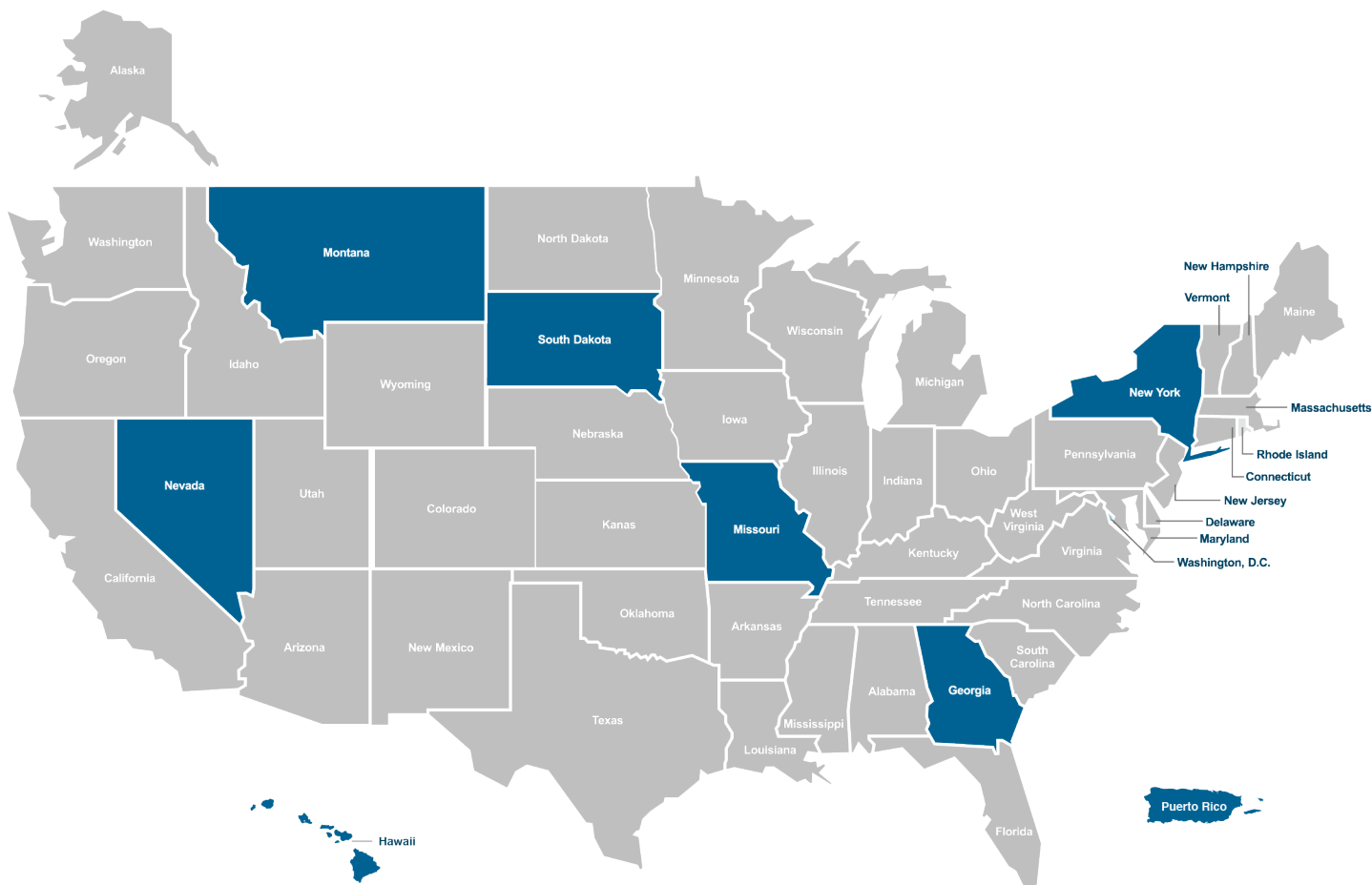
In 2018, the Future is Now group transitioned into the Center Leadership Team (CLT) and focused its efforts on Industry 4.0 advanced manufacturing technologies. They expanded the number of Center directors to include representatives from 31 of the 51 MEP Centers in the implementation effort. The CLT formed four teams: Network Evolution, Knowledge Sharing, Communications and Manufacturing, and Technology Solutions. Each team is led by a Center director with a NIST MEP staffer and has at least five additional members representing the diversity of the Network.

The teams each developed a charter to define their activities and the limits on those activities. The Network Evolution team is looking specifically at what the Network will look like in five years. The Knowledge Sharing team is working to identify the information that Center personnel need to know about Industry 4.0 technologies and how to make this information available in a usable, just-in-time manner. The Communications team is developing a strategic communications plan to share information about the Network across both Centers and to manufacturers. The Manufacturing and Technology Solutions team is identifying which advanced manufacturing technology services Centers can and should be able to deliver to any manufacturer using the concept of "Go-To Centers." These Go-To Centers will develop the necessary expertise in a given area such as cybersecurity and share their expertise and personnel with other Centers that do not have the same in-depth expertise.

## COMPETITIVE AWARDS PROGRAM

As part of NIST MEP's ongoing efforts to make the MEP National Network more effective and efficient, in 2017 NIST MEP launched the performance-based Competitive Awards Program (CAP). These awards are intended to add capabilities to the MEP National Network, including the development of projects to solve new or emerging manufacturing problems that are not already provided for under a Center's base MEP award. The format of using an open solicitation award throughout the fiscal year is based on an existing NIST Measurement Science and Engineering solicitation used by the NIST laboratory Organizational Units in their grants programs. The MEP CAP awards are performance-based and open to MEP Centers that meet an acceptable level in seven out of ten Improving Manufacturing Productivity and Competitiveness Tracker (IMPACT) metrics.

Building on the success experienced in 2017, MEP expanded the portfolio of projects in 2018 with the addition of eight new CAP awards located in seven states and Puerto Rico and totaling approximately \$7.04 million. The topical areas of these 2018 awards included robotics, Industry 4.0, the food industry, innovation centers, Toyota Kata and workforce.



The opportunity to compete for each of these eight awards was issued as part of the NIST MEP NOFOs. CAP Awards went to the following MEP Centers:

- Georgia Manufacturing Extension Partnership (GaMEP), Atlanta, Georgia
- Innovate Hawaii, Honolulu, Hawaii
- Missouri Enterprise, Rolla, Missouri
- Montana Manufacturing Extension Center (MMEC), Bozeman, Montana
- Nevada Industry Excellence (NVIE), Reno, Nevada
- New York Manufacturing Extension Partnership (NY MEP), Albany, New York
- Puerto Rico Manufacturing Extension (PRiMEX), Hato Rey, Puerto Rico
- South Dakota Manufacturing and Technology Solutions, Sioux Falls, South Dakota

To date, NIST MEP has funded 15 awards totaling \$12.1 million in federal funding with project durations of 2-3 years. In addition, the projects are engaging and providing manufacturing practice development funding to approximately 37 MEP Center partners.

## CYBERSECURITY

During 2018, MEP National Network efforts in cybersecurity focused on the continued development of the capabilities and capacities of MEP Centers to provide cybersecurity assistance to SMMs on a national scale. The target is for MEP Centers to be able to provide any manufacturer located anywhere in the country with the cybersecurity assistance it needs.

Through a NIST MEP CAP project involving six MEP Centers in different geographic regions around the nation, the MEP National Network continued to create national cybersecurity assistance capabilities for MEP Centers based on the use of regional, go-to cybersecurity centers that provide assistance in the absence of local MEP Center capabilities. MEP Cyber-in-a-Box is a key result of this effort, providing MEP Centers with the tools, guidance and other information needed to create a cybersecurity assistance practice. The MEP National Network Cybersecurity Working Group was also established in 2018, with evolving participation from more than 40 MEP Centers, as a platform for information and best practice sharing and to enable systematic engagement between Centers and cybersecurity subject matter experts from the NIST laboratories, NIST MEP and other key organizations.

The MEP National Network also continued to evolve and strengthen its relationship with the DoD relating to the cybersecurity needs of small manufacturers operating in defense manufacturing supply chains. NIST MEP chaired an interagency working group that conducted an analysis of defense industrial base capabilities and needs relating to cybersecurity. This analysis was included in the September 2018 report to the President on the fulfillment of Executive Order 13806, "Assessing and Strengthening the Manufacturing and Defense Industrial Base and Supply Chain Resiliency of the United States." Additionally, MEP Centers continued to participate in grants made by the Office of Economic Adjustment (OEA) Defense Industry Adjustment Program relating to cybersecurity, largely with an emphasis on workforce education and training.

## EMBEDDING MEP INTO MANUFACTURING USA INSTITUTES

From the initial establishment of Manufacturing USA Institutes by DoD and Department of Energy (DOE), the institutes have interacted with MEP Centers in their regions to connect to small manufacturing enterprises (SMEs). In September 2016, NIST MEP and the MEP National Network began a formal program to connect SMMs to the technologies available in Manufacturing USA Institutes and connect the institutes to SMMs throughout the U.S.

With a formal competitive process, awards were made for 14 projects totaling \$15.5 million for one-time, two-year pilot programs connecting each institute to a lead MEP Center and through that Center to the entire MEP National Network. To most effectively understand the unique capabilities, specialized technological focus and related market opportunities of the Manufacturing USA Institutes, each pilot project supported the focus of one staff person embedded at their partner institute. Each pilot project required the MEP Center to:

- Create approaches to engage small manufacturers in the technology focus areas of Manufacturing USA Institutes via hands-on assistance mechanisms and services offered by MEP Centers.
- Develop and test business models by which U.S. manufacturers can be served in institute technology areas – business models that are viable to the small manufacturers, to the MEP Centers and to the institutes.
- Develop national resources within the MEP National Network in the institute technical focus areas.





## FOOD INDUSTRY SERVICES AND FOOD SAFETY

During 2018, the MEP National Network continued its development of capabilities and capacities for MEP Centers to provide technical assistance services to U.S. food manufacturers, with an emphasis on small U.S. food processors. MEP Centers have been serving food processors around the nation for many years in traditional MEP technical service areas such as quality and process optimization and now MEP is also focused on providing technical assistance services to help ensure food safety in the U.S.

In 2018, MEP National Network assistance efforts relating to food safety for small food processors were primarily driven by requirements of the Food and Drug Administration (FDA) Food Safety Modernization Act (FSMA). These FSMA requirements apply to all manufacturers involved in the production of both human and animal food. The FSMA regulation focuses on a preventive approach to food safety and deals with the requirements of current good manufacturing practices, hazard analysis and risk-based preventive controls.

The MEP National Network is developing capabilities and capacities across multiple MEP Centers so that they can provide awareness and assistance to small food processors to help them understand the requirements they face, along with what they must do to implement protections in their processes and systems associated with the requirements. A national Food Safety Steering Team with representation from approximately 10 MEP Centers along with NIST MEP staff was created in 2018 and facilitated by NIST MEP to promote communication, best practice sharing and technical information sharing among MEP Centers. For MEP Centers, assistance services provided to food processors are intended to cover both traditional MEP technical service areas and provide an increased focus on helping to ensure a culture of food safety within the U.S. food industry. During 2018, NIST MEP made special funding awards for food safety-related efforts to MEP Centers in four different geographic regions of the nation to establish a regional-based, national footprint of food safety practice capabilities. These four new awards to the MEP Centers in Georgia, Missouri, Montana and Puerto Rico complement a similar award made in 2017 to the MEP Center in New Jersey which operated in 2018.

## MANUFACTURING 4.0

During FY 2018, NIST MEP used multiple means to support the adoption of programs and services across the MEP National Network to help SMMs become aware of the portfolio of advanced manufacturing technologies that make up Manufacturing 4.0. These technologies can drive U.S. manufacturing competitiveness and for SMMs in particular, adoption of these technologies can improve productivity and profitability. These efforts included:

- The continuation of the performance-based Competitive Awards Program (CAP) consistent with 15 U.S.C. 278k-1, which among other themes, seeks to award proposals for new manufacturing technologies of relevance to SMMs, particularly those related to Manufacturing 4.0.
- The continuance of partnering efforts of the MEP National Network with all 14 Manufacturing USA Institutes.
- The expansion of the MATTR program to provide NIST laboratories with access and expertise to help address Manufacturing 4.0-related needs among MEP Centers and their SMM clients and to help NIST laboratories better understand SMMs' needs and barriers to adopting Manufacturing 4.0-related technologies.

## MANUFACTURING DISASTER ASSESSMENT PROGRAM AWARDS

Throughout 2018, MEP Centers in hurricane-impacted areas provided assessment support by way of five Manufacturing Disaster Assessment Program (MDAP) awards. Awarded between September 2017-January 2018, these awards delivered \$6.2 million in funding to MEP Centers in Florida, Georgia, Louisiana, Puerto Rico and Texas. By the end of 2018, more than 800 total assessments had been conducted in Puerto Rico alone. Lessons learned about the support needed for manufacturers following these hurricanes will be brought to bear on disaster assistance efforts going forward.



## MATTR

During 2018, NIST MEP continued working with the MEP National Network and NIST laboratories to systematically connect MEP Center manufacturing clients with technical resources available at the NIST laboratories. This effort, known as the MEP Assisted Technology and Technical Resource (MATTR) Program, offers SMMs direct access to the wide ranging, world class technical expertise available at NIST. Through MATTR, the expertise and other technical resources available in NIST research labs and user facilities can provide technical support necessary for SMMs to solve critical issues involving products and processes. MATTR helps SMMs improve, innovate and create products and services by connecting technical assistance from NIST, through MEP Centers, to SMMs.

MATTR offers dedicated NIST MEP funding resources to help MEP Center clients solve challenges in areas such as quality and measurement practices, including calibrations or special measurement services; adopt and integrate new developments to existing technologies, such as robotics and additive manufacturing; understand entirely new approaches to manufacturing, such as those enabled by the Digital Thread in Manufacturing/Industry 4.0; make use of industry standards and best practices relevant to process technologies and materials; and license NIST-developed technologies for manufacturing applications.

In 2018, MATTR assistance included:

- Assisting a manufacturer in exploring techniques for fabricating nanostructured materials for sensing applications.
- Supporting a manufacturer by developing strategies to calibrate a novel instrument needed for a medical condition.
- Engaging with MEP Centers in a standards development effort involving collaborative robots and their applicability to manufacturing for SMM clients.





## PERFORMANCE-BASED PEER PANEL REVIEWS

In March 2014, the GAO recommended that NIST MEP update its process for competition of state MEP Centers and distribution of funds. In response, NIST MEP developed a strategy for executing four separate competitions over three years. The new strategy includes ongoing performance assessment and regular 10-year competition of MEP Centers. These four rounds were completed in 2017 and included competitions for 44 states. The seven states not competed at this time – Arizona, Florida, Kentucky, Maryland, Nebraska, Rhode Island and South Dakota – had been or were in the process of being competed during 2012-2014 before the GAO report and its recommendations were issued.

As part of this process, NIST MEP is required by statute to conduct evaluations of each Center during its third and eighth years of operation. These panel reviews are intended to:

- Provide analysis, diagnosis and feedback to Centers regarding their strengths and opportunities for improvement and identify any deficiency areas.
- Include an evaluation of a Center's own Performance and Evaluation Management System effectiveness, use and self-assessment.
- Promote the sharing of information across the Network.
- Identify common Center performance gaps so the Centers can leverage internal and external resources to develop performance improvement practices. Performance is defined as market penetration and economic impact.

1

**Round 1:** The first round of performance-based peer panel reviews was conducted from December 2017-February 2018 for MEP Centers in Colorado, Connecticut, Florida, Indiana, Michigan, New Hampshire, North Carolina, Oklahoma, Oregon, Tennessee, Texas and Virginia.

2

**Round 2:** The second round of reviews was conducted from May-July 2018 for MEP Centers in Alaska, Idaho, Illinois, Minnesota, New Jersey, Washington, West Virginia and Wisconsin.

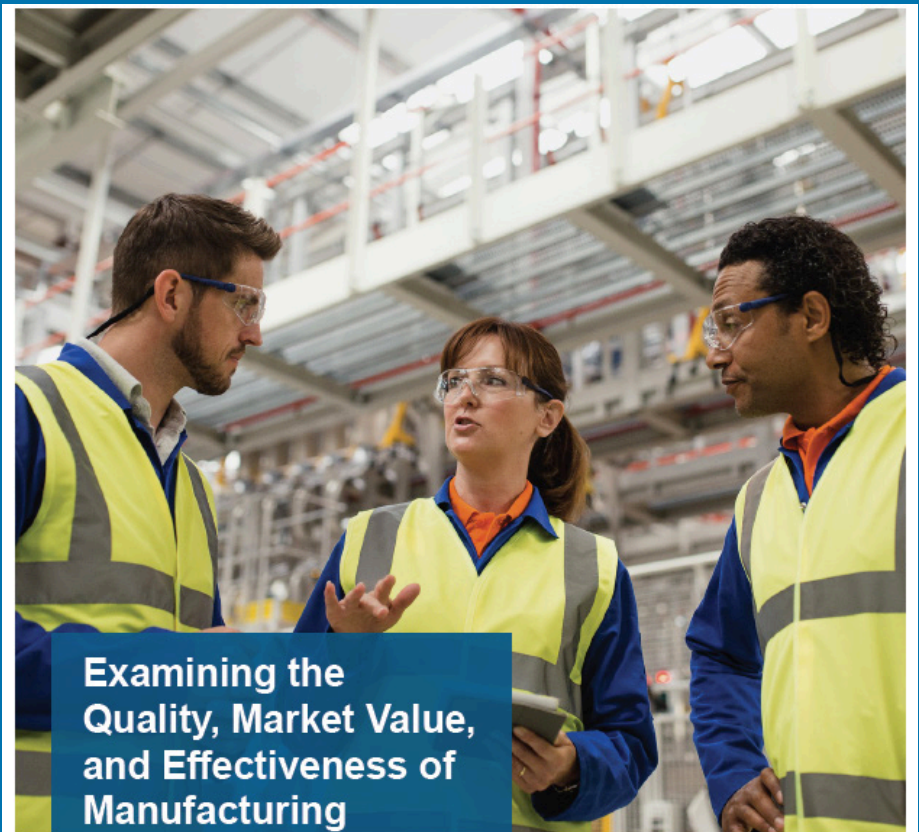
**FY 2019-2020 Panel Reviews:** Two additional rounds of reviews for a total of 24 MEP Centers are slated to be conducted in FY 2019-2020.

**Fifth Year Reviews:** The seven MEP Centers that were not part of the 2012-2014 competition were also not part of the panel reviews. These include Centers in Arizona, Florida, Kentucky, Maryland, Nebraska, Rhode Island and South Dakota. Under the AICA, these states are subject to the fifth year legislatively-required secretarial evaluation. As of the end of FY 2018, reviews have been completed for MEP Centers in Arizona, Kentucky, Maryland and Rhode Island, with reviews underway for the Centers in Nebraska and South Dakota. The MEP Center in Florida will undergo its fifth year review in 2019.

# RESEARCH REPORT ON CREDENTIALING IN THE MANUFACTURING INDUSTRY

NIST MEP worked with the NIST Standards Coordination Office (SCO) to fund Workcred, an American National Standards Institute (ANSI) affiliate, to study how U.S. manufacturers use and value manufacturing credentials. This study focused on how to help strengthen the quality, value and effectiveness of manufacturing credentials in the U.S. The resulting report, “Examining the Quality, Market Value, and Effectiveness of Manufacturing Credentials in the United States,” released in July 2018, features recommendations for multiple stakeholders including manufacturers, credentialing organizations, educators, accreditors and policymakers. Recommendations include:

- Improving understanding about the content, use and value of credentials.
- Expanding the use of quality standards for credentials.
- Strengthening relationships between employers, education and training providers, and credentialing organizations.
- Adding an employability skills component to existing and new credentials.
- Creating credentials that focus on performance and address new roles.
- Increasing the number of apprentices and expanding apprenticeships to more occupations.



## Examining the Quality, Market Value, and Effectiveness of Manufacturing Credentials in the United States

Published by

**workcred**

an affiliate of the American National Standards Institute (ANSI)

In partnership with



**MEP • MANUFACTURING  
EXTENSION PARTNERSHIP®**

The National Institute of Standards and Technology (NIST)  
Hollings Manufacturing Extension Partnership (MEP)

## SUPPORT FOR DEFENSE MANUFACTURING SUPPLY CHAINS

The MEP National Network has decades of experience providing support to the U.S. defense manufacturing industrial base, which like the rest of the U.S. manufacturing sector, consists primarily of small supplier companies. The MEP National Network is operating partnerships with DoD agencies at the national level via NIST MEP and at the state and local levels via MEP Centers. MEP Centers are very active in the provision of hands-on technical assistance to defense manufacturing suppliers across a wide array of areas including:

- Assisting with cybersecurity efforts for defense manufacturing suppliers.
- Partnering with DoD-sponsored Manufacturing USA Institutes to assist small defense suppliers in leveraging advanced technologies and capitalizing on market opportunities associated with the various institutes.
- Working with DoD agencies and suppliers to integrate new technologies, best practices and manufacturing approaches into supplier production operations.

In 2018, a major focus of the MEP National Network support for defense manufacturing supply chains was on cybersecurity and working with DoD-sponsored Manufacturing USA Institutes. Relating to cybersecurity, MEP Centers worked extensively with DoD-funded Procurement Technical Assistance Centers (PTACs) to create awareness and provide training to small defense suppliers relating to the cybersecurity requirements included in the Defense Federal Acquisition Regulation Supplement (DFARS). This activity occurred in conjunction with a Memorandum of Understanding (MoU) signed in 2017 between NIST MEP and the National Association of PTACs.

MEP Centers around the U.S. were also very active in workforce and supply chain development grants made to state entities by the DoD Office of Economic Adjustment (OEA) which focused on DFARS cybersecurity for small defense manufacturers. Through 2018, MEP Centers have been part of OEA grants in 21 states focused primarily on workforce training for small defense contractors.



## ADDITIONAL FY 2018 ACTIVITIES

### MANUFACTURING DAY 2018

Each year, Manufacturing Day (MFG Day) brings together manufacturers from across the U.S. and empowers them to join forces to address common concerns and upcoming challenges — most pressing the inspiration of the next generation of manufacturers in the face of the impending skills gap, which many are already feeling. Begun in 2012, MFG Day is now an MEP institution.

MEP Centers across the country collaborated with manufacturers in their respective states to call attention to issues such as changing the public perception of manufacturing, connecting with future generations of manufacturers and underscoring the importance of cybersecurity which is a pressing issue for many SMMs. With record-setting attendance at some of the events it helped steward, the MEP National Network was pleased to continue its contribution to making MFG Day a success.

### NIST RETURN ON INVESTMENT IN TECHNOLOGY TRANSFER

MEP played a significant role in the NIST Director's Return on Investment (ROI) initiative for evaluating and recommending changes to federal technology transfer authorities and processes to improve the use of federally-funded and developed technologies by the private sector. This initiative is part of the President's Management Agenda under the Lab-to-Market cross-agency priority goal and is co-led by the Department of Commerce through NIST and the White House Office of Science and Technology Policy. NIST MEP leadership participated in four public meetings to gather information from a variety of sources to inform the effort, analyzed comments from the public meetings and a related request for information, and contributed sections to the draft report.

### STRATEGY FOR AMERICAN LEADERSHIP IN ADVANCED MANUFACTURING

NIST MEP played a significant role in research and creation of a report published in October 2018, "Strategy for American Leadership in Advanced Manufacturing," by the Subcommittee on Advanced Manufacturing (SAM), Committee on Technology of the National Science and Technology Council. The report describes the 2018 strategic plan for advanced manufacturing, developed by the SAM following extensive public outreach, and based on a vision for American leadership in advanced manufacturing across industrial sectors. This vision will be achieved by developing and transitioning new manufacturing technologies to market; educating, training and connecting the manufacturing workforce; and expanding the capabilities of the domestic manufacturing supply chain. Strategic objectives are identified for each goal, along with technical and program priorities with specific actions and outcomes to be accomplished over the next four years. NIST MEP leadership co-led the team that worked on Goal 3: Expand the Capabilities of the Domestic Manufacturing Supply Chain, including increasing the role of SMMs in advanced manufacturing and strengthening advanced manufacturing for rural communities.



# COMING NEXT: FY 2019

## 2019 MEP NATIONAL NETWORK SUMMIT: MEP UNITED STATE OF MANUFACTURING

The 2019 MEP National Network Summit will be held Sept. 15-18, 2019 in Atlanta. The theme for this Summit is “MEP United State of Manufacturing” and it will bring together more than 500 representatives of the MEP National Network to share knowledge while advancing and integrating Network capabilities. Together, attendees will lay the foundation for services and solutions that will grow the Network, improve the ways we serve SMMs and strengthen and empower U.S. manufacturers as we advance U.S. manufacturing.



## CENTER LEADERSHIP TEAM

During 2019, the Center Leadership Team (CLT) and its working committees will continue their critical work to transform the MEP National Network into a fully-integrated network. For example, the Multi-State Engagement Working Committee, led by GENEDGE Alliance leadership, has formulated an MoU to facilitate Center-to-Center cooperation and collaboration with a goal to have all 51 Centers and NIST MEP sign the MoU by September 2019. Additionally, the CLT’s continued transformation of the MEP National Network into a fully-integrated network is expected to be a prominent component of the 2019 MEP National Network Summit including discussion during plenary and breakout sessions.

## CYBERSECURITY

In 2019, the MEP National Network will continue to build national cybersecurity assistance capabilities and capacities. Partnerships with the DoD will continue to be strengthened as NIST MEP works with MEP Centers nationwide to execute an effort with the office of the Undersecretary of Defense to provide awareness, understanding and technical assistance to small defense contractors as they implement the cybersecurity protections they need in conjunction with DFARS requirements. The MEP National Network will also continue its relationship with the DoD National Center for Defense Cybersecurity at the Digital Manufacturing and Design Innovation Institute (DMDII) Manufacturing USA Institute in Chicago.

## EMBEDDING MEP INTO MANUFACTURING USA INSTITUTES

The first round of awards that embedded MEP into Manufacturing USA Institutes was scheduled to end in September 2018. The second round of awards is scheduled to end in January 2019 and the third round in August 2019. However, award recipients have generally requested no-cost extensions. Program management was overseen by NIST MEP in collaboration with a coordination body composed of the participating MEP Centers.

In FY 2019 MEP will undertake an assessment of the embedding program, with input to be solicited from institute directors and MEP Centers. NIST MEP will analyze possible approaches to optimize the partnership with Manufacturing USA Institutes and more effectively transfer the results of institute work to the broadest sector of U.S. SMMs. Possibilities for the future include a single national program coordinated with federal agency partners, with clearly defined roles and responsibilities for MEP Centers and Manufacturing USA Institutes.

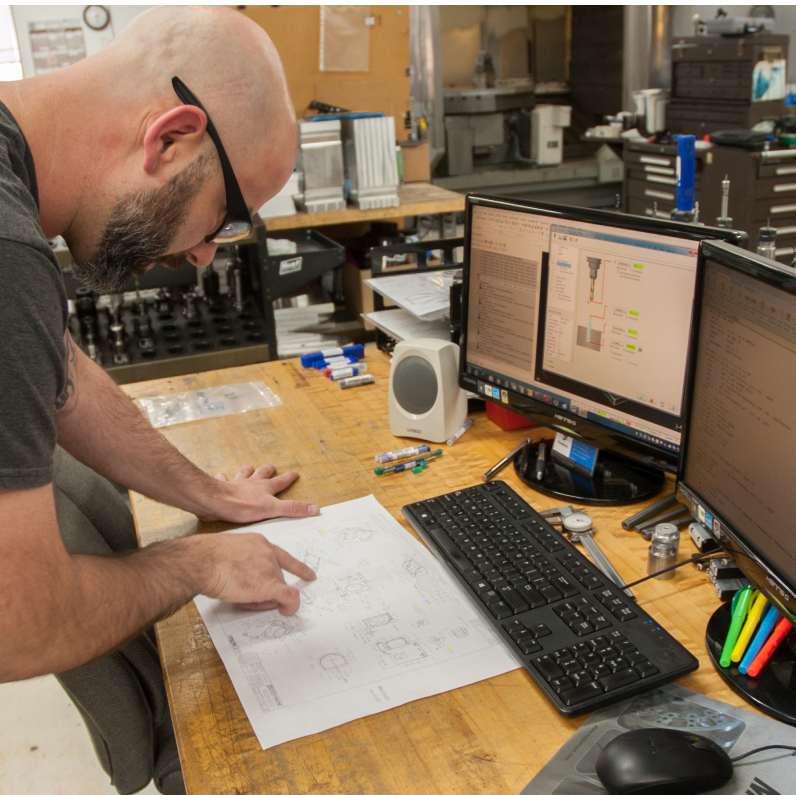


## FOOD INDUSTRY SERVICES AND FOOD SAFETY

In 2019, the MEP National Network extended its development to focus on providing national-scale capabilities and capacities to assist small food processors with food safety issues. NIST MEP expects to enter into an MoU with the Food Safety Preventive Controls Alliance (FSPCA) to ensure that MEP Centers have access to the training curricula needed to serve as trusted advisors to U.S. food processors relating to food safety. MEP is also processing an MoU with the FDA to recognize MEP Centers as national resources that can assist small food processors with food safety. The MEP National Network will continue to evolve national capabilities in conjunction with the special awards made in 2017 and 2018.

## MANUFACTURING 4.0

In FY 2019, MEP Centers across the MEP National Network will be introducing or expanding user and demonstration facilities to better connect SMMs with the numerous advanced manufacturing technologies that make up Manufacturing 4.0. Examples are expected to include Michigan MEP's Future Factory 4.0 and Iowa MEP's digital deployment manufacturing demonstration facility.





## MANUFACTURING DAY 2019

Manufacturing Day (MFG Day) 2019 on Oct. 4, 2019 will mark NIST MEP's eighth year of participation. On MFG Day 2019, NIST MEP and MEP National Network Centers will draw public attention to manufacturing's present-day reality and encourage careers in this secure and growing sector of the economy. MEP Centers will work with local manufacturers to plan events and spread the word about MFG Day 2019 to ensure its success.

We believe that by being an active part of this national outreach effort manufacturers will find additional resources to address the skilled-labor shortage many face, connect with future generations, take charge of the public image of manufacturing and help ensure a prosperous future for manufacturing throughout the U.S.

## MATTR

In 2019, NIST MEP will work with MEP Centers to form and operate an MEP National Network Steering Team and Working Group to engage MEP Centers and their clients on a national scale and to facilitate systematic and structured communications about how to best align MATTR with MEP Center client needs. MATTR will expand so that NIST MEP can compensate NIST laboratories for their participation in detailed MATTR projects that result from MATTR engagements. It is anticipated that these projects will be formalized via Cooperative Research and Development Agreements involving NIST and NIST MEP, the participating MEP Center and the participating MEP Center manufacturing client.

## MEP NATIONAL NETWORK BRAND

As part of its brand awareness initiative, NIST MEP has used trade media to reach a larger number of manufacturers with articles, blogs, white papers and webinars from the MEP National Network to increase awareness of MEP Center activities. We expect to continue this effort in 2019 to share educational and informational content created by the MEP National Network through trade publications to increase Network awareness, establish the MEP Centers as thought leaders and help further the Network's mission to strengthen and empower U.S. manufacturers. Additionally, it is anticipated that branding updates and discussions will be featured in breakout sessions and working group meetings as part of the 2019 MEP National Network Summit.



## NIST RETURN ON INVESTMENT IN TECHNOLOGY TRANSFER

For FY 2019, the Return on Investment (ROI) initiative team expects to release both a draft and final green paper containing the findings and potential actions to accelerate innovation for the benefit of the U.S. The findings may describe barriers in policies, regulations or legislation that could be addressed to reduce bureaucracy and cut red tape to accelerate innovation. Any changes to policies, regulations or legislation would go through established agency and interagency processes needed to make and implement such changes.

## PERFORMANCE-BASED COMPETITIVE AWARDS PROGRAM (CAP)

It is anticipated that in FY 2019, NIST MEP will make additional CAP awards focusing on cybersecurity, advanced manufacturing, food processing and food safety, Toyota Kata and workforce development. NIST MEP will evaluate additional topical areas as Centers submit proposals. However, as projects begin to enter their final year, applying the results to increase the capabilities of the MEP National Network will become paramount. Therefore, how to translate the early learnings into actionable steps for the MEP National Network and determine if follow-up projects might be needed will be a primary focus in 2019.



## SUPPORT FOR DEFENSE MANUFACTURING SUPPLY CHAINS

In 2019, a major focus of the MEP National Network support for defense manufacturing supply chains will continue to focus on cybersecurity and working with DoD-sponsored Manufacturing USA Institutes. Partnerships with the DoD will continue to be strengthened as NIST MEP works with MEP Centers nationwide to execute an effort with the Office of the Undersecretary of Defense to provide awareness, understanding and technical assistance to small defense contractors as they implement the cybersecurity protections they need in conjunction with DFARS requirements. The MEP National Network will also continue its relationship with the DoD National Center for Defense Cybersecurity at the Digital Manufacturing and Design Innovation Institute (DMDII) Manufacturing USA Institute in Chicago. Additionally, the MEP National Network will continue to provide awareness and assistance services on a national scale in conjunction with ongoing and new OEA grants.



# MEP CENTERS

MEP Centers serve as the foundation of the MEP Program. Throughout the U.S. and Puerto Rico, more than 400 field offices comprised of over 1,300 experts help make U.S. manufacturing stronger.

## Alabama

Alabama Technology Network (ATN)  
135 South Union Street, Suite 441  
Montgomery, AL 36104  
Phone: 334-293-4673  
[www.atn.org](http://www.atn.org)

## Alaska

Alaska MEP  
3211 Providence Drive, BOC Ste 199  
Anchorage, AK 99508  
Phone: 907-486-0412  
[www.uaa.alaska.edu/academics/business-enterprise-institute](http://www.uaa.alaska.edu/academics/business-enterprise-institute)

## Arizona

Arizona Manufacturing Extension Partnership (Arizona MEP)  
100 N. 7th Avenue, Suite 400  
Phoenix, AZ 85007  
Phone: 602-845-1200  
[www.azmep.com](http://www.azmep.com)

## Arkansas

Arkansas Economic Development Commission Manufacturing Solutions (AEDC-MS)  
900 W. Capitol Ave., Suite 400  
Little Rock, AR 72201  
Phone: 501-683-4411  
[www.mfgsolutions.org](http://www.mfgsolutions.org)

## California

California Manufacturing Technology Consulting (CMTC)  
690 Knox Street, Suite 200  
Torrance, CA 90502  
Phone: 310-263-3060  
[www.cmtc.com](http://www.cmtc.com)

## Colorado

Manufacturer's Edge, C/O Geotech  
2650 E. 40th Ave  
Denver, CO 80205  
Phone: 303-592-4087  
[www.manufacturersedge.com](http://www.manufacturersedge.com)

## Connecticut

CONNSTEP, Inc.  
350 Church Street  
Hartford, CT 06103  
Phone: 860-513-3204  
[www.connstep.org](http://www.connstep.org)

## Delaware

Delaware Manufacturing Extension Partnership (DEMPEP)  
400 Stanton-Christiana Rd., Suite A-158  
Newark, DE 19713  
Phone: 302-283-3131  
[www.demep.org](http://www.demep.org)

## Florida

FloridaMakes  
800 N. Magnolia Avenue, Suite 1850  
Orlando, FL 32803  
Phone: 407-450-7206  
[www.floridamakes.com](http://www.floridamakes.com)

## Georgia

Georgia Manufacturing Extension Partnership (GAMEP)  
Georgia Tech, 75 Fifth Street, NW Suite 300  
Atlanta, GA 30308  
Phone: 404-894-8270  
[www.gamep.org](http://www.gamep.org)

## **Hawaii**

INNOVATE Hawaii  
2800 Woodlawn Dr., Suite 120  
Honolulu, HI 96822  
Phone: 808-539-3652  
[www.innovatehawaii.org](http://www.innovatehawaii.org)

## **Idaho**

TechHelp  
Boise State University  
1910 University Drive  
Boise, ID 83725  
Phone: 208-426-3767  
[www.techhelp.org](http://www.techhelp.org)

## **Illinois**

Illinois Manufacturing Excellence Center (IMEC)  
1501 West Bradley Ave.  
Peoria, IL 61625  
Phone: 888-806-4632  
[www.imec.org](http://www.imec.org)

## **Indiana**

Purdue Manufacturing Extension Partnership  
8628 E. 116th Street, Suite 200  
Fishers, IN 46038  
Phone: 800-877-5182  
[www.mep.purdue.edu](http://www.mep.purdue.edu)

## **Iowa**

Iowa Center for Industrial Research and Service (CIRAS)  
Economic Development Core Facility  
1805 Collaboration Place  
Suite 2300  
Ames, IA 50010  
Phone: 515-294-3420  
[www.ciras.iastate.edu](http://www.ciras.iastate.edu)

## **Kansas**

Mid-America Manufacturing Technology Center (MAMTC)  
10550 Barkley St, Suite 116  
Overland Park, KS 66212  
Phone: 913-649-4333  
[www.mamtc.com](http://www.mamtc.com)

## **Kentucky**

Advantage Kentucky Alliance (AKA)  
2413 Nashville Road, B8, Suite 310  
WKU Center for Research and Development  
Bowling Green, KY 42101  
Phone: 270-745-3370  
[www.advantageky.org](http://www.advantageky.org)

## **Louisiana**

Manufacturing Extension Partnership of Louisiana (MEPOL)  
537 Cajundome Boulevard, Suite 132  
Lafayette, LA 70506  
Phone: 337-482-6767  
[www.mepol.org](http://www.mepol.org)

## **Maine**

Maine Manufacturing Extension Partnership (MAINE MEP)  
87 Winthrop Street  
Augusta, ME 04330  
Phone: 207-623-0680  
[www.mainemep.org](http://www.mainemep.org)

## **Maryland**

Maryland Manufacturing Extension Partnership (MDMEP)  
8894 Stanford Boulevard, Suite 305  
Columbia, MD 21045  
Phone: 443-343-0085  
[www.mdmeep.org](http://www.mdmeep.org)

## **Massachusetts**

Massachusetts Manufacturing Extension Partnership (MASSMEP)  
27 A Midstate Park, Suite 200  
Auburn, MA 01501  
Phone: 508-831-7020  
[www.massmep.org](http://www.massmep.org)

## **Michigan**

Michigan Manufacturing Technology Center  
(MMTC)  
45501 Helm Street  
Plymouth, MI 48170  
Phone: 888-414-6682  
<https://www.the-center.org>

## **Minnesota**

Enterprise Minnesota  
2100 Summer Street, Suite 150  
Minneapolis, MN 55413  
Phone: 612-373-2900  
[www.enterpriseminnesota.org](http://www.enterpriseminnesota.org)

## **Mississippi**

Mississippi Manufacturers Association  
Manufacturing Extension Partnership (MMA-MEP)  
720 North President  
Jackson, MS 39202  
Phone: 601-948-1222  
<http://www.mma-web.org/mep>

## **Missouri**

Missouri Enterprise  
900 Innovation Dr., Suite 300  
Rolla, MO 65401  
Phone: 573-341-0117  
[www.missourienterprise.org](http://www.missourienterprise.org)

## **Montana**

Montana Manufacturing Extension Center  
(MMEC)  
2310 University Way Building 2 Suite 1,  
P.O. Box 174255, Montana State University  
Bozeman, MT 59717  
Phone: 406-994-3812  
[www.montana.edu/mmec](http://www.montana.edu/mmec)

## **Nebraska**

Nebraska Manufacturing Extension Partnership  
University of Nebraska-Lincoln  
3 Agricultural Communications Building  
3625 East Campus Loop South  
Lincoln, NE 68583  
Phone: 402-472-5993  
[nemep.unl.edu](http://nemep.unl.edu)

## **Nevada**

Nevada Industry Excellence  
UNR Mail Stop 406  
Reno, NV 89557  
Phone: 775-784-1935  
[www.nevadaie.com](http://www.nevadaie.com)

## **New Hampshire**

New Hampshire Manufacturing Extension  
Partnership (NHMEP)  
172 Pembroke Road  
Concord, NH 03301  
Phone: 603-226-3200  
[www.nhmep.org](http://www.nhmep.org)

## **New Jersey**

New Jersey Manufacturing Extension Program  
(NJMEP)  
2 Ridgedale Avenue, Suite 305  
Cedar Knolls, NJ 07927  
Phone: 973-998-9801  
[www.njmep.org](http://www.njmep.org)

## **New Mexico**

New Mexico Manufacturing Extension Partnership  
(New Mexico MEP)  
8600 San Mateo Blvd. NE Suite 100  
Albuquerque, NM 87113  
Phone: 505-262-0921  
[www.newmexicomep.org](http://www.newmexicomep.org)

## **New York**

New York Manufacturing Extension Partnership (NYMEP)  
625 Broadway  
ESD Division of Science, Technology & Innovation (NYSTAR)  
Albany, NY 12207  
Phone: 518-292-5729  
[www.esd.ny.gov](http://www.esd.ny.gov)

## **North Carolina**

North Carolina Manufacturing Extension Partnership (NCMEP)  
1005 Capability Drive, Research III Bldg.  
Suite 200  
Raleigh, NC 27606  
Phone: 919-513-6119  
[www.ncmep.org](http://www.ncmep.org)

## **North Dakota**

Impact Dakota  
1929 N. Washington St. Suite M  
Bismark, ND 58501  
Phone: 866-297-8250  
[www.impactdakota.com](http://www.impactdakota.com)

## **Ohio**

Ohio Manufacturing Extension Partnership (Ohio MEP)  
77 S. High Street 28th Floor  
Columbus, OH 43215  
Phone: 614-752-2587  
[development.ohio.gov/bs/bs\\_mep.htm](http://development.ohio.gov/bs/bs_mep.htm)

## **Oklahoma**

Oklahoma Manufacturing Alliance (OK Alliance)  
525 South Main Street, Suite 210  
Tulsa, OK 74103  
Phone: 918-592-0722  
[www.okalliance.com](http://www.okalliance.com)

## **Oregon**

Oregon Manufacturing Extension Partnership (OMEP)  
7650 SW Beveland St., Suite 170  
Portland, OR 97223  
Phone: 503-406-3770  
[www.omep.org](http://www.omep.org)

## **Pennsylvania**

Pennsylvania Manufacturing Extension Partnership (PAMEP)  
One College Avenue,  
DIF 32, Williamsport, PA 17701  
Phone: 570-308-3312 ext. 700  
[www.pamade.org/network/](http://www.pamade.org/network/)

## **Puerto Rico**

Puerto Rico Manufacturing Extension Inc. (PRiMEX)  
#268 Muñoz Rivera Ave.  
World Plaza Building, Suite 1002  
Hato Rey, PR 00918  
Phone: 787-756-0505  
[www.primexpr.org](http://www.primexpr.org)

## **Rhode Island**

Polaris MEP  
75 Lower College Road  
Carlotti Administration Building, Rm. 212  
Kingston, RI 02881  
Phone: 401-524-4911  
[www.polarismep.org](http://www.polarismep.org)

## **South Carolina**

South Carolina Manufacturing Extension Partnership (SCMEP)  
250 Berryhill Road, Suite 512  
Columbia, SC 29210  
Phone: 803-252-6976  
[www.scmep.org](http://www.scmep.org)



## **South Dakota**

South Dakota Manufacturing  
and Technology Solutions  
2329 N. Career Avenue, Suite 106  
Sioux Falls, SD 57107  
Phone: 605-367-5757  
[www.sdmanufacturing.com](http://www.sdmanufacturing.com)

## **Tennessee**

University of Tennessee Center for Industrial  
Services (UT CIS)  
193 Polk Ave, Suite C  
University of Tennessee Center  
for Industrial Services  
Nashville, TN 37210  
Phone: 615-532-8657  
[www.cis.tennessee.edu](http://www.cis.tennessee.edu)

## **Texas**

TMAC  
9390 Research Blvd.  
Austin, TX 78759  
Phone: 800-625-4876  
[www.tmac.org](http://www.tmac.org)

## **Utah**

University of Utah MEP Center  
1495 East 100 South MEK 1121  
Salt Lake City, UT 84112  
Phone: 801-587-0713  
[mep.utah.edu](http://mep.utah.edu)

## **Vermont**

Vermont Manufacturing Extension  
Center (VMEC)  
PO Box 12  
Randolph Center, VT 05061  
Phone: 802-728-1421  
[www.vmec.org](http://www.vmec.org)

## **Virginia**

GENEDGE ALLIANCE  
32 Bridge St. Suite 200  
Martinsville, VA 24112  
Phone: 276-666-8890  
[www.genedge.org](http://www.genedge.org)

## **Washington**

Impact Washington  
3303 Monte Villa Parkway, Suite 340  
Bothell, WA 98021  
Phone: 425-438-1146  
[www.impactwashington.org](http://www.impactwashington.org)

## **West Virginia**

West Virginia Manufacturing  
Extension Partnership  
317 Mineral Resources Building  
PO Box 6070  
Morgantown, WV 26506  
Phone: 304-290-8425  
[www.wvmep.com](http://www.wvmep.com)

## **Wisconsin**

Wisconsin Center for  
Manufacturing & Productivity  
2601 Crossroads Drive  
Suite 145  
Madison, WI 53718  
Phone: 608-729-4160  
[www.wicmp.org](http://www.wicmp.org)

## **Wyoming**

Manufacturing-Works  
406 S. 21st Street  
Laramie, WY 82070  
Phone: 307-766-4811  
[www.manufacturing-works.com](http://www.manufacturing-works.com)



**MEP • MANUFACTURING  
EXTENSION PARTNERSHIP®**

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

100 Bureau Drive M/S 4800, Gaithersburg, MD 20899  
[www.nist.gov/mep](http://www.nist.gov/mep) | PH:(301) 975-5020  
FX: (301) 963-6556 | [mfg@nist.gov](mailto:mfg@nist.gov)