National Institute of Standards and Technology
Manufacturing Extension Partnership
Advisory Board
Minutes of the Sept. 20, 2022 Meeting

Background

The Department of Commerce (DOC) National Institute of Standards and Technology (NIST) Manufacturing Extension Partnership (MEP) Advisory Board (Board) met in an open session from 12:30 p.m. to 4:14 p.m. on Sept. 20, 2022, at the InterContinental Chicago Magnificent Mile in Chicago, Illinois. The meeting had 56 attendees, including Board members, NIST and NIST MEP staff, participants from MEP Centers, guest speakers and observers. Cheryl Gendron is the Designated Federal Officer for the MEP Advisory Board.

Attendees

Board Members
Donald Bockoven, CEO, Fiber Industries LLC
LaDon Byars, President and CEO, Colonial Diversified Polymer Products, LLC
Peter Connolly, Owner, Connolly Consulting
Bernadine Hawes, Vice Chair, MEP Advisory Board and Senior Advisor, Econsult Solutions, Inc.
Miriam Kmetzo, Executive Vice President, Welding Technology Corp.
Mitch Magee, Manufacturing Industry Consultant
G. Christopher Mathews, Chairman, National Custom Hollow Metal Doors and Frames and Maple Leaf Awning and Canvas
Matthew Newman, Chair, MEP Advisory Board and Principal Managing Partner of New Era Advisors
Annette Parker, President, South Central College
Jim Wright, Vice President of Operations, Proof Research

NIST MEP Participants
Pravina Raghavan, MEP Director
Cheryl Gendron, NIST MEP, Advisory Board Liaison and Designated Federal Officer, MEP Advisory Board

Guest Speakers
Mojdeh Bahar, Associate Director for Innovation and Industry Services, NIST
Dan Berglund, Executive Director, State Science and Technology Institute (SSTI)
David Boulay, Center Director, Illinois Manufacturing Excellence Center (IMEC)
Sean Ketter, Vice President for Global Procurement and Supply Chain, Oshkosh Corporation
Ashley Moy, CEO, Cast 21

Observers
Steve Black, Utah MEP
Beverly Bobb, NIST MEP
Kristen Booth, The Clearing
Patrick Boyle, Vermont MEP
George Bureau, Wisconsin MEP Manufacturing Solutions

Steve Campbell, NIST MEP
Allegra Chilstrom, Neal R. Gross & Co., Inc.
Monica Claussen, NIST MEP
Bob Clayton, CONNEX Marketplace
Mike Coast, Michigan Manufacturing Technology Center
Christian Cowan, Polaris MEP
Dusty Cruise, Missouri Enterprise
Larry Danner, The Clearing
Bill Donohue, GENEDGE
Jennifer Hagan-Dier, Manufacturer's Edge
Carrie Hines, Foundation for Manufacturing Excellence
Eliot Johnson, The Clearing
John Kennedy, New Jersey MEP
Wiza Lequin, NIST MEP
Kathie Mahoney, Massachusetts MEP
Jyoti Malhotra, NIST MEP
Kevin McIntyre, NIST MEP
Steve McManus, RTI International
Mike O'Donnell, Center for Industrial Research and Service
Mary Ann Pacelli, NIST MEP
Glenn Plagens, Manufacturer's Edge
Katie Rapp, NIST MEP
Rikki Riegner, Pennsylvania MEP
Kirsten Rieth, RTI Innovation Advisors
Mark Schmit, NIST MEP
Lynn Shelton, Enterprise Minnesota
Mike Simpson, NIST MEP
Carroll Thomas, NIST MEP
Mark Troppe, Center for Regional Economic Competitiveness
Ben Vickery, NIST MEP
Kayla Viveiros, Polaris MEP
Phillip Wadsworth, NIST MEP
Thomas Williams, NIST MEP
Robert Zaruta, Northwest Industrial Research Center (NWIRC)

Welcome and Introductions

Speakers:

Pravina Raghavan, MEP Director
Mojdeh Bahar, Associate Director, Innovation and Industry Services, NIST
Matt Newman, Chair, MEP Advisory Board
David Boulay, Center Director, IMEC
Ashley Moy, CEO, Cast 21

M. Newman led a roll call introduction of MEP Advisory Board members, NIST MEP participants, guest speakers, and observers. P. Raghavan welcomed meeting attendees and said that the meeting would continue conversations from the MEP National Network™ (MEPNN) Update Meeting. She noted that B. Hawes had taken over the role of Vice Chair of the Board from Mary Isbister, who was not in attendance, in advance of the departure of M. Isbister and several other Board members in March 2023. P. Raghavan summarized the agenda and introduced M. Bahar for her opening remarks. M. Bahar shared her thoughts on several activities that had taken place since the Board's previous meeting in June 2022. She thanked D. Boulay for hosting the MEP National Network Update Meeting as well as the MEP Advisory Board meeting, Center Best Practice Conference, and working group meetings. She thanked Board members and MEP Center Directors for their feedback and input into the MEP National Network 2023-2027 Strategic Plan. M. Bahar noted that the MEP is powerful because it is a network of networks, and it is important to synergize the work of all of these stakeholders to build on commonalities and help American manufacturers. The strategic plan is intended to build on past successful work while addressing gaps and new areas to explore in the next five years. It is important for stakeholders to stand behind the strategic plan and work together to execute it in order to achieve the goal of a unified MEPNN. M. Bahar also noted that the Board would be discussing its strategic working groups during the course of the meeting, and she reiterated the fact that MEP's work with companies at all levels and tiers of the supply chain is essential for the global competitiveness of U.S. manufacturing. She outlined the rest of the agenda and noted that for this meeting, the Board was joined by S. Ketter, Vice President of Global Procurement and Supply Chain with Oshkosh Corporation.

P. Raghavan introduced D. Boulay, President of IMEC. D. Boulay welcomed participants to Chicago and spoke about the city's rich tradition of manufacturing, with 15 planned manufacturing districts and over 2,500 manufacturers. In the surrounding area, suburban Cook County has over 5,000 manufacturers, and there are roughly 12,500 manufacturers in Illinois. IMEC currently has 55 employees, partnerships with four universities, and half of their work is done by third-party resources. They recently hired a Director of Diversity, Equity and Inclusion in Manufacturing, which provides resources to small and medium-sized manufacturers (SMMs). Their Grow Your Future program provides small manufacturers with grants to focus on marketing and upskilling. With the help of American Rescue Plan Act funding, IMEC is also conducting project work in Cook County to help companies reinvent themselves. D. Boulay praised the timing of the MEPNN strategic plan, as the world is changing for MEP Centers and the manufacturing sector is facing a great deal of uncertainty. He introduced Ashley Moy, an IMEC board member and the President and CEO of Cast 21.

A. Moy thanked NIST MEP for all of their help and gave an overview of her company's work. With the help of IMEC, Cast 21 has been able to invest in R&D, work on marketing strategies, and invest in their team. This has allowed them to launch multiple products, receive several patents, pursue options for commercialization and deeper development, and create and retain many jobs. She expressed her hope that the MEPNN can continue to work together to execute the strategic plan, and said that she was optimistic that the Network can create long-term sustainable and equitable growth for SMMs.

Director's Update

Speaker:

Pravina Raghavan, MEP Director

New NIST MEP team members

- Jyoti Malhotra, Division Chief for Extension Services Division
- Brooke Linehan, Federal Program Officer

- Beverly Bobb, Chief of Staff
- Craig Reid, Resource Manager

MEP organization chart

- MEP Deputy Director position is currently vacant
    - Rob Ivester is now the NIST Senior Advisor for Semiconductor Engagement
- Mary Ann Pacelli, Division Chief of the Network Learning and Strategic Competitions Division, and Chancy Lyford, Division Chief of the External Affairs, Performance and Support Division, will both retire at the end of 2022

MEP program budget outlook

- Fiscal year (FY) 2022 appropriation status
    - $158 million for MEP
    - $8 million increase over FY 2021
    - Funding not subject to cost share requirements – elective for Centers receiving state funds conditioned on federal cost share requirement
- FY 2023 appropriation status outlook
    - President's budget calls for $275 million for MEP
    - Congressional marks: House, $212 million; Senate, $200 million
    - No expectation of cost share exemption
    - Expecting to start FY 2023 under a continuing resolution

NIST MEP projected spend plan through Sept. 30, 2022

- Available funding
    - Appropriation: $158 million
    - Carryover from FY 2021: $2 million
    - Prior-year recoveries: $3.6 million
    - Funding from other agencies [funding from Department of Defense (DOD) for contracts and project support]: $1.6 million
    - Total available funding: $165.1 million
- Planned expenditures
    - Center renewals: $134.1 million
    - Strategic competitions: $1.2 million
    - Contracts: $6.9 million
    - NIST MEP labor: $10.7 million
    - NIST and program overhead: $12.2 million
    - Total planned expenditures: $165.1 million
- Projected FY 2022 efficiency rate: 11.18%; actual FY 2021 efficiency rate: 11.94%

Major legislation

- The President signed into law the CHIPS and Science Act of 2022 on Aug. 9, 2022
- Key provisions include:
    - Creates an expansion award pilot program
    - Establishes a voluntary national supply chain database
    - Includes language that doesn't require MEP Centers to enroll their clients in the General Services Administration Advantage Program
    - Triples MEP's authorized funding levels: FY 2023 $275 million, FY 2024 $300 million, FY 2025-2027 $550 million
- "[The Act will] strengthen American manufacturing, supply chains, and national security, and invest in research and development, science and technology, and the workforce of the future to

keep the United States the leader in the industries of tomorrow, including nanotechnology, clean energy, quantum computing, and artificial intelligence." [White House press release, Aug. 9, 2022]

NIST MEP Extension Services Division update

- MEP Supplier Scouting
  - 25 industries
  - 254 items scouted
  - $168 million new business opportunities
- Industry 4.0
  - Two Cooperative Research and Development Agreements (CRADAs)
  - MEP's proposal to the Manufacturing times Digital (MxD) institute
- MEP-Assisted Technology and Technical Resource (MATTR)/MATTR+
  - More than 500 informal requests
- Cybersecurity
  - Around 50% of projects help DOD contractors and subcontractors
  - 140% increase over 2020
- ExporTech
  - $500,000 to $700,000 average sales increase/retain
  - $91,000 average savings
  - $600 million in total program sales
  - $12,000 average follow-on sales
  - 5 new jobs per company
- Toyota Kata
  - 30 MEP Centers
  - 643 projects completed
  - 500 unique clients
- Food Industry Services
  - $55 million in new/retained sales
  - $22 million in new investments
  - 520 new/retained jobs
- Medical Manufacturers MedAccred Accreditation Pathway
  - Led by GENEDGE (Virginia MEP Center), with the Food and Drug Administration (FDA), and MEP Centers in California, Georgia, Illinois, Massachusetts, Michigan, New Jersey, North Carolina and Puerto Rico

Job Quality Toolkit

- Job Quality Toolkit (JQT) was developed by the NIST Baldrige office with support from DOC
- Rooted in the Baldrige Excellence Framework, JQT is a tool that organizations can use to improve the quality of the jobs they offer
- MEP support will include:
  - NIST MEP website
  - NIST MEP infographic for Centers to brand and post to their website
  - Information webinars for Centers
  - Development of an online self-assessment for companies that will align with the JQT

FY 2022 Center State Competition

- Notice of Funding Opportunity One
  - Kentucky, Nebraska, Rhode Island and South Dakota
  - Applications received April 26, 2022

    - Award recommendations sent to NIST Grants Management Division
    - Awards announced Oct. 1 for Jan. 1, 2023 start
- Notice of Funding Opportunity Two
    - Arizona and Maryland
    - Notice of funding opportunity posted Aug. 1, 2022
    - Applications will be due Oct. 30, 2022
    - Awards announced April 2023 for July 1, 2023 start

MEP National Network 2017-2022 Strategic Plan

- Empower manufacturers:
    - Objective: assist U.S. manufacturers in embracing productivity-enhancing innovative manufacturing technologies, navigate advanced technology solutions and recruit and retain a skilled and diverse workforce
- Champion manufacturing:
    - Objective: 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
- Leverage partnerships:
    - Objective: 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
- Transform the Network:
    - Objective: 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

18-month measures of success

- Measure 1: strengthening the national supply chain – increase supplier matches and clients served in critical areas
- Measure 2: serving the manufacturing workforce – increase client engagement in workforce services
- Measure 3: increasing awareness – amplify and measure Network brand awareness
- Measure 4: leading in technology deployment – increase client engagement in technology services and implementation

Measure 1 – Strengthening the supply chain

- Goal: increase supplier scouting requests by 10% (success)
    - Baseline: 124
    - Update through 2022 Quarter (Q) 2 (12 months): 208
    - Goal: 137
- Goal: increase successful supplier scouting matches by 10% (success)
    - Baseline: 298
    - Update through 2022 Q2 (12 months): 466
    - Goal: 328

Measure 2 – Serving the manufacturing workforce

- Goal: increase clients engaged with workforce projects by 10%
    - Baseline: 1,800
    - Updated through 2022 Q2 (12 months): 1,743
    - Goal: 1,980

Measure 3 – Increased awareness

- Goal: amplifying Network brand awareness by at least 10% (progress to date based on data from April 1-June 30, 2022)
    - #MEPNationalNetwork hashtag occurrences
        - Baseline for current 18 months : 567
        - Progress to date: 538
        - New goal for current 18 months: 624
        - Change: -5%
    - Brand mentions
        - Baseline for current 18 months: 194
        - Progress to date: 195
        - New goal for current 18 months: 213 (success)
        - Change: +0.5%
    - Manufacturing Innovation blog subscribers
        - Baseline for current 18 months: 40,130
        - Progress to date: 49,165
        - New goal for current 18 months: 44,143 (success)
        - Change: +23%
    - Backlinks
        - Baseline for current 18 months: 186
        - Progress to date: 258
        - New goal for current 18 months: 205 (success)
        - Change: +39%
    - Social media followers
        - Baseline for current 18 months: 18,419
        - Progress to date: 19,285
        - New goal for current 18 months: 20,261 (success)
        - Change: +5%

Measure 4 – Leading in technology deployment

- Goal: increase clients engaged with technology services projects by 10% (success)
    - Baseline: 983
    - Update through 2022 Q2 (12 months): 1,338
    - Goal: 1,081
- Goal: increase MATTR requests/inquiries by 10%
    - Baseline: 25
    - Update through 2022 Q2 (12 months): 19
    - Goal: 28

Discussion

- M. Magee asked about MATTR requests, how many end up developing some kind of technology, and MEP involvement with Manufacturing USA institutes. P. Raghavan said that NIST MEP launched MATTR+ because getting to a CRADA can be difficult – there has to be a research project at the end to invest in. With MATTR+, NIST MEP is trying to bring manufacturers in and

provide them with resources, then track them to see what other services can be provided by MEP Centers. Technology efforts include work through the Competitive Awards Program, like the advanced technology team, and past embedding experts in Manufacturing USA. The challenge is to develop a concierge service for MEP and Manufacturing USA institutes to translate the technology into someone's company.

- D. Bockoven asked how aware the MEP Centers are of MATTR and its resources. P. Raghavan said that part of the reason for the renewed effort around MATTR+ is because many MEP Centers do not seem to fully understand it.
- B. Hawes said that she had asked M. Walker from NIST MEP whether MEP Centers have the expertise to know when a client needs to use MATTR, and this is why it is important to circulate information about the program. M. Bahar clarified that MATTR is designed around a research need – for manufacturers and Centers seeking collaboration with NIST researchers for a technical solution. MATTR+ is more about brief consultation with a NIST expert, and it is important to differentiate the degrees of engagement.
- B. Hawes asked if NIST MEP still had a memorandum of understanding with the FDA and P. Raghavan said that they did, and they are in continuous dialogue with the FDA.
- D. Bockoven asked if they had metrics on how many MEP Centers were aware of MATTR, broken down by state. B. Vickery said that they did not have the metrics broken out by state, but they could get that information.

Presentation: Current Trends in Manufacturing

Speaker:

Dan Berglund, Executive Director, SSTI

Biggest challenges identified

- Income inequality, geographic/racial disparities
- Workforce
- Capital
- Collaboration/lack of leadership and vision
- Miscellaneous
- Housing costs
- Research or commercialization capacity
- Climate

Share of adults in U.S. middle class has decreased considerably since 1971 (per Pew Research Center)

- Black and Hispanic adults, women are more likely to be lower income
- Incomes rose the most for upper-income households in U.S. from 1970 to 2020

Four trends impacting MEP stakeholders

- Responding to the reshaping of manufacturing
    - Supply chain disruption from China trade dispute and pandemic
    - Public interest in electric vehicles
    - Federal action in semiconductors, electric vehicles, batteries, hydrogen and energy efficiency
- Workforce shortage and composition
- Higher education facing continuing challenges
- State budgets fine – for now

Trying to be home of new manufacturing

- Semiconductors
  - Ohio – around $2 billion for construction of two Intel semiconductor factories estimated at $20 billion
- Batteries
  - Indiana – at least $186.5 million for $2.5 billion Stellantis and Samsung battery plant
  - Kansas – $892 million for $4 billion Panasonic battery plant
- Electric vehicles
  - Georgia – $1.5 billion for Rivian's $5 billion plant
  - Oklahoma – $300 million for Canoo, startup electric vehicle manufacturer
  - Tennessee – Around $500 million for Ford F-series electric trucks $5.6 billion development; also state pledges a new campus for the Tennessee College of Applied Technology for training

Manufacturing not alone in workforce challenges

- Kenan Institute: 11.3 million job openings, 7% of total workforce
  - "Each vacancy suggests that a firm is getting by with fewer workers than it wants, with existing workers being stretched to fill as much of this need as possible."
- Quit rates July 2022 vs. February 2020
  - Private industry – 3.1/2.5%
  - Durable goods manufacturing – 2/1.4%
  - Nondurable goods manufacturing – 3.1/1.6%
  - Retail – 3.7/3.5%
  - Transportation, warehousing and utilities – 3.5/2.5%
  - Arts, entertainment and recreation – 3.4/3.4%
  - Accommodation and food services – 5.6/4.4%

Job openings July 2022 vs. February 2020

- Job openings by industry
  - Total private – 7.2/4.5%
  - Durable goods manufacturing – 6/3.3%
  - Nondurable goods manufacturing – 6.2/2.9%
  - Transportation, warehousing and utilities – 7.5/4.5%
  - Health care and social assistance – 8.8/5.2%
  - Arts, entertainment and recreation – 8.1/5.4%
  - Accommodation and food services – 8.9/5.2%

Higher education continuing challenges

- Projected drop-off in enrollment
- Decreased public support for higher education
- Questioning the value of a four-year degree

Immediate higher education enrollment issues (National Student Clearinghouse Research Center data)

- Higher education enrollment fell a further 2.7% in the fall of 2021 following a 2.5% drop the preceding fall
- Continued enrollment losses in the pandemic represent a total two-year decline of 5.1% or 938,000 students since fall 2019
- Women making up 59.5% of the college students (men 40.5%) at the end of the 2020-2021 academic year

State budgets

- Route Fifty headline: "Are States in Good Shape to Handle a Recession?"
- "The economy could be in for a bumpy period but states and municipalities are well-equipped to weather the turbulence."
- "State and local governments are in good shape to navigate whatever … path we go down," said Mark Zandi, Chief Economist at Moody's Analytics

An opposing viewpoint – the outlook for states and localities if a recession hits

- "I see this as a temporary increase in revenues that we're likely going to see dry up in the next year or two," says Kim Rueben, Director of the State and Local Finance Initiative at the Urban-Brookings Tax Policy Center. "If they end up passing permanent income tax rate cuts, they're digging themselves a pretty serious hole."

Discussion

- M. Magee noted that the data on income inequality correlates with the fact that manufacturing employed 20 million people in the early 1970s, versus 13 million people today. Manufacturing solves many societal problems, though female engagement is one area that needs work. D. Berglund added that racial composition by occupation varied, with higher percentages of different races in different engineering fields.
- A. Parker said that she still saw a disparity at her two-year community and technical college, and her students who were Black, Indigenous, and people of color (BIPOC) tended to be in production rather than in the trades that earned better incomes. There is also an opportunity gap between the BIPOC and non-BIPOC students who complete degrees and subsequently become employed.
- J. Wright asked how the data in the presentation could be used to fill the gap of manufacturing jobs. D. Berglund noted that MEP and other manufacturing organizations have tried a variety of methods to attract people to manufacturing jobs, and the Economic Development Administration recently awarded money for the Build Back Better Good Jobs Challenge, which included manufacturing jobs. He hoped that lessons learned from those programs could be more broadly disseminated, and that the legislation changes over the past year would create a new mindset around U.S. manufacturing as a secure career path.
- B. Hawes asked whether the federal government or the states drive policy in the U.S. D. Berglund said that early on in his time in the field, most state governors invested in manufacturing, while it was hard to get federal support. That has changed recently with federal legislation such as the CHIPS Act and the Inflation Reduction Act. B. Hawes added that the MEP Centers should be advocating for industrial policies within their states in the hope of pushing those policies up to the federal government.
- L. Byars said that she was located close to a large new plant site in Tennessee in a rural and economically depressed area. While the plant will bring more jobs to the area, at this pre-plant construction stage the affordable housing in the area is being bought up and tax assessments are coming in at many times over what local residents can afford and they don't have the new jobs from the plant yet. D. Berglund added that he lives near the site for the incoming Intel plant in Ohio, and while local and state officials are excited, local residents are unhappy about the plant. It's a public relations issue.
- D. Bockoven agreed with A. Parker's comment about the lack of BIPOC representation in manufacturing management and said that needed to be included in a strategy plan for the future workforce. A. Parker added that they need to do a better job of helping the BIPOC community understand career options in manufacturing. D. Bockoven added that it was important to do this before students enter high school. A. Parker said that her college invests heavily in a strategic

enrollment management plan and works with state demographers and research offices. She noted that the birth rate declined during the financial crisis of 2008 and this will impact the number of 18-year-olds starting college in a few years. She said there are many unemployed adults in her state and it is important to focus on adult learners as well.

Presentation: MEP National Network 2023-2027 Strategic Plan

Speaker:

Pravina Raghavan, MEP Director

Overview summary and context

- November 2021
  - Started developing MEP National Network 2022-2027 Strategic Plan
- The purpose
  - To create a unified Network that is empowered and able to execute strategic priorities
- The plan
  - Accessible and easily communicated so stakeholders can engage with it, be held accountable for it, and adapt it in real time to emerging trends, shifting environments, and Network needs

The distinctives of creating a network strategic plan

- A network strategic plan requires:
  - Distributed power and consensus
  - Voluntary relationships
  - Focusing on common interests
  - Influence, persuasion and goodwill

The network strategic planning process

- Preparation
  - Facilitate buy-in meeting with critical stakeholders from across the network
  - Create Strategic Planning Committee (SPC) as a governing body
- Situational analysis research
  - Create subcommittees of content experts from across the network to scope the work and make recommendations to the SPC
    - American Manufacturing Ecosystem Subcommittee
    - National Network and its Stakeholders Subcommittee
    - State and Legislative Environments Subcommittee
  - Gather data using the following methods
    - Mine available data and prior work from sources within the network
    - Gather additional data from identified sources
- Formulation and dissemination
  - SPC establishes priorities based on subcommittee recommendations
  - Director of organization approves plan

Strategic plan structure

- Introduction by the Director
- National Network enduring values
- Critical challenges facing American manufacturing

- Framing the destination
- Strategies for the three primary goals
- Strategies for Network partners

Defining the destination

- To build out its strategic plan, the MEPNN crafted a description of where it wanted to be in five years. It identified what must be true of the National Network for it to make the impacts it desires. Below is a description of where the MEPNN aspires to be by 2027:
    - The MEPNN has the dual capacity to excel at serving SMMs in individual states and to function as a powerful, cohesive, collaborative network capable of impacting complex regional and national issues
    - The MEPNN is established as a recognized national resource and expert authority in American manufacturing (it has a story and is telling it well)
    - The MEPNN is a valued partner with other federal agencies, state authorities, associations, and other groups working in manufacturing
    - The MEPNN has the knowledge and capacity to support SMMs and manufacturing in anticipating and being prepared for future trends
    - The MEPNN enables consistent and cost-effective technology adoption
    - The MEPNN annually increases its market penetration
    - The MEPNN annually increases the economic impacts it creates for U.S. manufacturers
    - The MEPNN enables SMMs access to a skilled workforce
    - The MEPNN helps SMMs become nimbler in pivoting into new markets
    - The MEPNN is engaged in the relevant new directions that the country is going in relation to manufacturing (helping the MEP program remain relevant in a swiftly changing industry)

National Network primary strategies

- The MEP National Network 2023-2027 Strategic Plan has three primary goals:
    - Narrow the workforce gap
    - Mitigate supply chain vulnerabilities
    - Leverage technology

Goal 1: Narrow the workforce gap

- Enable SMMs to navigate the current workforce shortage while improving productivity and profitability through:
    - Upskilling
    - Use of technology and productivity enhancements
    - Partnerships (e.g., connect educational entities to manufacturing needs and jobs/careers)
    - Improving work conditions, job quality, career paths, etc.
    - Assessing underserved populations and integrating them into the manufacturing industry
    - Making the case for integration of underserved populations with SMMs
- Build a pipeline of future employees for the manufacturing sector through:
    - Rebranding and marketing the public image of manufacturing nationally and in the states
    - Broadening partnerships and connections with educational and other entities working in this space

Goal 2: Mitigate supply chain vulnerabilities

- Increase supply chain visibility
    - End-to-end awareness (supplier's supplier and customer's customer)
    - Mapping supply chains (key industries; in individual states)

    - Working with original equipment manufacturers (OEMs) to map out how SMMs fit into their supply chains
- Assess supply chain risk
    - Able to identify vulnerabilities
    - Able to rapidly detect risk as they emerge
    - Strengthen supplier development
    - Increase supplier scouting capacity

Goal 3: Leverage technology

- Increasing tech adoption
    - Identify early adopters and leverage them to move the early majority
    - Defining tech capabilities and business cases for adoption for customers to increase impact (information technology and operational technology)
    - Educating Center staff on the different kinds of technology to increase impact with customers
- Ensuring holistic, comprehensive application and use of technology (not just in production but in business operations, etc.)
    - Creation of roadmaps for customers and aligning them to customer's strategic goals
- Strengthening cybersecurity capabilities
    - Communicating the importance of mitigating cybersecurity risks
- Partner with federal labs to accelerate the use of new technologies
    - Co-develop tech capabilities and business cases for adoption to bring new insights to industry

Intersections across Network strategic goals

- The strategic goals do not exist in silos, they intersect with each other
- Narrowing the workforce gap through engagement with future technologies
- Increasing technology adoption across served customers
- Strengthen workforce knowledge of supply chain dependencies to help predict supply chain risks

Strategies for NIST MEP

- To execute and continue to build on the four pillars, the NIST MEP will:
    - Recast and adapt its operations, policies, processes, practices and structures
    - Expand partnerships and strategic relationships
    - Develop its knowledge and learning capabilities and leverage its convening power
    - Build the MEP brand, messaging and marketing reach

Discussion

- M. Newman that in its rebranding, NIST MEP needed to show the value proposition of 200 SMMs rather than one very large factory.
- M. Magee commended everyone who worked on the strategic plan and M. Newman echoed his comments.
- D. Bockoven suggested that national organizations that deal with manufacturing, such as the National Association of Manufacturers, would be good partners in messaging.
- C. Mathews suggested that NIST MEP could play a role in facilitating the relationship between mega sites, local MEP Centers and manufacturers to improve the impact of those sites on local areas. L. Byars said that several MEP Centers are addressing the Tennessee site, but the decision timeframe was short and SMMs and MEP Centers cannot react as quickly as large companies.

- J. Wright said that climate and clean energy is a big topic and suggested that MEP could get ahead of the curve and help to support the creation of a nationwide network. P. Raghavan agreed and said that NIST MEP is trying to spot trends.
- A. Parker asked if NIST MEP was looking at states' implementation of electric vehicle charging stations. P. Raghavan said that Centers were conducting research on that topic, and the next step is to connect that research and expand on it.
- B. Hawes said that NIST MEP needed to democratize and disseminate its data. She added that SMMs can provide environmental social governance (ESG) variables to the larger discussion, because ESG and its impacts can be clearly measured in SMMs.

Presentation and Discussion: Expansion Awards

Speaker:

Pravina Raghavan, MEP Director

CHIPS and Science Act of 2022 and the MEP Advisory Board: Sec. 10251, Sec. 25B

- "Applications for awards under this section shall be submitted in such manner, at such time, and containing such information as the Director shall require in consultation with the Manufacturing Extension Partnership Advisory Board."
- "Global Marketplace Projects – in making an award under this section, the Director, in consultation with the Manufacturing Extension Partnership Advisory Board and the Secretary, may take into consideration whether an application has significant potential for enhancing the competitiveness of small and medium-sized United States manufacturers in the global marketplace."

CHIPS Act of 2022

- Establishes a pilot program of expansion awards to provide services for:
    - Workforce development (which may include training advanced manufacturing personnel)
    - Resiliency of domestic supply chains
    - Expanded support for adopting advanced technology upgrades at small and medium-sized manufacturers
    - Global marketplace projects – projects that have potential for enhancing the competitiveness of U.S. SMMs in the global marketplace
    - Allow NIST to accept funding from other federal departments and agencies for competitive MEP grants
    - Require MEP to increase outreach to underserved communities
    - Ensure the MEP Centers are specifically focused on supporting American manufacturing
- Award amounts at the discretion of the Director

Reporting

- By Oct. 1, 2025, the Director will submit to Congress a report:
    - Summary description of what activities were funded and the measurable outcomes
    - A description of which types of activities could remain as part of a permanent expansion awards program
    - A description of which types of activities could be integrated into, and supported under the program base award
    - A description of which types of activities could be integrated into and supported under the Competitive Awards Program

- A recommendation, supported by a clear explanation as to whether the pilot program should be continued

Discussion

- M. Magee asked if NIST MEP had money to give Centers under this program, and P. Raghavan said that they did not yet have the money. This is an authorization to fund MEP Centers in a fourth way, where there had only been three ways before (base awards, MEP Disaster Assessment Program and Competitive Awards Process). They hope to additional funding for MEP when the budget is released, but if not they could use funding recovered as a supplement.
- P. Connolly asked whether this program was different from the CHIPS money, and P. Raghavan confirmed that it was.
- A. Parker mentioned the Uniquely Abled program which currently exists in four states and suggested that it could be a program for NIST MEP to promote and an opportunity for Centers to partner with community colleges.
- M. Newman said that it might be worthwhile to have a subcommittee of the Board that reviews requests for funding.
- M. Magee asked if NIST MEP had talked to the Centers about what they would do with the money, and P. Raghavan said that they had. M. Magee suggested expanding existing programs to additional Centers for standardization. S. Ketter said that he would be interested in a program like Accelerate, which was largely DOD-funded. P. Connolly asked if there was a pre-existing format. P. Raghavan said that NIST MEP has to come up with the format, and it should be flexible enough that every Center can participate.
- D. Bockoven asked if there were any current programs that could be leveraged nationally with additional funding. P. Raghavan said that the problem was identifying a workforce population that all states could focus on. M. Bahar suggested that it could be narrowed down to a category that contains several options for states to choose from. D. Bockoven added that the options could include programs that already work in several Centers.
- A. Parker mentioned the Department of Education's Second Chance Pell program, which many community colleges participate in, and asked about the possibility for Centers to collaborate with similar programs rather than looking for other sources of funding. P. Raghavan agreed that there are many people and organizations focusing on the workforce problem, and partnerships are important both for funding and to provide a playbook for Centers.
- M. Kmetzo asked if they would need to set guidelines to help Centers apply for the award and determine whether or not the award is appropriate for the program they want to implement. P. Raghavan said that part of crafting the guidelines will be making sure that they are specific enough to help Centers make that decision.
- D. Bockoven asked how MEP Centers know where to look for federal funding from other departments and agencies for MEP grants. P. Raghavan said that some Centers are dialed in, and NIST MEP talks to Centers to facilitate cross-collaboration. B. Hawes added that MEP Centers need to understand the ecosystem to know how NIST MEP can help expand their strengths.

Discussion: Large OEM Partnerships

Speaker:

Pravina Raghavan, MEP Director

Questions to the Board

- How can the MEP National Network partner with large OEMs to develop future supply chains?

- How do we tell the MEP story to create new partnerships with OEMs and highlight our value?

Discussion

- S. Ketter said that in the early 2000s he had experience with three OEMs, all of which had like-minded people in the supply chain who were looking to advocate and train employees. The partnership began as a training consortium and evolved into project work and establishing relationships with suppliers. He suggested that NIST MEP could play a role in leveraging a marketing campaign to communicate with OEMs. Supply chain leaders are looking to do something different, and partnerships with MEP Centers are sustainable. If there are NIST MEP programs that can be leveraged throughout the MEPNN, there can be economies of scale, which is attractive to supply chain companies.
- M. Newman said that there was a lot of opportunity with expansion and building efficiencies in the energy sector, and it was up to Board members and MEP Centers to be ambassadors and engage in conversations. There is also an executive order that tells departments to go to NIST MEP, and the U.S. government is a large buyer from OEMs. There should be a way to use that channel to start a discussion with OEMs and ask them what they would like NIST MEP to look at. S. Ketter said that NIST MEP's three pillars address many of the supply chain concerns of OEMs.
- P. Connolly noted that if a company buys from many different states, Centers in each of those states could assist in the supply chain. M. Magee added that at the national level NIST MEP could have a role in coordinating all of those elements. S. Ketter agreed that while there would be a lead MEP Center to manage the relationship on a daily basis and communicate with other associated MEPs, the initial connection is something that NIST MEP could help with.
- M. Magee said that an OEM advisory board could provide feedback on challenges SMMs face, and S. Ketter said that many OEMs probably do have advisory councils made up of their suppliers.
- M. Kmetzo said that NIST MEP's marketing should also address what the Centers can do to help OEMs. S. Ketter agreed and added that it was important to make sure that they provided real data with a level of granularity, and vetted suppliers rather than just a list of companies.
- B. Hawes said that they needed to think beyond the near future; NIST MEP should be the first to know about the upcoming diminishing of a part or supply chain so that they can communicate to the Centers how to meet OEMs' future needs.
- S. Ketter said that his biggest concern was leveraging the uniqueness of the MEPNN over alternatives to create deeper, long-term partnerships. M. Magee said that it is NIST MEP's job to communicate their branding nationwide and the Center Directors' job to embrace and support it.
- J. Wright added that it would be helpful to market the success stories of partnerships with OEMs. S. Ketter suggested talking to supply chain organizations such as CAPS Research and Institute for Supply Management and participating in their roundtables.

Discussion: MEP Advisory Board Working Groups

Speakers:

Pravina Raghavan, MEP Director
Matt Newman, Chair, MEP Advisory Board

Questions to the Board

- What working groups do we need to support the new strategic plan?
- Which one do you want to serve on?

Current MEP Advisory Board working groups

- Supply Chain Development Working Group
  - Board leadership:
    - Don Bockoven, Lead
    - LaDon Byars, Co-Lead
  - Focus: MEP National Network program support and development of manufacturing supply chains
- Executive Committee Working Group
  - Board leadership:
    - Mary Isbister, Lead
    - George Spottswood, Co-Lead
  - Focus: Support Board governance and connection with local Center boards
- Strategic Plan 2023-2027 Working Group
  - Board leadership:
    - Bernadine Hawes, Co-Lead
    - Jim Wright, Co-Lead
  - Focus: Support development of the MEP National Network 2023-2027 Strategic Plan

Board chair recommendations for future working groups

- Strategic Plan 2023-2027 Working Group wrapping up its work
- Executive Committee Working Group should remain
- Possibly add new working groups based on the three pillars: supply chain, workforce, and technology and innovation
- Suggest tabling an expansion plan working group

Discussion

- P. Connolly suggested advocacy as a working group topic. M. Newman commented that it was a given that all Board members should be ambassadors for NIST MEP and the MEPNN.
- M. Newman noted that several Board members would be rolling off of the Board in March 2023, and the remaining Board members will need to help get the new members up to speed. He recommended that all members who were rolling off in 2023 serve as a resource for new Board members. P. Raghavan said that Board members who are leaving the Board in March 2023 do not have to roll off of the working groups that they serve on. They can continue participating as experts.
- P. Connolly asked how NIST MEP found new Board members. P. Raghavan said that they put out a request and often are recommended new members through previous Board members, Center Directors, and the MEPNN.
- L. Byars noted that the working groups receive help from the NIST MEP staff, and since there has also been recent turnover among staff, that will be another learning curve to take into account.
- M. Magee said that they needed to get into detail in the working groups in order to avoid redundancy. B. Hawes suggested that a working group could focus on an integration plan and look for opportunities for the MEPNN to integrate with partners that MEP Centers should work with. She added that the strategic plan working group should never completely go away, because the strategic plan is dynamic and changeable. She also mentioned the possibility of ad hoc committees. M. Magee suggested that one of these ad hoc groups could focus on an outreach program.
- M. Kmetzo agreed that the strategic plan working group should not be eliminated and there's a need to make sure the other working groups align with the strategic plan.

- J. Wright suggested that an ad hoc committee could focus on NIST MEP's role regarding the CHIPS Act. A. Parker said that there could be opportunities to work with other agencies on a funding model when it comes to workforce, and she volunteered to join the Workforce Working Group.
- P. Raghavan suggested that the Strategic Plan Working Group could have supply chain, workforce, and technology and innovation subcommittees underneath it to reduce the total number of working groups.
- After some discussion, the Board decided to form four working groups (Workforce, Supply Chain, Technology and Innovation, and Executive Committee), and an ad hoc Expansion Awards group.
- D. Bockoven volunteered to serve on the Supply Chain and Executive Committee Working Groups. J. Wright volunteered to join the Workforce Working Group. C. Mathews said that he would serve on the ad hoc Expansion Awards group. P. Connolly said that he would be rolling off of the Board after the current meeting, but volunteered to serve on the Technology and Innovation Working Group.

Public Comments/Open Meeting Wrap Up

Public comments

- B. Clayton from CONNEX Marketplace asked how experts could volunteer with working groups. P. Raghavan said that they should contact NIST MEP and they would work on it together.
- J. Malhotra emphasized the importance of NIST MEP collaborating with OEMs for the benefit of SMMs, because OEMs depend on SMMs as their suppliers, contractors and subcontractors.
- C. Thomas said that, as a former small manufacturer, companies do not necessarily want to share their list of suppliers or their future plans with other companies unless they trust them. It is important for NIST MEP to position itself as a trusted advisor that can work with competing companies and support manufacturing as a whole.
- D. Cruise with Missouri Enterprise said that NIST MEP can help with supply chain concerns that go beyond critical shortages, such as problems with quality or delivery, or the financial health of suppliers.
- R. Zaruta, Director of the NWIRC, said that he enjoyed the discussions on OEMs, and S. Ketter's input particularly. He said that in his opinion, NIST MEP should approach facilitating discussions between Centers and OEMs at a strategic business fit level.

Concluding comments

- P. Connolly said that he had enjoyed the two meetings that he attended and thanked the Board for allowing him to serve.
- M. Kmetzo said that it was good to be at a meeting in person, as she had only seen everyone on screen in the past. She said that she was encouraged to see the collaboration with Baldrige to use an existing framework and reintroduce it to manufacturing. She also highlighted the discussions around preparing manufacturers for career development, and the importance of developing knowledge and sharing capabilities.
- M. Magee said that he always gets more out of the meetings than he gives and complimented IMEC on their hosting of the meeting. He said that his takeaways were focus, which the strategic plan provides, and the changes that NIST MEP is going through. He urged them to maintain their expansive mindset even through any difficult times they might face.
- S. Ketter thanked P. Raghavan and the Board for allowing him to contribute to the meeting and said that he was able to experience MEP on a different level.

- A. Parker said that she appreciated the ability to meet the Center Directors at this meeting and that she was particularly impressed by FloridaMakes and their collaborations at every level, which gave her ideas about what she could contribute in the future.
- J. Wright said that he felt at home at Board meetings and always left them reenergized.
- L. Byars thanked the Board for letting her speak her mind and have a voice to represent the small manufacturers, who feel like they are not heard.
- D. Bockoven said that if it were not for Chuck Spangler from South Carolina MEP, he would not know what MEP was. He said that getting OEMs involved was critical to the future of manufacturing, and that NIST MEP has a good strategic plan going forward, and now the work is about executing the plan's tactics.
- C. Mathews said that this meeting was very helpful for learning the NIST MEP vocabulary and the bigger support efforts on the national level. He said that as a new Board member, it was interesting to join at the time when NIST MEP has a new strategic plan. He suggested that Board member orientation could be longer and more structured, with each NIST MEP division chief explaining their mission.
- B. Hawes said that her ending word for the meeting was horizon. The strategic plan will take NIST MEP into 2026, which will be the 250th anniversary of America's independence, and manufacturers will be critical to the country's next 250 years.
- M. Newman said that it was a new era in American manufacturing and NIST MEP was on the precipice of many new projects across the U.S., with the strategic plan as its launchpad. It's a once in a lifetime opportunity for American manufacturing.
- M. Bahar said that she had the pleasure of having NIST MEP and Baldrige as two of her four programs, which is impactful. It was important to come to these meetings and share that impact with like-minded people, to feel the energy in the room, and to learn about and celebrate the efforts of each MEP Center.
- P. Raghavan thanked Board members and participants for their time and effort and said that it was important for NIST MEP to make sure that they do not lose sight of SMMs. NIST MEP was on the precipice of change, and it was meaningful to hear Board members express their optimism and excitement about that change.

Next Meeting

The next MEP Advisory Board meeting is set for March 8, 2023, in Gaithersburg, Maryland.

Adjournment

With no further business, M. Newman adjourned the meeting at 4:14 p.m.