

**National Institute of Standards and Technology  
Manufacturing Extension Partnership  
Advisory Board  
Minutes of the March 7, 2018 Meeting**

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**Background**

The Department of Commerce (DOC), National Institute of Standards and Technology (NIST), Manufacturing Extension Partnership (MEP) Advisory Board met in an open session from 9:00 a.m. to 4:30 p.m. on March 7, 2018 at the Ronald Reagan Building and International Trade Center, Horizon Ballroom, in Washington, D.C. Approximately 110 attendees, composed of Advisory Board members, NIST and NIST MEP participants, guest speakers, and observers, attended the meeting. Carroll Thomas, Director of MEP, is the Designated Federal Officer for the MEP Advisory Board.

**Attendees**

**Board Members**

Jose Anaya, Dean of Community Advancement, El Camino College  
E. LaDon Byars, President and CEO, Colonial Diversified Polymer Products, LLC  
Carolyn Cason, Professor Emerita, The University of Texas at Arlington  
Bernadine Hawes, Vice Chair, MEP Advisory Board, and Senior Research Analyst, Community Marketing Concepts  
Mitch Magee, Director of Engineering, PPG's Architectural Coatings Business Unit  
Matt Newman, Director of Business Management, Covanta  
Kathay Rennels, Associate Vice President for Engagement, Colorado State University  
George Spottswood, Owner and CEO, Quality Filters, Inc.  
Leslie Taito, Senior Vice President for Corporate Operations, Hope Global  
Chris Weiser, President and Owner, J.V. Manufacturing, Inc.  
Jeff Wilcox, Chair, MEP Advisory Board, and Vice President for Engineering, Lockheed Martin  
Jim Wright, Vice President of Operations, Proof Research

**Guest Speakers**

Dan Berglund, SSTI  
Buckley Brinkman, Wisconsin Center for Manufacturing and Productivity (WCMP)  
Tom Bugnitz, Manufacturer's Edge  
Eric D. Chewing, Deputy Assistant Secretary of Defense, Manufacturing and Industrial Base Policy, U.S. Department of Defense  
Mike Coast, MMTC  
James Shillenn, PA MEP  
Lisè Stewart, EisnerAmper LLP  
Jim Watson, CMTC

**NIST MEP Participants**

Dave Cranmer, Deputy Director, NIST MEP  
Cheryl Gendron, Advisory Board Liaison, NIST MEP  
Phil Singerman, Associate Director for Innovation and Industry Services, NIST  
David Stieren, Division Chief for Programs and Partnerships, NIST MEP  
Carroll Thomas, Director and Designated Federal Officer, NIST MEP

## **Observers**

Ray Aguerrevere, Custom Metal Designs  
Ali Ahmad, LA MEP  
Bill Amsrud, Stout MOC  
Melissa Ayala, NIST MEP  
Robert Bargo, Videon-Central, Inc.  
Bayne Beecher, PGT Industries  
Katie Bell, Lycoming Engines  
Don Bockoven, Leigh Fibers  
Zara Brunner, NIST MEP  
Kelly Buchanan, Foundation for Manufacturing Excellence  
Kevin Carr, Florida Makes  
Beth Colbert, NIST MEP  
Jose Colucci, NIST MEP  
Ron Cox, CIRAS, IA State University  
Christian Cowan, Polaris MEP  
Dusty Cruise, Missouri Enterprise  
Larry Danner, The Clearing, Inc.  
Jim Dean, Module X Solutions  
Ryan DeBarr, Miracle Tool  
Lynore DeSantis, NJ MEP  
Kinion Dunn, DBT, Inc.  
Tyrone Ellis, Ingersoll Rand Industrial Technologies  
Karen Fite, GaMEP  
Paddy Fleming, MMEC  
Susan Foltz, OH MEP  
Darryl Fournier, Mogul South Carolina Nonwovens  
Tamea Franco, Global Metal Finishing  
Bart Frost, Taylor Lumber Worldwide, Inc.  
Jennifer Hagan-Dier, TN MEP  
Jim Haider, GTUIT  
Mark Hanawalt, United Equipment Accessories  
Felipe Hernandez, PRIMEX  
Carrie Hines, ASMC  
Mimi Hsu, Lockheed Martin Corporation  
Wayne Inouye, Innovate Hawaii  
Paul Jennings, UT Center for Industrial Services  
Anna Kan, Mustard Seed Enterprises, Inc.  
Mike Kelleher, MD MEP  
Tricia Kerney-Willis, NIST MEP  
Robert Kwasnik, TN MEP  
Sarah Lee, Washington State Department of Commerce  
Wiza Lequin, NIST MEP  
Chancy Lyford, NIST MEP  
Loren Lyon, Impact Washington  
Dan Manetta, PA MEP, Innovative Manufacturers Center  
Anne-Louise Marquis, NIST MEP  
Kyle Martin, NC MEP  
Sunni Massey, NIST MEP  
Petra Mitchell, Catalyst Connection  
Phil Mintz, NC MEP  
Mike O'Donnell, CIRAS, IA State University  
Mary Ann Pacelli, NIST MEP  
Ed Paradowski, Apache Stainless Equipment Corporation  
Keith Phillips, Alabama Technology Network  
David Pierluissi Melendez, PRIMEX  
Ken Poole, Center for Regional Economic Competitiveness  
Ben Rand, NY MEP – Insyte Consulting  
Lake Ray, First Coast Manufacturers Association  
Tony Richards, ND MEP  
Stephen Ritchie, The Doe Run Resources Corporation  
Jennifer Rosa, NIST MEP  
Migdalia Rosado, PRIMEX  
Mike Seifert, Aurora Borealis Dakota  
Mark Sessumes, TMAC  
Carol Shibley, NIST MEP  
Mark Schmit, NIST MEP  
Mike Simpson, NIST MEP  
Jennifer Sinsabaugh, NM MEP  
Bob Slominski, Dental Crafters  
Sumer Sorensen-Bain, Manufacturer's Edge  
Kelly Sowards, METER Group, Inc.  
Chuck Spangler, SC MEP  
Dileep Thatte, NIST MEP  
Gary Thompson, NIST MEP  
John Tucker, Solid Comfort, Inc.  
Zoraida Velasco, Florida Makes  
Ben Vickery, NIST MEP  
Ken Voytek, NIST MEP  
Phill Wadsworth, NIST MEP  
Marlon Walker, NIST MEP  
Naomi Webber, Lewis -Burke  
Tab Wilkins, NIST MEP  
Deloit Wolfe, Impact Washington  
Mike Wolff, LA MEP

## **Welcome and Introductions**

*Speakers: Jeff Wilcox, Chair, NIST MEP Advisory Board; Phil Singerman, Associate Director for Innovation and Industry, NIST; Carroll Thomas, Director, NIST MEP*

J. Wilcox called the meeting to order at approximately 9:00 a.m. and made introductory remarks. P. Singerman welcomed attendees. C. Thomas thanked everyone for their attendance and for their engagement with the program's key stakeholders. She thanked NIST MEP staff for their efforts in putting the meeting together and asked Board members and attendees to introduce themselves.

## **Director's Update**

*Speaker: Carroll Thomas, Director, NIST MEP*

### Advisory Board and NIST Staffing Updates

C. Thomas discussed the composition of the Advisory Board and NIST MEP's efforts to ensure representation from across the country from a diversity of sectors.

- Advisory Board
  - There are currently 14 Board members; the next membership expires in 2019
  - Gary Groleau left the Board at the end of 2017
  - A search is underway in the New England region to fill this vacancy
- NIST MEP Staff
  - Jennifer Rosa has joined as a Marketing Communications Specialist
  - Gina Simpson has joined as an Administrative Officer
  - Several other positions are in the process of being filled
- New Center Directors
  - Texas – Mark Sessumes (interim)
  - Alabama – Keith Phillips (permanent director status)
  - Wyoming – David Bell
  - Nevada – Mark Anderson
  - Kansas – Tiffany Stovall (interim)

### Legislative Outlook

- FY 2018 Appropriation Status
  - FY 2018 President's Budget - proposed program elimination with \$6 million for wind-down
  - Continuing Resolution funding of \$60.6 million through 3/23/18
  - Appropriation Committee Actions
    - House Omnibus at \$105M
    - Senate Mark at \$130M
  - Final Appropriation TBD
  - NIST MEP is hoping for an appropriated budget so that they can begin to take action on things like competitive awards
- President's FY 2019 Budget Request
  - FY 2019: Program proposed for elimination with \$0 funds for wind-down

### NIST MEP FY 2018 Current Spend Plan

(In the Continuing Resolution through 3/23/18)

- Available Funding

- Continuing Resolution funding: \$60.6M
- Carryover from FY 2017: \$5.9M
  - Total available funding: \$66.6M
- Planned Expenditures
  - Center renewals: \$38.3M
  - Strategic competitions: \$3.2M
  - Contracts: \$0.5M
  - NIST MEP Labor: \$4.0M
  - NIST MEP Overhead: \$2.4M
    - Total planned expenditures: \$48.4M

#### NIST MEP FY 2018 Current Spend Plan

(Full year at Senate mark)

- Available Funding
  - Full year appropriation: \$130.0M
  - Carryover from FY 2017: \$5.9M
    - Total available funding: \$135.9M
- Planned Expenditures
  - Center renewals: \$110.0M
  - Strategic competitions: \$5.9M
  - Contracts: \$5.3M
  - NIST MEP labor: \$9.3M
  - NIST overhead: \$5.4M
    - Total planned expenditures: \$135.9M

#### MEP National Network Brand and Marketing

C. Thomas presented a new map of MEP Centers across the country. NIST MEP and the Centers will begin utilizing this new map as well as updated one-pagers on each of the Centers and other marketing materials that have been updated with the MEP National Network brand.

#### FY 2017 MEP National Network Impacts for U.S. Manufacturers

The MEP National Network connected with 26,313 manufacturers, leading to \$12.6 billion in sales, \$1.7 billion in cost savings, \$3.5 billion in new client investments and helping to create and retain more than 100,000 U.S. manufacturing jobs. Credit for this goes primarily to the tireless efforts of the MEP Centers.

- According to the FY 2017 MEP National Network Client Impact Survey, the top reason manufacturers choose the MEP National Network is the expertise of staff (63%) followed by cost of services (39%)
- MEP National Network received a net promoter score of 83
- Cost reduction is the major challenge for the Network's clients, followed by growth and employee recruitment

#### Competitive Awards Program

- Seven awards have been given out since September 2017
  - MEP Centers – Georgia (2), Michigan, North Carolina, New Jersey, Nevada, and Virginia
  - ~20 partnering MEP Centers
  - \$5.1M total funding

- Two-three year award duration
- Competitive award process; no cost share
- Topical areas: transportation, growing small machine shops, cybersecurity, digital supply chain, food safety, MEP Center sales and marketing, and medical device supply chain
- Objectives
  - Increase capabilities of the MEP National Network
  - Develop projects to solve new and emerging manufacturing problems
- Themes
  - New manufacturing technologies (Industry 4.0) relevant to small and medium-sized manufacturers (SMMs)
  - Supply chain management technologies and practices
  - Workforce intermediary
  - Business services

#### Natural Disaster – Manufacturer Assessment Awards

(Manufacturers impacted by 2017 Hurricanes Harvey, Irma, and Maria)

- Five awards between September 2017 and January 2018 to MEP Centers in Texas, Louisiana, Florida, Puerto Rico, and Georgia
- \$6.2M total funding
- Over 800 planned assessments, with approximately 400 completed to date
- Non-competitive award process; no cost share
- Used NIST authority - cannot duplicate MEP Center base award activities
- Objectives
  - Identify obstacles keeping affected manufacturers from returning to normal operations
  - Develop plans to support recovery
  - Connect SMMs with local, state, and federal resources
  - Collect information, best practices, etc., and disseminate
  - Development of proactive strategies for risk avoidance by U.S. manufacturers
  - Recovery planning for manufacturers across the U.S.

#### Performance-based Panel Review

- The American Innovation and Competitiveness Act (AICA) requires a performance-based review to satisfy statutory requirement
- NIST MEP will provide analysis, diagnosis, and feedback to Centers regarding their strengths and opportunities for improvement, as well as identifying deficiency areas
  - Performance is defined as market penetration and economic impact
- Includes an evaluation of a Center's own Performance Management System, effectiveness, use, and self-assessment
- Promotes the sharing of information across the Network
- Identifies common Center performance gaps so the Program can leverage internal and/or external resources to assist the Network in the development of performance improvement practices
- The second round of reviews are scheduled to be completed by July 2018

#### Cybersecurity

- 2018 MEP National Network focus
- Development of replicable cybersecurity assistance practices that Centers can deploy to SMMs nationwide

- Continued close partnership with Department of Defense (DoD) as it conducts comprehensive assessment of the Defense Industrial Base, including defense manufacturing supply chain resiliency, in response to July 2017 White House Executive Order 13806
- Working with NIST Labs to continue to develop resources for MEP Centers to deliver to manufacturing clients, ensuring alignment of MEP manufacturing-specific cybersecurity assistance with NIST guidance

#### Knowledge and Learning Management

- Initial goals/objectives
  - Establish a structure of content collection for the learning management system
  - Create a system of connecting those who know with those that want to know
  - Develop a system of rating that builds NIST MEP's ability to meet today and tomorrow's National Network and client needs
- Planning and development activities are underway

#### Network Priorities for the Next 18 Months

- Create an integrated National Network service delivery system
- Update national-level partnerships and performance support services
- Define areas of focus for manufacturing technology advances
- Build infrastructure for a National Network Learning Organization
- Develop supply chain national services and information and technology access

#### Eighteen-month Measures of Success

- Piloted integrated National Networked approach to delivery system, engaging half of the 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 launches the brand

### **Presentation - National and State Economic Challenges and Opportunities, Data Trends**

*Speaker: Dan Berglund, President and CEO, SSTI*

D. Berglund presented trends in manufacturing economic development and resulting impacts with specific feedback and recommendations for the MEP National Network.

#### Macro Trends: Income Inequality and the Decline of the Middle Class

- Middle-income Americans are no longer in the majority and the share of aggregate income held by middle-income households has plunged
- The income gap has increased
  - In 1980, the annual income for the top 1% (in 2014 dollars) was \$428,000 compared to \$1,300,000 in 2014
  - The bottom 50% for this period stayed at \$16,000
- The percentage of children earning more than their parents has declined from 92% for children born in 1940 to about 50% for children born in 1985
- The gap in employment between U.S. metro and non-metro areas has continued to grow wider since the 2008 recession, with small population areas lagging far behind on recovery

- Of counties with fewer than 50,000 residents, more than three quarters had not reached full recovery by 2016
- Of all geographic sectors, rural areas have the lowest employment rate for men 25-54 years old

### Higher Education

- As states' educational appropriations have declined, tuition rates have risen in order to keep total educational revenue relatively flat
- In 2017, for the first time, the Pew Research Center has shown a partisan divide in attitudes toward higher education
  - 58% of Republicans surveyed said that colleges and universities have a negative effect on the way things are going in the country
  - 72% of Democrats surveyed said that colleges and universities have a positive effect on the way things are going in the country

### Manufacturing's Standing

- Manufacturing is a popular policy prescription
  - It provides above average wages that help support the middle class
  - It can be an economic pathway for those not going to college
  - It is creating jobs
- However, state economic development policy goes in cycles
  - Down cycle for manufacturing is likely to occur when/if major job losses occur in manufacturing, the next big thing presents itself, or another policy prescription addresses the three bullets above
- Manufacturing has a positive public perception
  - 81% of people surveyed believe trade and export of American manufactured goods benefit the U.S. economy
  - It ranked third among types of new industry facilities they would support to create 1,000 new jobs in their community
- However, only 27% of respondents said they would encourage their children to pursue a manufacturing career
  - Reasons for not encouraging manufacturing for children included worry about job security and stability (77%), it not being a strong career path (70%), it does not pay enough (64%), and the perception of the industry (56% - though this number used to be much higher)
  - MEP has succeeded in demonstrating to the public that manufacturing has changed and is a positive sector to work in, but we need to illustrate that there is a career path and job stability

### Workforce

- 70% of technologists, scholars, practitioners, strategic thinkers, and education leaders said they did not expect to see the emergence in the next ten years of new educational and training programs that can successfully train large numbers of workers in the skills they will need to perform the jobs of the future

### Fiscal Stress at the State Level

- Since January 2016, Standard & Poor's (S&P) has issued credit rating downgrades in at least ten states
- In April 2017, states had a median cushion of 4.9% in day-to-day operating revenue, enough to last 18 days
- Between 2000 and 2015, Medicaid spending in states grew from 12.2% of state revenue to 16.7%
- State pension funding gap reached \$1.1 trillion in 2015

### Thoughts on Funding

- Defend what you have
- Bring something new to the table, as long as it is within your capabilities and mission. It also needs to be relevant to the issues of the day
- Develop a longer-term strategy exploring new collaboration and funding partners

### Centers and State Relations

- An especially high number of gubernatorial transitions in 2018 present an opportunity for MEP Center leadership
- Various audiences for Centers include: governors, state economic development agencies, host organizations, state legislators, and other organizations
- Even the best Center Directors require the support of Center staff, should work closely with their Center Boards, and may need the assistance of outside support
- At the state level, there is high demand for accountability and transparency

In conclusion, MEP is well positioned to address today's issues, but the approach must include all elements of the National Network working together.

### **Presentation - MEP National Network/Future is Now (FIN)**

***Speakers: Carroll Thomas, Director, NIST MEP; Buckley Brinkman, Center Director, WCMP; Tom Bugnitz, Center Director, Manufacturers Edge; Mike Coast, Center Director, MMTTC; Jim Shillenn, Center Director, PA MEP, Jim Watson, Center Director, CMTC***

C. Thomas introduced several members of the FIN National Network Center Leadership team to discuss the FIN initiative and the framework outlining how Centers will work together in the future.

### J. Watson Discussed the Past and Current Status of the MEP National Network

- In the past, MEP Centers were primarily focused on their state and their own individual performance.
- As NIST MEP begins to significantly ramp up its performance, the mindset is going to have to change. Center Directors are going to have to start working with each other and get more comfortable sharing.
  - This will encourage Centers to think more broadly about how they serve manufacturers and will lead to increased penetration and impact.
- At the end of the day, small manufacturers are going to need a go-to national resource that provides the right resource at the right time. The MEP National Network can do that.
- Most Center Directors seemed eager to participate in a National Network, they just didn't know how it would work. As it is more fully explained, people are becoming more comfortable with the National Network.
- The National Network Center Leadership Team will be extended for another year and five new members have been added. This team will draft a charter outlining how the organization will work and populate new teams focused on knowledge sharing and emerging services, among other issues.
- National Network definition:
  - "An organization of MEP Centers, collaborating with the MEP Program and partners, that collectively act on a national or regional basis to provide solutions to the current and future needs of small and medium-sized manufacturers"

### M. Coast Discussed the Vision of the National Network and Current Projects

- MEP National Network Vision Statement



- “We are the go-to resource for America’s manufacturers, ensuring U.S. manufacturing is resilient and leads the world in manufacturing innovation”
  - Centers working together as a National Network
  - Faster development and introduction of new capabilities, products, and services
  - Access to capabilities/resources to provide solutions to complex challenges facing SMMs
  - Provide seamless service offerings for the supply chains
- Cybersecurity Competitive Awards Program (CAP)
  - MMTC was awarded a CAP, with five additional MEP Centers acting as subrecipients, to demonstrate the National Network via the development and adoption of cybersecurity services
  - They were tasked with creating a framework for cybersecurity services, piloting the services, and establishing regional “Go-To” Centers for cybersecurity
  - 19 Centers have established a practice and are selling cybersecurity services, 19 are developing a service, and 13 are coming onboard
  - MMTC alone has 51 distinct customers that have sold over \$404,000 worth of cybersecurity projects
  - The FIN group is currently working on a cybersecurity initiative for the automotive industry
- Another project underway focuses on getting SMMs in the medical device industry prepared for the accreditation process

#### B. Brinkman Discussed the Importance of Making Needed Changes

- With the advance of Industry 4.0 and the demands it puts on Centers, no one Center can do everything alone
- Strategic shift from an MEP System to a National Network
  - Taking what have up to now been informal relationships between Centers and various organizations associated with the NIST MEP system and creating formal regional and National Center partnerships
- Bringing to the forefront what Centers have done all along, which is creating strong and effective approaches to difficult problems for SMMs on the frontlines
- Network participation enhances a Center’s stability, performance, and customer value
- Ten key National Network principles and associated behaviors have been developed to set the foundations for successful Center interactions

#### J. Shillenn Discussed Successful National Network Collaboration and Success Requirements

- National Network operational interrelationships are built around a collaborative model, which requires that each person involved understands the role everyone else plays.
- The collaborative model must always be able to adapt quickly as the stakeholder environment changes and should be action-oriented rather than planning-oriented.
- The National Network will be taking advantage of relationships already in place.
- Successful National Network requirements
  - Centers adopt and demonstrate National Network principles and behaviors
  - Center Directors and Boards establish a National Network viewpoint
  - Centers use Go-To Centers for Excellence
  - Center leadership participates in National Network peer accountability
  - Centers are receptive to using and lending resources and services from and to the National Network

#### T. Bugnitz Discussed Success Measures and Next Steps

- National Network will monitor progress via key success measures
  - Mission performance
    - Number of manufacturers served and quantified impacts
    - Network-aggregated CARD performance trends
  - Value of the National Network
    - Number of Centers participating in the Network
    - Contribution of Go-To Centers
    - New capabilities and services focused on technology deployment
    - Number of Centers in multi-Center projects
- Next steps to operationalize the National Network
  - Short term (6 months)
    - Develop a charter for the Center Leadership Team to effectively lead the National Network
    - Finalize the Network Communications Plan and begin to secure Network participation
    - Populate the Knowledge Sharing Team to collaborate with NIST MEP staff on Network strategies and objectives
    - Formalize, encourage, and document multi-state engagements (e.g. cybersecurity)

#### **Roundtable Discussions with MEP Advisory Board and Center Board Leadership**

Local Center Board leadership and the MEP Advisory Board engaged in dialogue on several topics related to the National Network as it relates to their local Center and the FIN. The following is the report-out from the roundtable sessions.

Question 1: Given the need to have an integrated national networked approach to service delivery, what additional information do you need (as a Board) from either NIST or the FIN group to make the necessary commitments?

#### *Responses*

- The group identified additional information needed on the following:
  - What other Centers excel at and whether these services are profitable. A resource that would provide easy access to this information and who to contact for help
  - Other Centers' best practices
  - How time spent on outreach and sharing will be measured and taken into account
  - What is the current state of the products, services, and tools among Centers in the Network and how to assess the gaps and opportunities in this current state
  - How to assess/choose among existing and competing tools, products, and services and who will get credit for a tool/service selected
  - How all of this aligns across the system
  - What's in it for participants
  - What does this look like in three to five years; what is the end game
- A common platform is needed to exchange best practices and expertise, akin to MEP U

Question 2: What resources do you foresee being needed by the Center to carry out the commitment, and what challenges do you see? For the challenges, what additional support might you need from NIST to overcome those challenges?

### *Responses*

- The group identified the following challenges to carrying out this commitment and asked for information on the following:
  - How to balance a Center's mission to and needs of their state's delivery area versus effectively acting as a National Network citizen
  - A proper definition of the financial impact is needed
  - The National Network is only as strong as its weakest link. How to mitigate this and instill trust amongst Centers

**Question 3:** The FIN group's framework suggests Network Citizenship as a measure of success for the MEP National Network. What behaviors would indicate to you that your Center is a "good" Network citizen?

### *Responses*

- The group identified the following behaviors and challenges and asked for information on the following:
  - With the addition of a National Network level, either more people will be needed or there will be a drain on resources and bandwidth
  - "Increasing number of manufacturers touched" is too limiting; instead, participation, utilization, and contribution should be measured
  - Improved communication from sharing successes
  - Number of jobs created or retained
  - Market penetration (manufacturing clients served and number of new manufacturing clients)
  - The Centers' responsibility to the rest of the Network should be connected to the goals and measurements of their own performance

## **Presentation - U.S. Defense Industrial Base**

*Speaker: Eric D. Chewning, Deputy Assistant Secretary of Defense, Manufacturing and Industrial Base Policy (MIBP), U.S. Department of Defense (DoD)*

Executive Order 13806 calls for a better understanding of the risks to the nation's Defense Industrial Base and supply chain resiliency. DoD is focusing on how to make improvements that would align with Secretary Mattis' three priorities of building a more lethal force, strengthening alliances and attracting partners, and reforming DoD's business practices.

### **Systematic Risks**

- Instability in U.S. Government spending
  - 20% decline in prime level vendors since 2011
- Industrial policies of competitor nations
  - China's 'Made in China 2025 Plan' seeks to supplant the U.S. in key emerging technologies
  - State-backed hackers steal \$300 billion worth of intellectual property (IP) each year
- Decline in overall U.S. manufacturing capacity and capability
  - Since 2000, America has lost more than 5 million manufacturing jobs
  - Between 2000 and 2011, the U.S. lost 66,000 manufacturing facilities
  - Since 1990, the largest manufacturing firms have posted 2% growth in revenue while SMMs have declined an average of 6% per year since 1990
- Diminishing STEM and trade skills

- Even at the peak of the recession, over one-third of manufacturers said they were experiencing shortages of STEM talent
- From 1988-2012, the number of welders has declined by 40%
- SMMs often do not have the resources for recruiting, training, or professional development that large companies have
- In many areas that are essential for maintaining military readiness and technological dominance, the U.S. is not producing enough skilled workers to establish a national security innovation base for the 21<sup>st</sup> century
- Government business practices
  - High cost of compliance
  - Slow and complex acquisition process
  - DoD recognizes it can do more to be a better customer and not create barriers to entry

#### Examples of Ways DoD is Addressing these Challenges

- Cybersecurity
  - Creating incentives to support adoption of digital manufacturing to drive efficiency in business
  - Addressing support requirements to ensure security and protection of the digital manufacturing ecosystem, as well as the industrial base
  - Helping companies protect themselves against intrusions from state-sponsored hackers
- Committee on Foreign Investment in the United States (CFIUS) legislative update
  - Expanding CFIUS to examine transactions where there may be a joint venture and critical technology is transferred or where undue influence is suspected
- Improving the Department's business practices
  - Organizational changes
  - Evaluating underlying processes and how DoD thinks about risk in the acquisition process
  - Cultural changes within DoD's acquisition workforce and rewarding people for solving problems

#### *Discussion*

- J. Wilcox asked for thoughts on where the Manufacturing USA program is headed and how MEP should posture to gain better penetration into the subject matter expert community. E. Chewing said the Manufacturing USA Institutes are seeking self-sufficiency which requires a value proposition that "hunts." MEP provides this, and a deeper relationship could be beneficial to both parties.
- C. Thomas asked for thoughts on how to deal with lower-tier businesses in regard to cybersecurity. E. Chewing said that issues of scalability need to be worked out, and there's a need to ensure that the cost of compliance is not prohibitive to SMMs.
- C. Thomas asked how DoD will handle the non-digital manufacturers that make up 50% of its vendors. E. Chewing said that DoD is lagging behind other industrial organizations in terms of how they buy digital. The Department will be asking vendors what kind of incentives would enable digitalization within the supply chain.
- L. Byars said MEP should try to capture knowledge that is leaving the workforce with retiring workers.
- B. Hawes asked what DoD is doing to stop and reverse the trend of disappearing manufacturing facilities. E. Chewing said they are evaluating whether the U.S. has created the right conditions for manufacturing to flourish. There is a dynamic discussion regarding

what defense industrial manufacturing needs to be done domestically and what can be sourced internationally.

- M. Newman commented on the daunting task of ramping up production from almost nothing to meet the needs of the DoD. E. Chewning said conditioning the environment will be the key, via workforce and innovative investment programs. If DoD commensurately resources with what they are asking industry to provide, it will at least provide leverage for support.
- K. Rennels asked if DoD is working with the Departments of Labor and Education to address the workforce training issue. E. Chewning said they are part of the partnership envisioned in the Executive Order to generate talent domestically. Industry could also be helpful in attracting talent internationally.
- J. Wilcox asked for recommendations on tech transfer and the commercialization challenge. E. Chewning said the government needs to think through the underlying processes to address the “Valley of Death” for tech transfer. Industry could be helpful by innovating how to scale up prototypes.
- B. Colbert asked if there was a critical area where DoD would want immediate help. E. Chewning said it would be in finding ways to apply funds to address the archetype-level risks as opposed to the sector-level risks.
- B. Hawes asked what MEP could do in support of this effort. E. Chewning said the most helpful thing would be to communicate where MEP is finding challenges and how they could be resolved.

## **MEP Advisory Board Working Group Updates**

### **Supply Chain Development Working Group**

*Speakers: Matt Newman, MEP Advisory Board, Chair of Supply Chain Development Working Group; Dave Stieren, NIST MEP*

#### Working Group Deliverable

- “Guidance and perspective on the MEP National Network’s support and development of manufacturing supply chains, with an emphasis on defense suppliers addressing Defense Industrial Base gaps; and expertise on who should be brought into the discussion to provide insight on defense supplier gaps.”

Realizing that the MEP National Network has decades of extensive experience in supply chain development, including routinely supporting defense manufacturing supply chains, NIST MEP sought Board perspectives on the MEP priorities for 2018 that focus on supporting the DoD Industrial Base.

#### Cybersecurity for Manufacturing

- The Defense Federal Acquisition Regulation Supplement (DFARS) cybersecurity requirement for manufacturing supply chains calls for implementation of NIST guidance for adequate cybersecurity by 12/31/2017
- NIST MEP has published a handbook on how to comply with the DFARS, taking NIST-level guidance and reducing it to practice
- Collaborating with the FIN group, the working group strives to accelerate efforts in this area

#### Embedding MEP in Manufacturing USA Institutes

- The Manufacturing USA Institutes are 14 research and development institutes created to bridge the gap between prototype realization and transition to market

- Through a series of awards, MEP Centers have embedded staff members within the Institutes to absorb what's happening there and reduce to practice what the Institutes are working on so that SMMs can be engaged in their technology focus areas
- This project also looks at business models to develop best practices
- NIST MEP is attempting to create a network of capabilities and understanding so that it won't matter if a manufacturer or a Center has a Manufacturing USA Institute in their state

#### *Discussion*

- J. Wright asked if there are surveys available on compliance or awareness. D. Stieren said that firsthand experience has shown less than 50% compliance. There is a need for a national cybersecurity awareness campaign.
- M. Newman shared what his Center has done to reach out and be proactive.
- P. Singerman said D. Stieren and his team have put together a variety of outreach mechanisms to raise awareness and provide technical assistance. More resources are needed to enable Centers to do this, and the imprimatur of DoD would be crucial to say this is an effective tool to help the supply chain comply with a very complex issue.
- C. Thomas noted that one of the strategic goals is leveraging partnerships, which is essential in being proactive on such a large topic.
- J. Wilcox suggested stressing the opportunities involved with cybersecurity, such as the opportunity to enter into digital manufacturing.
- P. Singerman recommended working with NIST MEP leadership already focused on cybersecurity in DoD's supply chain to draft a letter to Mr. Chewning within a week summarizing the Board's response to his presentation and their recommendations.

#### **Performance/Research Development Working Group**

***Speaker: Leslie Taito, MEP Advisory Board, Chair of the Performance/Research Development Working Group; Ken Voytek, NIST MEP***

#### Working Group Deliverable

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

#### Objectives of the Panel Review Process

- To assess the overall performance of Centers
- To explore opportunities for sharing lessons learned
- To implement strategies that increase and improve the Centers' overall performance

#### Questions to the Board from the Working Group

With uneven Center performance across the Network, the number of clients and projects relatively flat, and new initiatives taking shape along with the creation of an integrated National Network, the working group sought Board input and guidance on the following:

- What factors are most important in explaining Center performance variation across the National Network?
- How can we improve Network efficiency and effectiveness with limited resources?

- Would it be worth the Program's investment to engage outside resources to capture lessons learned from Center's new initiative engagements and perhaps developing a manufacturing research agenda?
- How can we accurately capture multi-Center delivery of client impact to ensure proactive collaboration by Centers involved and not be a roadblock to collaboration?

### *Discussion*

- L. Byars said it may confuse people when they get the same survey multiple years in a row; people may think that they have already responded.
- C. Cason said there is a challenge in understanding the mix of customers and how that affects which variables should be measured. Centers need to find a way to balance commitments to smaller manufacturers (<20 employees) when the resources are focused on providing performance to companies with >20 employees.
- M. Newman said he does not see enough cross-pollination; there should be more sharing of best practices and conference calls on a variety of topics. Center Directors should participate on more than one Center's board meetings.
- K. Rennels said outside support makes sense to gain insight on a Center's operations and show why the growth and infrastructure of the MEP National Network makes sense at a state and national level. Centers need to be able to communicate this to stakeholders.
- C. Cason said it is important to be able to justify the importance of meeting National Network initiatives even if they aren't state initiatives.
- B. Hawes said that different types of performance metrics will be needed when Centers talk about research. C. Thomas added that this is an area that needs to be refined and defined.
- J. Wilcox suggested surveys that get Center Directors' insights on the performance of other Centers.
- J. Wright commented on the importance of communicating the fact that underperforming Centers affect everyone across the Network.
- C. Cason noted that there is great variability from Center to Center and some form of handicapping may need to be taken into account in a National Network.

### **Board Governance and Board Assessment Discussion**

***Speakers: Jeff Wilcox, Chair, MEP Advisory Board; Dave Cranmer, NIST MEP; Lisë Stewart, EisnerAmper LLP***

#### BoardSource Survey Results and Recommendations to Centers

L. Stewart provided an overview of the results of the BoardSource Board Assessments taken by various MEP Center Boards across the Network.

- The survey evaluated four areas of Board responsibility
  - Setting direction
    - Average score across the country: 2.96
  - Ensuring resources
    - Average score across the country: 2.76
  - Providing oversight
    - Average score across the country: 3.06
  - Board structure and operations
    - Average score across the country: 3.05
- Areas with the highest average and median scores
  - Board meetings (3.28)
  - Chief Executive oversight (3.13)

- Financial oversight (3.13)
  - Even though many of the Centers report that NIST MEP requirements are heavy on the administrative side, they do instill a tremendous amount of confidence in Board members about effectiveness, particularly around managing the financial side of the business.
- Areas with the lowest average and median scores
  - Board composition (2.79)
    - Across the country, many Boards are saying they need to be more reflective of the markets they serve.
  - Funding and public image (2.83)
    - Centers are getting better at making their services known, but funding is often a concern to manufacturers.
  - Board structure (2.90)
    - Many Board members feel they need to be better engaged. They need a structure that allows them to bring their knowledge, skills, and talents to the Board, such as smaller committees, ad hoc working groups, etc.
- Recommendations made to Centers based on results
  - Continue to support the orientation process and provide opportunities for new Board members to learn about the Program and about other Centers
  - Provide examples of effective materials for orientation, self-evaluation, meeting management, and other best practices
  - Encourage Centers to provide more opportunities for staff (internal and field staff) to engage with the Boards
  - Explore ways to provide Board members with research and access to subject matter experts and shared institutional knowledge to inform strategy development and support the Learning Organization concept

#### *Discussion*

- G. Spottswood said people do want to feel engaged and these surveys have led to the forming of subcommittees and positive results within organizations.
- D. Cranmer asked the MEP Advisory Board members if they felt it would be valuable to go through the assessment process themselves. Board members said they would and NIST MEP will do its best to make it happen.

#### Board Structures within the MEP Network

- D. Cranmer said that having an advisory board of some composition to help provide support to the Center Director is very important and can mean the difference between the legislature paying a lot of attention to a Center or none at all.
- The composition of oversight boards will depend entirely on the nature of the Center. NIST MEP has tried to take this into account and give Centers the flexibility they need without being overly prescriptive.
- Board members were asked to look at their Center's oversight board standards as they are written and alert NIST MEP to anything that is glaringly wrong or absent.

#### MEP Advisory Board Bylaws

- Currently the MEP Advisory Board bylaws are very minimal. The Executive Committee Working Group has discussed whether they should be expanded.
- The statute specifies that the board must have five members that are small manufacturers, two members that are employed by or are on an advisory board at a Center, and one member



- representing a community college. Board members were asked to consider if these guidelines are sufficient or if other specialties should be included in the bylaws that would add value to the Board.
- The bylaws state that there should be more than ten members. There are currently fifteen available positions; Board members were asked to consider if there is there a skill set NIST MEP should be looking to include as new members are recruited for membership on the Board.

### **Wrap-Up/Public Comments**

C. Thomas briefed the Board on an upcoming report NIST MEP will be working on to support the Government Accountability Office (GAO). The AICA requires the GAO to produce an updated report in consultation with the MEP Advisory Board analyzing cost share effectiveness, engagement in services/characteristics including volume and type of services, and whether cost share ratio changes affect services provided by Centers. The statute requires the GAO to deliver the report to Congress no later than January 2, 2019. NIST MEP will let the Board know more about what to expect once they meet with GAO in early April. The original MEP Advisory Board's letter to Congress from 2013 on the cost share ratio is available on the MEP Connect and the MEP's website for review.

### **Public Comments**

There were no public comments

### **Concluding Comments**

- G. Spottswood and L. Taito mentioned it would be helpful for Board members to have a list of commonly used acronyms and for presenters to be more conscious about spelling out less common ones.
- L. Byars reminded the group that we need to find new ways to make small manufacturers aware of MEP and what the program can offer them.
- B. Hawes mentioned the importance of process variables – getting the right communications to the right people at the right time using the right channels.
- J. Wilcox stated that significant progress has been made by the various MEP groups and many new opportunities have opened up.

### **Next Meeting**

The next Advisory Board Meeting is set for June 13, 2018 in Arlington, Texas.

### **Adjournment**

With no further business, J. Wilcox adjourned the meeting at 4:19 p.m.