National Institute of Standards and Technology
Manufacturing Extension Partnership
Advisory Board
Minutes of the May 15, 2011 Meeting

Background

The National Institute of Standards and Technology (NIST), Manufacturing Extension Partnership (MEP), MEP Advisory Board met in an open session from 8:30 a.m. to 5:00 p.m. on May 15, 2011, at the Orlando World Center Marriott in Orlando, Florida. Approximately 60 attendees, composed of MEP Advisory Board members, NIST and MEP participants, guest speakers, and observers, attended the meeting.

Attendees

Board Members
Mark Rice, Chairperson, MEP Advisory Board, and President, Maritime Applied Physics
Jim Bean, Vice Chairperson, MEP Advisory Board, and President and Chief Executive Officer, Preco Electronics, Inc.
Dennis Dotson, Chairman, Dotson Iron Castings
Eileen Guarino**,** President and Chief Operating Officer, Greno Industries
Cheryl Hill, Owner and Chief Executive Officer, Hill Manufacturing, Inc.
Edward "Ned" Hill, Dean, Levin College of Urban Affairs, Cleveland State University
James Jacobs, President, Macomb Community College
Fred Keller, Chairman and Chief Executive Officer, Cascade Engineering (via phone)
Kenneth Priest, President and Chief Executive Officer, Kenway Corporation
Vickie Wessel**,** Founder and President, Spirit Electronics, Inc.
Edward Wolbert**,** President, Transco Products, Inc.

NIST Participants
Phillip Singerman**,** Associate Director, Innovation and Industry Services, NIST

MEP Participants
Roger Kilmer, Director, NIST MEP
Aimee Dobrzeniecki, Deputy Director, NIST MEP
Karen Lellock, Senior Policy Advisor, NIST MEP
Mark Troppe, Manager, Strategic Partnerships and State Relations, NIST MEP

Guest Speakers
Ken Poole, Chief Executive Officer, Center for Regional Economic Competitiveness, and Executive Director, Council for Community and Economic Research
Rob Atkinson, President, The Information Technology and Innovation Foundation
Doug Woods, President, The Association for Manufacturing Technology

MEP Observers
Ronald Gan, Administrative and Financial Management Officer**,** NIST MEP
Diane Henderson, Business Liaison Specialist, NIST MEP
Dan Lilley, Account Manager, NIST MEP
Mark Schmit, Program Manager, National Accounts**,** NIST MEP
Mike Simpson, Director, Systems Operations, NIST MEP
Phillip Wadsworth, Account Manager, NIST MEP
Tab Wilkins, Account Manager, NIST MEP
Gary Yakimov, Manager, Policy Initiatives, NIST MEP

Other Observers
William Barnes, Director, University of Maryland Manufacturing Assistance Program
Zenagui Brahim, Director of Operations, New Hampshire MEP
Manny Chavez, Chairperson, New Mexico MEP Board
Mike Coast, President, Michigan Manufacturing Technology Center
Eric Esoda, Executive Director, Northeastern Pennsylvania Industrial Resource Center
Thomas Fallo, Chairperson, California Manufacturing Technology Consulting Board of Directors
Sara Garretson, President, Industrial and Technology Assistance Corporation, New York MEP
Steve Hatten, Executive Director, Idaho TechHelp
Carrie Hines, Executive Director, American Small Manufacturers Coalition
Steve Holland, Director, Montana Manufacturing Extension Center
Sandy Haslem, State Director, Nevada Industry Excellence
Charles "Chip" Howison, Secretary/Treasurer, Finance Committee, Florida MEP Board of Directors
Randy Innis, INNIS Enterprises
Jeff Kohler, Executive Director, Genedge Alliance
David Landsman, mfg.com
James Lange, Member, Florida MEP Board of Directors
Joe LaRussa, Director of Membership, Society of Manufacturing Engineers
Gene Lussier, Chairperson, Maine MEP Board of Directors
Paul Mastro, Chairperson, Arkansas Manufacturing Solutions Board of Directors
Andy Mead, Member, California Manufacturing Technology Consulting Board of Directors
Tom Palisin, Manufacturing Ombudsmen, Pennsylvania Department of Community & Economic Development
Richard Peck, Chairperson, Florida MEP Board of Directors
John Pickering, Member, Montana Manufacturing Extension Center Advisory Board
Rosemary Presnar, Operations Manager, Maine MEP
Steve Quindlen, Executive Director, Delaware MEP
Flo Raitano, Chairperson, Colorado Association for Manufacturing and Technology Consulting Board of Directors
Benjamin Rand, President, Insyte Consulting, New York MEP
Catherine Renault, Principal, Innovation Policyworks
Larry Stewart, Center Director, Manufacturing-Works
Mark Tomlinson, Executive Director and Chief Executive Officer, Society of Manufacturing Engineers
Robert Trachtenberg, President, Technology Development Organization, New York MEP
Phillip Van Buren, Member, New Mexico MEP Board of Directors

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Welcome, Introductions, and Opening Remarks

Speakers: ***- Roger Kilmer, Director, NIST MEP***
- Mark Rice, Chairperson, MEP Advisory Board, and President, Maritime Applied Physics

Speaker: ***Roger Kilmer, Director, NIST MEP***

Members of the MEP Advisory Board were welcomed. It was announced that Cheryl Hill would be leaving the MEP Advisory Board, but that Ms. Hill would continue to work with the National MEP System in other capacities. Ms. Hill was thanked for her contribution to the MEP Advisory Board and to the National MEP System.

Speaker: ***Mark Rice, Chairperson, MEP Advisory Board, and President, Maritime Applied Physics***

The MEP Advisory Board welcomes three new members:

- Eileen Guarino, President and Chief Operating Officer, Greno Industries,
- Vickie Wessel, Member, Arizona MEP Board of Directors, and Founder and President, Spirit Electronics, Inc., and
- Edward Wolbert, President, Transco Products, Inc.

The MEP Advisory Board was challenged with two objectives. The first objective is to develop a better relationship between the MEP Advisory Board and the 60 MEP Center Boards of the National MEP System. The second objective is to develop specific recommendations and an outline for the September 2011 MEP Advisory Board meeting in Washington, D.C.

Manufacturing Jobs and MEP Impacts in an Overall Economic Context

Speakers: ***- Ken Poole, Chief Executive Officer, Center for Regional Economic Competitiveness, and Executive Director, Council for Community and Economic Research***
- Aimee Dobrzeniecki, Deputy Director, NIST MEP

Speaker: ***Ken Poole, Chief Executive Officer, Center for Regional Economic Competitiveness***

An overview of the state of manufacturing, with a focus on a new, Web-based approach to analyzing real-time manufacturing and workforce data, was discussed.

- *Economic Overview: A Few Key Data Points*
  - Manufacturing is bouncing back from the recession.
  - Exports of durable goods are driving growth.
  - Manufacturing productivity continues to increase.
  - Jobs "creation" is finally outpacing jobs "destruction."

- Growth leaders include the pharmaceutical, semiconductor, and the medical-device industries.
- Skill leaders include engineering, information technology, sales, and supervisory management.

- *An Assessment of Web-based Manufacturing Job Postings*
  - Manufacturers (non-union) are using the web to post job openings – 65,000 job postings during the recession with close to 140,000 posting in April 2011.
  - Industries that are posting the greatest number of job openings are the pharmaceutical, semiconductor/devices, and sensor/instrumentation manufacturers.
  - A greater increase in production-job postings is seen among large manufacturers versus SMEs since 2009. The new production-job postings are led by machine shops and plastics and pharmaceutical manufacturers. Many of these manufacturers are not hiring because they are not finding the appropriate skill sets.
  - In 2009, half of manufacturing jobs were production jobs. Recently, the mix is changing to engineering, management, installation/repair, business/finance, and computer support.

- *Who is Hiring and the Skills Sought*
  - Largest concentration of advertised manufacturing jobs include the Northeastern part of the country, California, and Minnesota.
  - About 40% of manufacturing jobs across the U.S. demand high-skilled workers, requiring at least a 4-year degree.
  - Top manufacturers seeking workers include Lockheed Martin, IBM, Pitney Bowes, and GE Energy.
  - Top firms seeking production workers include Georgia-Pacific, Eaton, Goodrich, Parker Hannifin, and Boeing.

Discussion

- Really good initiative on the part of MEP and good work by Ken
- Workforce element deserves more emphasis than it has received. Particularly important if there is a resurgence in U.S. manufacturing. Data provides a basis for MEP management to make decisions on this increased emphasis.
- Should be updated regularly and find a way to get it broadly distributed within the MEP system and beyond.
- Recommend that MEP explore this area during the coming year.
- Need to work with the Bureau of Labor Statistics and the state Labor Market Information Services to understand the data. This is a biased dataset but we do not know the bias.
- Having real time, transactional data on job vacancies has great potential.

MEP Impacts in an Overall Economic Context
Speaker: Aimee Dobrzeniecki, Deputy Director, NIST MEP

- While the manufacturing gross domestic product (GDP) has been steady/slight increase, MEP sales impacts decreased in 2009, but recent quarterly trends show an incline.
- While manufacturing employment has been steady from 2009 to 2010, MEP has seen an employment increase in recent months among small manufacturers, indicating renewed confidence.

- Since the third quarter of 2010, manufacturers began investing into their companies, despite decreased cost savings reported during the same time.
- MEP has seen the greatest increase in Next Generation Strategy (NGS) projects that involve sustainability (31% increase between 2009 and 2010), which matches well with cost-saving projects and increased market opportunities. During the same period, increases were seen among growth projects (6% increase) and technology-services projects (10% increase).

Discussion

Q: Can MEP compare last year's results to this year's results?
A: MEP currently collects quarterly information and reports it annually. Results are available to Board members as well as MEP Centers.

Q: How does MEP funding compare from last year to this year?
A: MEP saw an increase of $9 million from last year. Impact results are a reflection of the increased funding as well as the economy recovering and increased confidence among manufacturers.

Office of Innovation and Industry Services, National Institute of Standards and Technology

Speaker: Phil Singerman, Associate Director, Innovation and Industry Services, NIST

An overview of NIST's organization and MEP support, budget, and challenges were discussed.

- *Introduction*
  - The MEP Advisory Board was thanked for their service to NIST and the National MEP System.
  - MEP is the gold standard for manufacturing assistance.
  - MEP offers continuity and consistency to the manufacturing community.

- *MEP Support*
  - MEP is strongly supported by the Executive Branch. In the President's State of the Union, President Obama strongly supported the importance of Research and Development (R&D).
  - MEP is supported by the Legislative Branches.
  - MEP enjoys strong bipartisan support.

- *MEP Budget*
  - MEP has strong budget. The FY11 budget is solid and MEP FY12 is very promising. The budget may grow from $128 to $142 million with strong support from the Executive and Legislative Branches, despite the tight economy.

- *National Innovation*
  - With more resources to support national innovation come more responsibilities. MEP must use its resources to lead communities and to develop closer relationships with the States.

- *MEP Advisory Board Challenge*
  - Challenge #1: MEP Advisory Board must work with MEP Center Boards. The MEP Advisory Board should be actively engaged with local MEP Center Boards.
  - Challenge #2: MEP Advisory Board should help nurture Federal/State relationships.

Discussion

- Board asked Phil to continue his work to articulate and formalize a NIST and DOC strategy for manufacturing for the following reasons:
  - Without an umbrella strategy, the MEP program is viewed as an adjunct rather than as a core part of DOC strategy.
  - Without an umbrella strategy, it is more difficult to describe the importance of the program and to explain this to new members of Congress.
- Board members are willing to undertake expanded roles in helping NIST develop and articulate a National Manufacturing Strategy.

States and Innovation: Setting the Stage for Job Creation

Speaker: Mark Troppe, Manager, Strategic Partnerships and State Relations, NIST MEP

Results of the 2010 elections, the composition of State legislatures, the MEP State Relations Team, and MEP's strategy to reach out to the State legislatures were discussed.

- *2010 State Governor Election Results*
  After the November 2010 elections, there are 26 new governors. MEP has an opportunity to build new relationships with the new governors. MEP needs to tell them what MEP is doing and the importance of the National MEP System.

- *State Legislature Composition*
  There was a dramatic change in the State legislatures. Before November 2010, there were 14 Republican-controlled legislatures and 27 Democratic-controlled legislatures. After November 2010, there are 25 Republican-controlled legislatures and 16 Democratic-controlled legislatures.

- *MEP State Relations Team Composition*
  - Dan Berglund, State Science and Technology Institute (SSTI)
  - Ken Poole, Center for Regional Economic Competitiveness
  - Mary Jo Waits, National Governor's Association (NGA)

- *Three-Part State Strategy*
  - *Part 1 - Immediate strategy*
    - Distributed a new package that included manufacturing and MEP facts and talking points.
  - *Part 2 - Intermediate strategy*
    - Meet with new Governors, Federal officers, and State representatives in Washington, D.C.
    - Follow-up with individual States.
    - Follow-up with individual MEP Center Directors.

    - Develop strategy for reaching out to key States that did not attend.
    - Develop longer-term, in-depth, outreach efforts.
- *Part 3 - Long-term strategy*
    - Develop a strategy based on meeting in March.
    - Plan to convene annual meeting on manufacturing strategy, following a hybrid NGA format. This will give the National MEP System an opportunity to work closely with States and policymakers over an extended period.

Discussion

- It seems that the real work in this area is inherently local. While the coordination with the National organizations is important, the real impact to the MEP centers seems to be a function of their local initiatives rather than the national initiatives.
- Lingering questions: How does MEP relate the national-level "State" initiatives to the local initiatives?:
    - How involved are the local centers?
    - How do the MEP regional managers engage?
    - Are best practices distributed?

MEP Advisory Board and MEP Center Board Discussion – Opportunities and Challenges at the Local Level

Facilitator: Mark Rice, Chairperson, MEP Advisory Board, and President, Maritime Applied Physics

The MEP Advisory Board is looking for ways to improve its relationships between the MEP Advisory Board, MEP management, and the 60 individual MEP Center Boards.

- *Background to the MEP Advisory Board*
    - Authorized under the America COMPETES Act.
    - The MEP Advisory Board reports to MEP, NIST, and to Congress. Reporting to Congress gives MEP an opportunity to speak directly to Congress.
    - MEP Advisory Board members include affiliations with universities and manufacturers.
    - Current members include manufacturers and some must serve on MEP Center Boards.

- *MEP's Next Generation Strategies (NGS)*
  The goal of MEP's NGS is to increase manufacturers' capacity for innovation, which should result in sales growth. MEP's approach is to reduce manufacturers' bottom-line expenses by increasing efficiencies and to add top-line sales with business growth services that focus on new sales, new markets, and new products. The five key areas of MEP's NGS are:
    - Continuous improvement,
    - Sustainability,
    - Supplier development,
    - Technology acceleration, and
    - Workforce development.

- *Breakout Session with MEP Advisory Board Members and MEP Center Board Members*
  The MEP Advisory Board would like to become more engaged with the individual MEP Center Boards. To this end, MEP designed four breakout sessions. Discussions from the breakout sessions will help MEP develop strategic goals for the National MEP System.

MEP Center and Board members were divided into four groups to discuss the following four questions:

- *Question 1* - What problems, issues, and opportunities should be elevated to the strategic planning level for the future of MEP? With NGS in mind, what are your recommendations for changes in programs, plans, policies, and strategies?

- *Question 2* - What are the capability gaps that are constraining the success of SMEs?

- *Question 3* - How can the National MEP System better explain the importance of U.S. manufacturing to policymakers at the Federal level? What is working at the local level?

- *Question 4* - With the growth of SME/Original Equipment Manufacturer (OEM) relationships, opportunities for smaller manufacturers to take advantage of technology in national laboratories and universities, of the development of new, international markets, and of MEP Center playing a brokerage role and communications between the diverse entities are key. How do we set up mechanisms to enhance this communications? How do MEP Centers connect the dots that create opportunity for manufacturers? How does this communication work with the customer SME so that the manufacturer perceives great benefit?

After the breakout session, the breakout groups reconvened and provided a summary of their recommendations to the National MEP System.

Breakout Group One - Summary of Key Points

Facilitators: ***- Dennis Dotson, Member, MEP Advisory Board, and President, Dotson Iron Castings***
- James Jacobs, Member, MEP Advisory Board, and President, Macomb Community College

- MEP Center Board training is important – need more of it and to a broader cross section of the local boards – particular emphasis on relating the local Board functions and responsibilities to the National need
- Need to improve consistency across centers.
- Focus on both impact and quality of the service delivery
- More work to define Center roles in workforce development, what is the right mix, how do the financial models for the Centers work?
- Need more Center staff training so that relationships can be built at the C level
- Evaluation needed at the level of the trainer, in addition to the output metric used by the MEP

Breakout Group Two - Summary of Key Points

Facilitators: ***- Edward "Ned" Hill, Member, MEP Advisory Board, and Dean, Levin College of Urban Affairs, Cleveland State University***
- Kenneth Priest, Member, MEP Advisory Board, and President and Chief Executive Officer, Kenway Corporation

- Access to capital (difficulty of accessing bank finance remains a problem).
- How can the leadership of companies be freed up from working in their businesses to work on the business?
- Suggest that best practices and technical information could be exchanged through new "regional" meetings of the local boards – since many regions are large and still would require air travel, would it be better to do an annual summit for local boards? Southeast region is going to have a conference call with local chairs.
- Gap exists in services related to family company transitions by asking "what is your exit plan" it can start a good discussion on current needs.
- Gap exists in services related to large OEMs and their supply chains
- Desire for more "peer councils" that allow CEO to CEO sharing – what role can/should the MEP centers play? Is this a new offer? There is also a potential for a plant manager peer group. Peer councils are currently being used at some MEPs.
- The system needs to help strengthen board governance and the relationship between the board and the CEO of the MEP affiliate.

Breakout Group Three - Summary of Key Points

Facilitators: ***- Jim Bean, Vice Chairperson, MEP Advisory Board, and President and Chief Executive Officer, Preco Electronics, Inc.***
- Vickie Wessel, Member, MEP Advisory Board, Member, Arizona MEP Board of Directors, and Founder and President, Spirit Electronics, Inc.

- Relationships are the key to making the case for the importance of U.S. manufacturing. The one-on-one meetings between manufacturers and policy makers are critical.
- Message needs to make it clear that MEP is a way to achieve a net savings in federal dollars. The ROI on this investment is positive.
- Consensus that the MEP needs a new "national brand" that can be easily recognized and understood by policy makers and reflected through the local brand
- Endorsement of existing efforts to improve communications between MEP leadership, the Centers, the Advisory Board, and the local boards. Perhaps the weekly e-blast to centers should also be sent to the local and national boards.
- Need to strengthen the connections between the local and national levels.
- Desire to get more manufacturing success stories published. Particularly in the area of innovation.
- Recognition of the importance of non-Federal entities in delivering this message – MEP can make the data and information available but others must do the advocacy.

Breakout Group Four - Summary of Key Points

Facilitators: ***- Mark Rice, Chairperson, MEP Advisory Board, and President, Maritime Applied Physics***
- Eileen Guarino, Member, MEP Advisory Board, and President and Chief Operating Officer, Greno Industries

- Innovators within the organization may not be at the management level. MEP service must work with company management to identify the innovators.
- Consensus that there is a HUGE communication gap between the national lab researcher and the shop floor innovator. Consider NIST level programs to address this. Options

may include "shop floor innovator" internships at the national labs and/or scientist-engineer internships within the manufacturing organization.
- Broaden the definition of innovation to include low-end innovations and low-end technology transfer.
- MEP centers should facilitate Cooperative Research and Development Agreements (CRADAs) as a service function.
- NIST has a new role in evaluating the tech transfer proficiency of national labs. Perhaps this can be linked back to MEP Center opportunities.
- Some states, while having cut back on MEP cost share, are still funding Tech Deployment programs. MEP Centers need to look for opportunities to tap into these funding streams (e.g., FAST, proposed UTAH GAMBIT program, possible Rapid Product Transition Centers).
- Need for staff training if MEP centers are to perform tech transfer functions.
- If NIST can provide technology screening or otherwise facilitate tech transfer, perhaps a monthly webinar would be a good format to push this out into the centers.
- Suggestion that NIST role as a clearinghouse for tech transfer could emerge.
- Broad agreement that the impediments are: 1. Communication of opportunities, 2. Training on "how to", and 3. Templates for successful financial models that the Centers could emulate.

Manufacturing Innovation

Speaker: Aimee Dobrzeniecki, Deputy Director, NIST MEP

- *The America COMPETES Reauthorization Act*
  - The America COMPETES Act requires the NIST Director to establish an Innovative Services Initiative within the National MEP System
  - The Innovative Services Initiative is designed to assist SMEs with 1) reducing energy usage, greenhouse gas emissions, and environmental waste, 2) accelerating domestic commercialization of new technology, and 3) expanding into new markets.

- *National Association of Manufacturers Innovative Data*
  - Manufacturing is global and mobile.
  - Companies must move quickly to meet the demands of a rapidly changing marketplace.
  - Innovation has helped manufacturers maintain global leadership.
  - R&D has spurred innovation and technologically advanced growth between 2000 and 2006.

- *Deloitte Innovation Data*
  - Global competitive landscape for manufacturing is shifting.
  - Manufacturers will continue to be an essential path for attracting investments, spurring innovation, and creating high-value jobs.
  - Manufacturing superpowers of the late 20th century (U.S., Japan, and Germany) are expected to become less competitive over the next 5 years.
  - U.S. economic future is innovative manufacturing.

- *MEP Survey Data*
  - Clients are primarily seeking 1) continuous improvement and cost reduction, 2) identification of growth opportunities, and 3) product innovation and development.

- *Accomplishments*
  - The National MEP System has established a nation-wide system of MEP Centers.
  - The National MEP System has developed strong Centers.
  - The National MEP System has developed a strong reputation.

- *Current State of the National MEP System*
  - The National MEP System does what MEP knows best, primarily point solutions.
  - The National MEP System has not significantly progressed beyond point solutions.
  - The National MEP System has stagnated in terms of professional development.
  - The National MEP System is not fully responsive to manufacturing needs.
  - The National MEP System's market penetration is trending in the wrong direction.
  - Neither the National MEP System nor the MEP Centers have developed sales skills.
  - The National MEP System's number of projects is declining and impacts per project are declining.

- *Today's Challenge*
  - NIST MEP needs to evaluate how MEP can better serve U.S. manufacturers and be responsive to their needs.

- *Innovation Engineering Management System (IEMS)*
  - IEMS fosters collaboration with entrepreneurs, universities, national laboratories, and OEMs.
  - IEMS has four components: Define, Discover, Develop, and Deliver.

- *Benefits of IEMS to MEP*
  - IEMS provides a common framework for creating, communicating, and implementing new ideas.
  - IEMS wisely invests limited resources.
  - IEMS builds bridges to new partners.
  - IEMS drives out risk.
  - IEMS changes the National MEP System culture.
  - IEMS increases the international competiveness of U.S. manufacturers.

- *Next Steps*
  - MEP IEMS training.
  - MEP IEMS support.
  - MEP IEMS managers focused on integrating existing and new MEP services.

Discussion

- The MEP objectives in promoting this program are broadly endorsed.
- Recognition that this rigidly "proscribed" black belt approach is correct for a certain client base – particularly those who are not experienced in innovation processes but have the staff in place and a budget for this structured approach.
- There are three black belts focused on center management, sales, and product delivery. But the connection to enterprise transformation and the MEP customer's outcomes is not evident.

- Recognition that this "proscribed" approach is helpful in developing the staff at some Centers that do not have a experience or track record of performance innovation functions.
- General consensus that this approach may not work in some sectors.

The Case for a National Manufacturing Strategy

Speaker: Robert Atkinson, President, The Information Technology and Innovation Foundation

- *State of U.S. Manufacturing*
  - The U.S. manufacturing story - is it the Agricultural story or the Rust Belt story? Agriculture produces more with less people; agriculture is more productive than large manufacturing.
  - Manufacturing as share of total employment - big cities have lost more jobs than small cities.
  - Manufacturer output has grown slower than the GDP in the 21st century.
  - Most manufacturers have lost output, which is related to loss of products.
  - Only four sectors grew: 15 of 19 sectors produced less between 2000 and 2009. Aviation, petroleum and coal, computer, and electronics grew.
  - Real manufacturing has added value to the GDP.
  - China has created more manufacturer jobs. In 4 years, China created more jobs than the total number of U.S. manufacturing jobs. In one instance, 150,000 new workers were added at one facility.
  - Capital stock for many manufacturing sectors has fallen. Capital stock is down 20%. If one uses less capital, one cannot produce more.
  - Overall, growth in U.S. manufacturing assets has stalled.
  - The U.S. is falling behind growth in total private fixed assets.
  - The U.S. is moving away from manufacturing to industries like entertainment and financials services.

- *Why is a National Manufacturing Strategy Important?*
  - A robust manufacturing sector is needed to close the trade deficit.
  - Manufacturing is a key source of employment and good jobs.
  - Manufacturing is a key source of R&D and innovation activity.
  - Manufacturing and services are inseparable and complementary.
  - Manufacturing is vital to U.S. national security.

- *Why We Need a National Manufacturing Strategy*
  - Other countries have manufacturing strategies and are investing in innovation.
  - Systemic market failures affect manufacturer activity.
  - U.S. is not likely to restore key manufacturer-sectors jobs once they are lost.

- *Outline of a National Manufacturing Strategy*
  - The "Four T's" must be examined:
    - Tax code,
    - Trade,
    - Talent, and
    - Technology.

- Global models for technology development include:
    - Universities and national laboratories,
    - Applied R&D, and
    - Industrial R&D.

- *Why We Do Not Have a National Manufacturing Strategy*
  - Flawed concept: More savings is the answer.
  - Flawed concept: New firms and new technologies are enough.
  - Flawed concept: All we need are better innovation "inputs."
  - Flawed concept: We can win without helping big corporations.

Discussion

The Board asked Dr. Atkinson to comment on his recommendation for changes to the MEP system based upon his findings:

- Need for more MEP linkage to innovation processes
    - Need to look at innovation as a federated process
    - Future papers will provide ability to compare and contrast MEP roles with other international efforts
- Need for an MEP approach to manufacturing sectors that may be regional
    - Value of clusters
    - Possible role for NIST to identify emerging technology for sector focus – other countries play a much more proactive role in this regards
- Exporting is key – more emphasis needed to solve the national problem.

Accelerating Economic Growth Through Innovation

Speaker: Doug Woods, President, The Association for Manufacturing Technology

- *Introduction – Need for Change*
  - In Washington, D.C., there is no coherent manufacturing strategy.
  - U.S. needs a coherent manufacturing strategy and it is time for a new economic model.

- *Goals for a National Manufacturing Strategy*
  - Create incentives for innovation and R&D.
  - Assure availability of capital.
  - Increase global competitiveness.
  - Minimize structural burdens.
  - Enhance collaboration between government, academia, and industry.
  - Build a better-educated and trained "smart" force.

- *Focus for a National Manufacturing Strategy*
  - Increase incentives for innovation.
  - Increase global competitiveness.
  - Build a better-educated workforce.

- *Structure for a National Manufacturing Strategy*
  - Create an interagency manufacturer structure.

- Science, technology, and manufacturing agencies should have an office under the Secretary of Commerce.
- Create a national policy.
- Use existing MEP distribution channel.
- Focus on areas of higher density of manufacturers.

- *Early Manufacturing Technology Distributors*
  - Two simple programs: Sales/service and process improvement.

- *Today's Manufacturing Technology Distributors*
  - One-stop coordinated effort for manufacturing services, like financing and SBIR awards.

- *Powering Productivity*
  - Manufacturing technology.
  - Cloud manufacturing.
  - Automation.

- *Advances That Will Shape Our Future*
  - Mass customization.
  - Open innovation manufacturing (i.e., open-source code).
  - Cloud manufacturing.

- *The National MEP System holds the key for U.S. manufacturing*

Discussion

- Suggestion that MEP create a Federal Opportunities Databank
- Suggestion that MEP play a more aggressive role in technology transfer
- Strong appreciation for the importance of this message.
- The "smartforce" concept might be a valuable branding for MEPs to use.

Observations and Recommendations for the National MEP System

Facilitator: Mark Rice, Chairperson, MEP Advisory Board, and President, Maritime Applied Physics

The MEP Advisory Board members were asked to develop a list of observations and recommendations for the National MEP System.

- The lack of a broader NIST manufacturing vision is a complication for the MEP program. The MEP program stands in some isolation and would benefit from a defined relationship to a broader NIST and Department of Commerce vision of the Federal Government's role in spurring both innovation and manufacturing.
- The MEP Advisory Board needs to communicate on a broader level. The Board can do more.

- In terms of an innovation strategy, the MEP Centers need a better vision of their financial model. From a financial point of view, how can the MEP Centers promote innovation?
- There is a hole in leadership training for SMEs. Engineering schools are heavily siloed. MEP could help fill the hole.
- MEP needs to make a better case for manufacturing. The case is better this year than last year. MEP needs a consensus document.
- Training for MEP staff is coming together. Funding is coming from States and clients. State funding is very important. MEP needs to help State legislatures understand MEP's role.
- MEP needs to develop a sales plan for products and services that the National MEP System is providing.
- Training of MEP staff is a good investment.
- MEP must be clear that the National MEP System is the deployment arm of manufacturing.
- MEP needs to be the conduit between the innovator and the manufacturer.
- There is a need to further hone the economic case for supporting U.S. manufacturing
    - Compare ourselves to global competitors – look outside the U.S.
    - Promote an understanding that international exporting is both highly competitive and a critically important part of our manufacturing strategy.
    - Increase public understanding of MEP as a "deployment" arm of policy and practices
        - Federal role in understanding and promoting segments and sectors
        - Recognition of different strategies for different segments
            - Product oriented sectors
            - Process oriented sectors
            - Innovation is non-linear and different among sectors
            - Look at Center role as a node connector in the innovation process rather than as a teacher of innovation
        - Need to engage States to develop a technology pull vs a Federal technology push

- How does MEP best exploit the expertise of the MEP Advisory Board? How does MEP aggregate the experience of the MEP Advisory Board and the MEP Center Boards? MEP has a great opportunity to get its message out.
- The importance of what the National MEP System does needs to be communicated. From being a customer of a local MEP Center, a current MEP Advisory Board member indicates the constant learning of new information that can benefit manufacturers around the country.
- MEP needs collaboration with other Federal and Department of Commerce advisory boards.
- Each MEP Center offers different products and services. It would be nice to know services offered by each MEP Center.
- MEP is very complex. It would be useful for a focus on two or three critical success factors.
- What does the National MEP System stand for? What is its niche?
- MEP is a part of a larger effort to restore American manufacturing.

Adjournment

Advisory Board members, NIST and MEP participants, presenters, and observers were thanked for attending the meeting. The next MEP Advisory Board meeting will be held on September 21, 2011, in Washington, D.C.

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