National Institute of Standards and Technology
Manufacturing Extension Partnership
Advisory Board
Minutes of the January 28, 2014 Meeting

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 8:30 a.m. to 5:00 p.m. on January 28, 2014 at the Hilton Charlotte University Place Hotel in Charlotte, North Carolina. Approximately 55 attendees, composed of Advisory Board members, NIST, and MEP participants, guest speakers, and observers, attended the meeting. Phillip Singerman, Acting Director of MEP, is the Designated Federal Officer for the MEP Advisory Board.

Attendees

Board Members

Denny Dotson, Chairman, NIST MEP Advisory Board, and Chairman, Dotson Iron Castings
Eileen Guarino, President and Managing Director, Greno Industries, Inc.
Edward "Ned" Hill, Dean, Levin College of Urban Affairs, Cleveland State University
Mark Rice, President, Maritime Applied Physics Corporation
Rich Scott, President, Quality Filters, Inc.
Vickie Wessel, Vice Chairman, NIST MEP Advisory Board, and Founder and President, Spirit Electronics Inc.
Jeff Wilcox, Vice President for Engineering, Lockheed Martin
Ed Wolbert, President, Transco Products, Inc.

NIST MEP Participants

Alex Folk, Director, Program Development, NIST MEP
Ron Gan, Administrative and Financial Management Officer, NIST MEP
Bill Kinser, Director, Center Operations, NIST MEP
Karen Lellock, Senior Policy Advisor, NIST MEP
Mike Simpson, Director, System Operations, NIST MEP
Phil Singerman, Acting Director, NIST MEP
Mark Troppe, Manager, Strategic Partnerships, NIST MEP
Gary Yakimov, Manager, Policy and Research, NIST MEP

Observers

Clara Asmail, NIST MEP
Bob Bengel, NWIRC
Buckley Brinkman, WMEP
Kelly Buchanan, ASMC
Ron Burke, New Mexico MEP
Beth Colbert, NIST MEP
Ron Cox, Iowa State University

Dave Cranmer, NIST MEP
Dusty Cruise, Missouri Enterprise
Dan Curtis, AMS
Jeff Eckhoff, SDMTS
Michelle Fate, ME MEP
Dan Franklin, AZ MEP
Joylynn Gilles, WMEP
Bernadine Hawes, DVIRC
Melissa Hill, NIST MEP
Carrie Hines, ASMC
Mimi Hsu, Lockheed Martin
John Irion, SC MEP
Michael Kelleher, MD MEP
Wes Kelly, SD MEP
Roger Kilmer, NIST
Dan Lilley, NIST MEP
Jeff Lucas, NIST MEP
Steve McMare, RII
Barry Miller, DVIRC
Petra Mitchell, Catalyst Connection
Ben Rand, Insyte Consulting, ASMC
Kari Reidy, NIST MEP
Kirsten Rieth, RTI
Larry Robinson, Maine MEP
Mark Schmit, NIST MEP
Jennifer Sinsabaugh, New Mexico MEP
Nico Thomas, NIST MEP
Gary Thompson, NIST MEP
Ameet Vaghela, Lockheed Martin
Jeanne Wagner, Missouri Enterprise
Tab Wilkins, NIST MEP
Tim Wiora, WMEP

Welcome, Introductions, and Opening Remarks

Speaker: Vickie Wessel, Vice Chair, NIST MEP Advisory Board

Ms. Wessel called the meeting to order at approximately 8:45 a.m.; Ms. Wessel made introductory remarks and had the Advisory Board members and meeting participants introduce themselves.

Presentations

NIST MEP Director Update

Speaker: Phil Singerman, Acting Director, National Institute of Standards and Technology, Manufacturing Extension Partnership

Dr. Phil Singerman welcomed the Advisory Board members and attendees to the January 2014 Advisory Board meeting. On behalf of NIST Director Pat Gallagher, Dr. Singerman expressed thanks for the MEP Advisory Board's leadership and efforts. Dr. Singerman also recognized the MEP staff for their commitment and professionalism over the past year and the many years they have served, and the MEP centers for their continued exceptional performance. Finally, Dr. Singerman recognized Roger Kilmer, whose management talents helped establish one of the longest lasting successful federal economic development programs.

A brief review of NIST MEP structure was provided.

- MEP is a federally funded national program of regional centers for the transfer of manufacturing technology.
- NIST MEP has centers in every state and Puerto Rico.
- MEP provides a connected network, which is only as strong as its weakest link (center).
- NIST MEP operates within the federal world, which provides a fair level of fiscal certainty even when private sectors are facing difficulties.
- But, because it is a federal program, it is subject to all the rules and regulations that flow from that status.

Descriptions of several of the reviews of the MEP program were discussed.

- Office of Inspector General (OIG) audit of conference expenses in 2011 and 2012.
- Government Accountability Office's (GAO) analysis on the level of MEP administrative expenses.
- Congressional criticism of the reliance on single contractors for major program delivery, an issue also identified by the National Academy of Sciences.
- In responding to each of these, NIST MEP wants to change the narrative from a program responding to challenges to one that is proactively reviewing its operational processes to improve its performance.

Dr. Singerman reviewed the status of the operational review of the MEP program. The premise of the operational review and its aims were provided.

- As the single largest formal grant program of NIST, and the most visible one, it is appropriate for MEP to review its operational practices to ensure they are consistent with best procedures, benefit from recent experiences, and leverage the new agency-wide focus on financial operations.
- Such a reassessment is also appropriate because of the expectation of continued growth in program responsibilities and anticipated increases in funding.
- Key elements in the agenda include:
    - Expanded role for the Advisory Board in strategy assessment and advocacy.
    - Closer relationship between MEP Advisory Board and NIST Advisory Board (The Visiting Committee on Advanced Technology).
    - More frequent Board meetings and the use of subcommittees.
    - Applying more rigorous reviews of contract procedures.
    - Reallocating resources in order to provide more funding for the centers.
    - Completing the analysis of the cost-share requirement.

- Revision of reporting procedures to reduce the administrative burden on centers and on the MEP system as a whole.
- Broadening our relationships with stakeholders.
- Deepening our consultation with centers on Administrative matters.
- Close coordination with Administration priorities.

A preview of today's discussion and highlights of the previous year were discussed.

- In 2013, NIST MEP has made significant progress in the review of projects, and has identified additional funding that can be provided to the centers.
- NIST MEP has revised administrative procedures.
- NIST MEP has utilized the strategic planning process as a mechanism for deeper engagement with the stakeholder community.
- Regarding the specific external challenges, Dr. Singerman reports that with some optimism, there has been progress in their resolution, and it does not look as if NIST MEP will be affected negatively by any.
- NIST MEP has stepped forward into the light as a program that is continuing its tradition of periodic examination of its management practices.

NIST MEP FY 14 Budget Update

Speaker: Ron Gan

Ron Gan discussed the final 2014 final budget which restores the sequestration cuts that were imposed in FY13.

- NIST MEP is listed under the Industrial Technology Services (ITS) appropriation, which shows the restoration of funding back to the $128 Million level.
- NIST MEP is currently engaging the Administration and OMB in establishing the FY15 budget, and that information will be released in the near future. There is optimism that NIST MEP will see continued growth in the budget.
- With the FY14 budget, NIST MEP will have the opportunity to provide additional resources to the centers.
    - Strategic competitions are a small carryover from previous years.

The floor was then opened up for comments and questions around the budget.

Comments

- The goal is to provide as much money to the center base as possible, and the actions that NIST MEP has taken over the last year are reflective of that.
    - There are questions of whether we do this on a percentage basis, an equal-share basis, to what extent NIST MEP bases it on performance, to what extent Administration priorities are accounted for, to what extent does NIST MEP look to reset the funding levels for individual centers in accordance with overall importance of manufacturing to the nation's economy and innovation strategy, and to what extent are changes in the distribution of manufacturing activities across the country accounted for.
- This is the planned budget, and it is still at an early stage in the year.

- The level of tradeoff between centralized and decentralized support for centers has not been resolved.
    - This is complicated because it is not something NIST MEP has done system wide for several years.

Questions

Q: Where does the "America Makes" initiative funding fall in this budget?
A: It is not in our budget, it falls into the DOD budget.

Working with Industry to Promote U.S. Innovation and Industrial Competitiveness
Speaker: Roger Kilmer, Chief Manufacturing Officer, National Institute of Standards and Technology

Former NIST MEP Director Roger Kilmer gave a presentation which included an overview of the NIST agency as a whole, a look into the duties of his new position as Chief Manufacturing Officer at NIST, a view of what is happening in the labs at NIST, and a broad discussion of some of the other manufacturing activities that are occurring at NIST.

A brief discussion of NIST was provided.

- NIST is unique in that it has legislation which states to broadly serve industry. NIST is the only federal agency with such a broad mission statement.
    - The focus is on what measurement science really allows NIST to do this and go out and help companies.
    - NIST does not develop standards but focused on supporting the adoption of standards.
- NIST has two primary locations: Gaithersburg, MD, and Boulder, CO.
- NIST staff members often serve on and chair standards committees.
- The FY14 budget for NIST is $850 million, an increase over FY13, which emphasizes NISTs' importance in the Administration.
- When describing NIST, it typically broken down into four categories:
    - NIST Laboratories
    - Manufacturing Extension Partnership (MEP)
    - Advanced Manufacturing Partnership Office (AMPO)
        - Involved with both AMTECH and NNMI.
    - Baldrige Performance Excellence Program
        - In past year or two has gone from a federally funded program to a program that is funded entirely from the foundation through industry support.

Brief review of NIST Strategic Framework

- National Priorities
    - Advanced manufacturing
        - Multi-disciplined
        - NIST and nation as a whole need to rethink how we approach this

        - One of Mr. Kilmer's goals is to coordinate the activities of the NIST Labs with the needs of U.S. manufacturers
    - Cyber security
    - Advanced communications
    - Cyber-Physical Systems
    - Healthcare
    - Forensic science
    - Disaster relief
- Long-Term Trends
    - Biotechnology
    - Modeling and simulation
    - Big data
    - Systems engineering
    - In-place precision measurement

U.S. Innovation Agenda

- NIST wants to make sure that our programs are focused on what we "should do" rather than what we "could do" to strengthen U.S. manufacturing, new materials discovery and innovation.
- NIST supports technological innovation by providing multiple resources and connection points to identify, develop and adopt innovative technology.

NIST Programs Supporting Manufacturing

- There are many different programs at NIST that are designed to support manufacturing. A brief discussion about what they are and how they interrelate in moving technology from the labs into the manufacturing industry occurred.
- NIST Labs
    - Metrology and research
- AMTECH
    - Pre-competitive R&D
    - Consortium building
    - Helps with future forecasting needs of manufacturing
- NNMI
    - Applied R&D addressing scale-up
    - Most rapid growing federal initiative
    - Partnerships for technology development
    - Led by the White House and interagency Advanced Manufacturing National Program Office (AMNPO)
    - President proposed $1B, one-time funds to establish up to 15 institutes for manufacturing innovation
    - Awaiting Congressional authorization and appropriation
- MTAC
    - Supply chain technology development and adoption
- MEP
    - Regional partnerships for technology development and adoption

- Difficult challenge is how to get all these programs to operate and coordinate in a seamless fashion.

Mr. Kilmer also provided an overview of the duties of Chief Manufacturing Officer at NIST that includes looking at the new initiative funding and how to distribute that across the various advanced manufacturing programs at NIST. The goal is to make investments more strategic by developing a broader, overarching NIST strategy for advanced manufacturing, and going out and dealing with manufacturers. This involves providing representation of manufacturing related programs to external stakeholders, and coordinating high-profile manufacturing programs that span the mission and expertise of NIST laboratories.

Mr. Kilmer provided a broad discussion around other manufacturing activities occurring at NIST.

- National Cyber security Center of Excellence (NCCoE)
  - Public-private collaboration to design, implement, test, and demonstrate integrated cyber security solutions and promote their widespread adoption.
- Advanced Materials Center of Excellence
  - Awarded to new Center for Hierarchical Materials Design (CHiMaD) Consortium led by Northwestern.
  - Needs to function as an extension of NIST.
- Advanced manufacturing
  - Precision measurements
    - This program supports a new paradigm in self-calibration capabilities for U.S. manufacturers.
  - NIST-on-a-chip
    - An integrated program to develop and deploy SI-traceable measurements and physical standards.
  - Measurement science and standards to support emerging technologies in bio- and Nano-manufacturing
    - This program supports manufacturers in overcoming barriers to the high volume production of transformative materials and products based on emerging trends in nanotechnology and biotechnology.
  - Measurement science and data infrastructure for advanced materials
    - This program is focused on enabling and accelerating the creation and manufacture of innovative, advanced materials via the integration of modeling and simulation, experimental tools, and digital data/informatics.
  - Smart manufacturing
    - NIST work in this area will provide U.S. manufacturers with foundations for optimizing production and quality.
- High Impact Partnerships with Manufacturers
  - Electronics industry
  - Automotive industry
- Advanced Manufacturing Technology Consortia
  - Newly authorized program, includes:

- Planning awards: multi-sector consortia to develop a shared vision of industry's research needs via a technology roadmap. 2013: $4.5M for multiple planning awards.
- Implementation awards: larger awards to consortia to facilitate the realization of clearly stated long-term industry research needs. 2014: $15M.

A question and answer session was initiated to close out this presentation.

Q: Relative to cyber security, a lot of identified second sub tiered suppliers have threats. What does cyber security entail for SMEs? Where and how do we get engaged with someone who can provide a roadmap to ensure that our facilities are secure?
A: Honestly, do not know the specific avenue for the SMEs, what are mostly in NIST initiatives for cyber security now are vendors. These vendors are of the IT security systems and software that are going into that. I will mention that I had some interaction with Mike McGrath, who is pushing through NDIA, about the possibility of MEP being able to do some awareness connecting the cyber area to SMEs. It is something that is recognized, but do not have the perfect answer as of yet.
A: Had recent conversations with the team lead on cyber security at NIST this month, and they are aware of this and want to reach out to MEP to share the framework and get some feedback. We will follow up and help pursue that as well.

Q: What do you need as an SME to get by and what is your path to get there? We don't want to buy all new equipment such as servers, computers, etc. We would want to be proactive about this and move before we get there.
A: We will connect you with the center of excellence to better address this question.

Q: We do not often look back and say what did not work and how did we fail to transition in advanced technology relative to our peers overseas in a timely manner. Can you look back with your unique view point at that and say what strategically should we be doing differently?
A: There are a lot of impedance mismatches, between what the labs do and what their core skills and capabilities are. They are about research and about getting it to a certain point and MEP is clear on the other end. The gap in between is what we really need to focus on fixing.

Q: In regards to SMES, where does digital flexible manufacturing and the digital supply chain fit in the roadmap? This idea seems to be a huge possibility that MEP has kicked to the curb.
A: This is a hard nut that hasn't been cracked, and I think it will come in through the supply chain perspective. The supply chain perspective brings the OEM plus the important folks that go with it. It's there, front and center, just hasn't been completely figured out. It is a challenge that lies ahead.

Closing Comment from Phil Singerman

The connection to NIST throughout our strategic planning process is extremely important, in ways we have not previously thought about. One component of what Roger and his team are trying to do which connects with strategic planning is the attempt to connect industry needs to

the capabilities of the labs; this parallels to what we at NIST MEP are trying to do. There are also other things that Roger alluded to such as external grants, which provide fruitful sources of information about what kind of trends one can expect in the manufacturing and technology community that the MEP program can take into account as it works with its' clients. There is a much more powerful relationship than previously thought between the work that Roger is doing and the work of the MEP Advisory Board.

NIST MEP Strategic Planning Advisory Board Session

Opening Remarks
Speaker: Denny Dotson, Chair, NIST MEP Advisory Board

Mr. Dotson opened the NIST MEP strategic planning Advisory Board session by discussing his excitement in participating in the initiative. Mr. Dotson commended Mr. Kilmer on his presentation and the many steps he and his team are taking towards improving lab to firm technology transfers. Mr. Dotson closed his opening by praising the strategic planning process being used, explaining how it excels at connecting the SWOT analysis to specific strategic initiatives.

Overview of the Strategic Planning Process
Speakers: Gary Yakimov and Jeff Lucas, NIST MEP

Mr. Yakimov and Mr. Lucas kicked off the NIST MEP strategic planning and board discussion with a high level overview of what the process has entailed for the MEP team thus far.

- Completed many actions to date, including input sessions:
  - Center Advisory Group meetings
  - Advisory Board Subcommittee calls
  - NGA meeting
  - Association and Federal Agency meetings
  - Regional Center Board Chair calls
  - Environmental scanning
- High level timeline:
  - January – organize and prioritize inputs
  - January 27-29 – Advisory Board and System meeting
  - Feb-May – Build out full plan in consultation with subcommittee and other key stakeholders
    - Review of plan by Advisory Board
  - May-July – Action plan development and implementation
- What we have learned so far from data collection:
  - Calls with Center Board Chairs
    - Most significant challenges relate to policies/regulations or business climate vis-a-vis foreign competition.
    - State leaders respond to MEP centers' ability to increase tax base.
    - NIST MEP direction overly prescriptive and changeable, hard to know where target might be at any one point in time.

        - One thing that came up over and over again as an issue was workforce.
    - Center Workgroup for Reporting and Evaluation
        - There is plenty of support and opportunities out there.
        - Would like to be able to monetize initiatives.
        - Centers are having trouble figuring out how to create value with additive manufacturing.
        - Need to look at what MEP has failed at in the past.
        - Current engagement strategy is a huge improvement.
    - State Partners – NIST sponsored NGA Academy
        - The need to generate revenue is a barrier to being involved in broader conversations.
        - Suggested that centers need more flexibility.
        - Workforce development is most significant issue.
        - More communication would be helpful if purposeful and high quality.
    - Environmental Scanning
        - Reviewed many report summaries focused on opportunities and challenges for manufacturers.
        - Looked at manufacturing and non-manufacturing trends which might be impactful in the next 5 to 10 years.
    - Client Challenges
        - NIST MEP has a very rich data set, and one thing the organization asks in the survey is a question about what client's see as their 3 major challenges over the next 3 years.
        - Workforce has become the client challenge with the greatest growth over the past three years.
    - NAS Report on 21st century manufacturing
        - In the last MEP Advisory Board meeting, Chuck Wessner briefed the Board on the NAS report.
        - NIST MEP has read the report and management has discussed numerous ways to respond to the recommendations, and have acted on many.
        - NIST MEP will use findings as key inputs into our strategic planning effort.
        - NIST MEP will suggest clarifications to "Academies" to correct certain items from the report.
        - Moving forward, the Advisory Board will make a formal response in their Annual Report.
    - NAS Recommendations
        1. Focus more on driving the overall improvement of MEP centers rather than focusing on the outcomes of individual centers.
            - NIST MEP will address this through CORE, system meetings, center panel reviews, and state partnerships.
        2. Use resources to leverage max beneficial outcomes rather than reaching the max number of manufacturers.
            - NIST MEP will address this through strategic planning, CORE, client analysis, and business model research.
        3. Continue to encourage lean manufacturing.

        - NIST MEP will emphasize this through the adjustment of CORE impact metrics/center diagnostics, and lean integration.
    4. Continue Next Generation Strategy but address challenges inherent in its transition.
        - NIST MEP will address this with contracts review, peer working groups, strategic planning, and empowered Boards.
    5. Significantly improve its collection and analysis of performance data.
        - Something that NIST MEP has recognized for awhile
        - Research needs to be a service, rather than solely "performance reporting."
    6. Federal funding for the MEP program should be at a level commensurate with its mission, and take into account relevant international benchmarks.
        - NIST MEP will utilize the cost share recommendations, center re-application, center rebalancing, reducing the reporting burden and increased operational effectiveness to address this concern.
    7. Be more flexible in the management and funding of MEP centers.
        - This aligns with the Board's cost share recommendations of September 2013.
    8. Take into account lessons from U.S. and international best practice.
        - There will be increased MEP feedback on NIST 3 year plan (through the Advisory Board's annual report), and NIST MEP will continue to look at the overlap of Board membership on policy committees (e.g. Jeff Wilcox on DOC Manufacturing Council).
- NAS – next steps
    - Finalizing "program response" for consideration by Board
    - Incorporate into Strategic Planning
    - Will offer areas in which we disagree with facts presented or help to clarify some findings/recommendations to NAS authors.

Visioning Exercise
Speaker: Jeff Lucas, NIST MEP, and Mark Rice and Ned Hill, NIST MEP Advisory Board

Mr. Lucas started off the visioning exercise by giving an overview of chapter 4 from the Make it in America report about mainstream manufacturers. NIST MEP felt it was important to think through the higher level challenges facing SMEs involved in innovation. The report highlights that while many SMEs are innovating in the traditional sense, there are some other forms of innovation, such as repurposing materials and products, combining services into the manufacturing product, and contributing to the enabling of the innovation ecosystem, that should be considered.

This overview then gave way to an introduction to the visioning exercise by Mark Rice and Ned Hill that included the following observations:

- The industrial commons are not as strong in the U.S. as in other countries.
- We have to figure out a public-private partnership mechanism and how to optimize it like Germany and China.

    - Public-private partnerships are a way we can address disparities between U.S. and World manufacturing economies.
    - MEP can be central to the regional needs of the system through creating a central theme to unite the 60 disparate centers.
    - MEP should not be the controller, rather the convener.
    - MEP needs to help foster trust among collaborators.
    - The organization would benefit from getting skin in the game at all levels, and keeping that skin in the game.
    - How do we take NNMI and make it independent of any one organization?
- MEP needs to respond to the nations needs and increase its manufacturing competitiveness.
    - Our strategic partners are really the nation
    - We need to create a national vision of how important the MEP system is to U.S. manufacturing success
    - MEP should place more focus on development of an ecosystem, industrial commons, and clusters
    - MEP needs to focus on how to bring innovation to life in the U.S. economy.
- MEP has a very broad charge, which includes:
    - Transfer of manufacturing technology and techniques developed by the institute into the marketplace.
    - Broad participation from industry, universities, and state governments.
    - To make new manufacturing technology and processes usable by U.S. based SMEs.
    - Active dissemination of scientific, engineering, and technical management information and utilization, when appropriate, of the expertise and capabilities that exists in the federal labs.
- MEP does indeed have mission and vision statements which are listed under the NGS section on their website.
    - Job creation is explicitly mentioned, which is a challenge in this industry.
    - The time frames are missing from each of these statements, and time frame recognition is necessary to ensure a successful future.
- The three different time frames relevant to ensuring a successful future are:
    - How do you sell what you currently have, or current needs (0-3 years)
    - Improving the competitive assets you have (3-10 years)
    - How to create new assets (10 years +)
- Who are our strategic partners?
    - We have to identify stakeholders across the 3 different time frames.
    - We have to define what success is and success for whom.
    - We should determine what this looks like for the centers themselves.

The conversation shifted to focus on identifying MEP program stakeholders. These include:

- American manufacturing
- Small to midsized companies
- Congress
- NIST and Administration

- Centers and their boards and directors
- Large system integrators
- Associations that represent manufacturing
- The end customer/consumer
- States

The Board further discussed program stakeholders in terms of their connection to the MEP program.

- Starting from the vision and mission statement, the ultimate stakeholder is ensuring the future of American manufacturing, with a special emphasis on SMEs. This would also involve Congress, and NIST and the Administration as well.
- The vast majority of leaders in China and Germany are scientists/engineers, which is the opposite for the U.S. where we have a small number of STEM trained representatives. This is a weakness of our country and we need to educate our leaders. Would still say Congress is a stakeholder, just in a different sense.
- A question is whether our system is effective as compared to China or Germany.
    - Technology transfer is a missing element; the U.S. is competitive as a nation and not collaborative.
- What seems to be missing from our partners is the university research community. A lot of advanced manufacturing research is happening at the institutes, and we could use their voice.
- MEP needs to clarify the value of depth and technological innovation in labs and what MEP's role is in getting it out.
- We don't talk very often about the associations that represent the manufacturers. Those associations in every industry are much closer to that group of manufacturers than any single OEM.
- The charge/expectations from Congress revolve around jobs, yet nowhere in our stakeholders do we have workforce or people currently working in the industry, how does this fit in?
    - Production plants and digital plants salaries are continuing to rise; highest wages in foundry are in Germany, and as follows Germany has the highest foundry productivity.
    - Our system strength is that we get measureable outcomes that measure economic impacts, but we tend to avoid or miss out on measuring value.
    - We need to assess if manufacturers are getting the maximum value added per employee.
    - Shifting the measurement rubric from pure impact driven to a more value calculated or "ecosystem" type view may be an improvement.
    - This is a new and very appropriate measure, but how do you get this information?
    - Current set of impacts measures drive the immediate or short-term, The comments about measuring the added value of employees drives the intermediate, and shifting from a purely impact driven metric system to a more "ecosystem" approach is referring to the long term.
- Does anyone have any ideas on a mechanism to relate metrics of the system to the needs of the mid – long term stakeholders?

    - These time frames are difficult to measure, but would help assess whether MEP is addressing the total national need.
    - Metrics are always the hardest part of the conversation, but looking at communications may be promising; this is a metric associated with connectivity and transparency.
- Centers are not regionally agnostic, so as we are thinking about measurable outcomes, it seems that a set of qualitative statements about activity to promote a competitive ecosystem is the right way to go.
    - Centers have to place this in logic models that gets you from beginning to end that tell us how to strengthen current assets and create new assets.
    - Need to make the transference for universities, getting back to the land grant mission.
- As an SME, we are often involved in both legacy and new programs.
    - How do you connect all of the different channels of a business together so that you have an efficiently running model?
    - Stakeholders are different in each timeframe, and all have vested interests that have to be addressed.
- MEP's role is not to invent new technologies, but rather to help with the transfer of knowledge.
    - There is a constant cast of different stakeholders and metrics.
- NIST MEP should look at a metric measuring the use of university research. Using the number of initiatives that began as university research as a baseline is a good start.
    - The focus should be on commercializing university research, especially when universities would rather patent research than commercialize it. There is an opportunity to drive this backward and leverage universities as a resource.
    - If industry led, the speed to execution may increase.
        - Different metrics may help as well; maybe funds dedicated specifically to mid-long term issues.
        - Put knowledge dissemination and creation in 3 time frames too.
- Workforce development and difficulty retaining and working with local manufacturers are a part of the collaboration challenge.
- Metrics taken from the bottom up as opposed to top down may help; metrics developed by individual levels and moved up to the national level.

Question: What does success look like for the MEP system?

- If funding is steadily increasing, that is a sign of success.
- More collaboration versus individual goals would be a sign of success.
- MEP facilitates the resurgence of U.S. manufacturing (long term).
    - Driving U.S. resurgence back to the forefront of global manufacturing. Awareness is a part of this.
- Reduction in the deficit of the balance of trade and goods.
- Success is some metric of how much we are helping from year to year.
    - Starting point would be have you ever heard of MEP, and use this to foster some measure of how much we help.

- Success is indeed measured in dollars, but measuring the way in which centers are disseminating meaningful technology and information to manufacturing is also important.

Question: What outcomes will be needed to be produced by MEP centers to achieve this vision?

- MEP opening up to a global mindset.
- The collaboration of universities and labs, and MEP serving as a conduit to disseminate research.
- Increasing the number of manufacturers which have heard of their local MEP center and continuing that growth over time.
- Bottom up outcomes can help MEP achieve this vision.
- A standardized marketing approach may be beneficial to the entire system.
    - A branding issue has been going on for a long period of time now.
    - An outcome is the notion that there is a system; MEP should be branded along with the center.
    - With congress, the more national the more important.
- MEP should be seen as a dissemination conduit to the SME community; large OEMs are already doing it.
- Value has to be defined locally at the tactical level, but move up strategically.
- Workforce needs to be defined; what's the value around the quality and competence of the workforce.
- The number one stakeholder is Congress; we need both NIST MEP goals plus center goals met.
- Centers need fully engaged Board of Directors.
    - NIST MEP may need to look at board training sessions.

SWOT Discussions
Speaker: Jeff Lucas, NIST MEP

Mr. Lucas opened the SWOT discussions by giving a high level preview about what the process should look like and ways to think around where NIST MEP is going with the SWOT analysis. Mr. Lucas detailed the SWOT framework which was used during the session, and gave insight into the meaning of the SWOT process. He then moved into engaging the Advisory Board in the completion of a SWOT analysis, taking strategic responses from the Board members at the intersections of strengths and opportunities, weaknesses and opportunities, strengths and threats, and weaknesses and threats of the SWOT framework.

Strategic responses to the strengths and opportunities intersection:

- Utilize web-based delivery.
    - Can we do "lean 101" as a web-based delivery program at a low cost and have impact?
    - Possibly using the WebEx delivery platform as a collaboration model where we learn from each other.

- Use the three time frames; the short term would be delivery and process improvement advice, the mid-term would be product development and technology deployment, and the long term would be technology advocacy and involvement with SMEs.
- Work towards the mindset of being the "Google" of manufacturing as a branding initiative.
- Grow federal funding from other agencies.
- Develop tools to help states identify manufacturing growth and deploy manufacturing technology.
- Help with exports.
- Serve as the voice of small manufacturers with other stakeholders.
- Become a source of big data.
- Demonstrate the value of our metrics.
- Help SMEs take advantage of vertical integration; SMEs need to acquire the skills to do this and MEP needs to help.
- Educate SMEs on the resources available at the local, regional, and national level.

Strategic responses to the weaknesses and opportunities intersection:

- Look at adding metrics created by centers for their own market evaluation.
- Develop revenue sources from supply chain functions.
- Develop funding mechanisms for workforce intermediary functions.
- Develop explicit bonds with NNMI's and related consortia.
- Create a system brand and focus on brand and clarity in our communications.
- Crossing service delivery to micro firms is a weakness and opportunity.
- Support peer networks of manufacturers and manufacturer support organizations.
- Advocate for SMEs on a broader spectrum (non-political).
- Increase market and business development; right sizing it is an opportunity.
- Cast a national vision for the MEP system.
- Connect NIST labs to the MEP system.
- Evaluate centers on a total business plan metric system, not just delivery metrics. This includes evaluation of their Board, strategic plan, and linkage of their vision to that of the national systems'.
- Expand MEP's role as a collaborator.
- Educate parents of young adults about manufacturing and how it has changed.

Strategic responses to the strengths and threats intersection:

- Cost share is a strength. The tenure of centers and the need to re-compete are issues.
- Seems that the greatest threat is the lack of the right people; both centers and manufacturers. The MEP system needs better training, and should focus some training on advanced manufacturing.
- The MEP system needs to place more emphasis on exports.
- The MEP system needs to get better at selling the successes of the program.
- Move to the culture of a professional services firm instead of that of a contract service provider, and increase flexibility in offerings.

- The ability to respond to the immediate needs of manufacturing needs to be balanced between the short term and long term.
- Become more efficient in dealing with micro businesses.
- Consider using past and current clients in peer mentoring roles.
- Develop a common pool of talent to serve centers in areas where there are not enough resources to go around.
- Help companies implement a management system and scale their business services.

Strategic responses to the weaknesses and threats intersection:

- Uncertainty of budget and planning needs.
    - Partner with tier 1 companies to help create fiscal stability.
    - Help smaller companies develop capabilities to work with tier 1 companies.
- Loss and lack of state funding; create a system that allows centers to report to the state the benefit of the MEP center.
- Re-compete and raise the bar; present centers with more challenges to evaluate performance, not just metrics.
- Provide center leadership the opportunity to give input into what success or failure looks like for the system.
- Need for stronger succession planning & lead development.
- Better identify risks associated with SMEs.
- Develop an inclusive workforce strategy and get centers money for this.
- Our ability to develop a future focused manufacturing ecosystem is a weakness.
- We do not know whether our metric system is driving us toward the immediate or long term.
- We need to clearly articulate the role of MEP vis-à-vis other business assistance programs.

The SWOT discussions were ended with comments and questions.

Q: How will this affect the annual report?
A: The timing won't intersect; the focus of the annual report is around the Board activities in 2013.
A: Cost share will be included in the annual report. We will just touch on some introductory information about the strategic planning process in the annual report.

Q: Is the goal to have a draft strategic plan ready for the May meeting?
A: The draft plan should be ready long before then, the May meeting should be around final thoughts on where we (NIST MEP) are heading.

Q: What if we are successful in doubling/tripling our budget? Are we ready?
A: Realistically, if this happens it happens over multiple years. We have tried very hard to connect MEP centers with the existing and projected national networks, but the business models of those networks do not currently lend themselves to SMEs. National networks are driven by the mission goals of the DOE, DOA, etc. But, the institutes and networks still need to fulfill the intentions of the program as outlined in the design document that NIST has prepared.

Mr. Yakimov requested responses from the Advisory Board to one final question around strategic planning: When and how should the strategic plan be reviewed? How do your organizations do it?

- Annually, to evaluate what you do against the strategic plan. The process itself does not really change unless you deem something to be wrong with it.
- At a really strategic level, we review in the plan conjunction with the review of our employees once a year. Strategic plan also changes every time our sponsor does.
- Every year we do a two day review, every quarter a one day review.
- At the college, we review the strategic plan annually, but every 5 years a major redo occurs.
- We review annually to refresh, and every 3 years to make serious changes.
- We seriously review the plan annually, with a quarterly update review.

NIST MEP Update on Recent Board Recommendations

Opening Remarks
Speaker: Karen Lellock, NIST MEP

Ms. Lellock opened the discussion around providing updates to the recommendations the Advisory Board made to the MEP team back in June of 2013. The recommendations were initially addressed at the September 2013 Board meeting, and since that time additional progress was made. The specific recommendations that the Advisory Board was updated on were about the employee exchange program, the center advisory group, and the program evaluation and management process.

Employee Exchange Program
Speaker: Ron Gan, NIST MEP

Mr. Gan provided an update on the employee exchange program.

- The program will first be run as a pilot this year, and several centers have already been identified for the pilot.
- The program will foster better collaboration between NIST MEP and centers.
- Visits will be short in duration, with 3-4 sessions lasting approximately a week to ten days.
- People can work in different areas such as E3, reporting, evaluation, etc.
- Centers and NIST MEP would cover the individual labor costs; NIST MEP will consider supporting travel and accommodation costs.
- NIST staff to centers:
    - NIST staff will be newer members of the team.
    - The NIST MEP employee will visit a set of centers.
    - There will be a topical focus to the visits.
    - The employee will share information learned with the NIST MEP staff.

- The program will give NIST MEP a greater idea of what drives daily center activities.

- Center staff to NIST:
  - The program may involve multiple visits to NIST.
  - The program may use emerging leaders as candidates and tie this into the emerging leader's criteria.
  - There will be a topical focus and may help to develop national working groups.
  - The program will offer an in-depth understanding of NIST processes and organizations.

Questions

Q: Are there any federal sources of money for pilots like these?
A: Possibly downstream, we will look at it deeper.

Center Advisory Group
Speaker: Gary Yakimov, NIST MEP

Mr. Yakimov provided an overview around the purpose and intent of the center advisory group.

Purpose and intent of the center advisory group's efforts:

- Reduce center burden
- Increase center flexibility
- Better articulate program impacts, outputs, and outcomes
- Better inform national policy dialogue
- Maintain program integrity and credibility
- Gather center input as part of decision making process

Center advisory group membership information:

- Diverse in geography, business model, size, performance, funding, and experience.
- Made up of two center directors from each of the six different regions.
- Center workgroup process:
  - September 2013 – Meeting via web/phone
  - November 2013 – Individual center calls
  - December 2013 – Two day meeting
  - January 2014 – Reflection and comments at system meeting

Areas of focus of the center advisory group:

- Help with short-term improvements, as well as new approaches to reporting and evaluation
- Expanding the definition of manufacturing
- Changes to CORE
- Input into project coding
- Reduction of the reporting burden

- Data sharing between centers within MEIS
- Input into how and when to measure innovation projects

Feedback

Q: There are still some lessons learned from innovation experience, how do we include these in strategic planning?
A: The survey we currently have is necessary but not sufficient, but once we can build up more aggregate data we can look at more trended and group data. We would like to be cautious about moving too quickly, strategic planning needs to be addressed first.

Program Evaluation and Management
Speaker: Alex Folk, NIST MEP

Mr. Folk provided an update on program evaluation and management. MEP's aim is to codify, align, and integrate program evaluation with contract management.

- This makes sure that the baseline contract management procedure is consistent with the acquisitions management division requirements and regulations. This was put into place in October 2013.
- This process also integrates the contract management and program evaluation process.

When programmatically looking at either existing or future investments at the highest level, NIST MEP needs to be cognizant of a few factors. The following evaluation criteria outline those factors.

- Foundational review factors
    - Fit
        - Does the investment align with the MEP mission?
        - Is there a measured demand for resource or offering?
    - Value proposition
        - Does this investment serve a gap in existing capability or capacity?
        - What happens if we don't do it? What is the impact if ongoing?
    - Complexity
        - Is this proposed as a one-time effort or on-going level of effort?
        - What is the economy of scale benefit?
        - Can this work be done with internal resources?
        - Does this activity require specialized expertise or focused resources?
- Extension of existing work
    - Take into account historical experience with the contractor.
    - Assess the proposed period of performance.
        - How much skin do we put in the game early before we know the level of success?
    - Have to take the budget into account.
    - We then have to address if there is a transition strategy and a glide path to transitioning the investment to system sustainability.

Current evaluations and next steps

- Contract and program evaluations
  - NIM – complete – Dec 2013
  - IE – complete – Jan 2014
  - SSTI – draft – Jan 2014
  - ExporTech – draft- Jan 2014
  - TS/TDMI – complete – Sept 2013 – evaluating future activities
- Fully implement contract and performance protocols – Nov 2013
- Incorporate and align decision framework methodology with strategic planning activity
- Complete revision to evaluation methodology and implement – Feb 2014

Questions

Q: What is the status of the National Innovation Marketplace (NIM) and Innovation Engineering (IE)?
A: NIM is no longer accessible. The contractor decided to take the system down. IE is still facing some internal review.

Q: Are there feedback mechanisms for center directors to provide inputs into budget (in regards to projects)?
A: This is a great opportunity for us to improve the process in the future and make it more iterative. Going forward, there will be formal annual reviews of contracts with MEP, contractors, and centers.

General Board Discussion, Feedback, and Public Comments

Center Feedback

- What center directors really want is to focus on manufacturers and not be burdened with intensive reporting. We should focus on metrics that really matter to centers, and even consider this in strategic planning. Figure out what the metrics are, and let centers pick the top three or four that directly apply.
- Our center is viewed as the practical brand in our community.
  - Our future thinking looks at big picture trends in manufacturing and how that impacts our communities and clients.
- From a process standpoint, we can look at doing a better job of segmenting centers by the market that they are in (technology intensive, etc.).
  - This can help with the roll out of programs or projects.
  - There is strength in a highly distinct value proposition at the national level, but the demand is driven at the local level. Important to bring both those strengths together and balance them.

Board Final Comments

- Our suggestions were actually heard, written down, and acted upon, and I am grateful for that.

- Strategic planning is a really important exercise, and NIST MEP should give thought about your agency's plan, this helps with advocacy as you propagate your plan, garnering greater recognition.
- The strength of the system is in its A-political nature, and we should maintain this through each Administration.
- Our constituents are very connected with us, and share a passion. Small businesses go through a lot of what MEP does.
- We need to make sure we don't miss the long term vision throughout this process.
- Serving on this Board is a great privilege, and the receptiveness is appreciated.
- Staff of MEP is exceptional and very responsive to the board. The staff is very accepting of guidance, while still rejecting some thoughts (rightly).

Final Comments
Speaker: Phil Singerman

Dr. Singerman gave the last presentation of the day, presenting his final comments and sharing preliminary thoughts about the challenges and the tasks that MEP faces from a federal perspective in growing the program.

- The goal is to put the MEP program on a long-term sustainable basis by increasing program efficiency and effectiveness through administrative operations, cost share readjustment and increased funding for the program.
- The program is holding flat its head count, cutting down on administrative expenses, and currently reviewing contracts.
- A major question from the GAO research related to changing the cost share to a 1:1 ratio was that centers may feel less inclined to seek matching funds, states would reduce contributions, and the size of the program would decrease.
    - NIST MEP countered this by making a case that the argument that funding would decline was not logical and centers would not sit on their hands.
    - Experience shows that when states were made more aware of the centers importance, the support of centers increased by the state.
    - To grow the program we need to change the cost share.
    - NIST MEP is going to implement the cost share recommendation in conjunction with the strategic planning process, and a comprehensive center and system review.
- Economic development programs like MEP face a long-standing problem of having their funding levels plateau.
    - It has taken almost a decade to reach a stable budget that fully funds the program's activities for the year.
    - We tried to generate additional funding by creating something new in FY14, specifically with the MTAC program while looking for options to increase center base funding.
- When looking at the market penetration over the past 3 years and making reasonable assumptions, it is plausible to think that with modest increases in federal funding, MEP can reach the entire market with resulting impacts based upon documented experiences.
    - NIST MEP is already achieving significant market penetration.

- The program may even be underestimating the number of firms actually touched because we are using establishment data and not firm data.
- Our hypothetical budget mark is to double the funding for the program.
- Doubling the funds would give us almost complete market penetration over a 3 year period, which is a new argument the program is making.

- In order to achieve any of these goals, NIST MEP needs Administrative support and Congressional action.
- GAO analyzed MEP administrative expenses, reviewed our method for selecting centers, the age of our centers, and how funding is allocated among those centers.
  - Typically, we view the age of our centers as a strength because we are not like EDA and other federal agencies that start over every 3-5 years.
  - GAO found the current funding centers receive to be largely based on the funding a center received when it was initially created.
  - As a result of this, there is great variation with per SME funding to centers.
  - GAO identified this fact, and they argue that it should be a consideration when funding is allocated.
  - GAO will be issuing its report in March.
- Congress has taken interest in the age of the MEP centers.
  - Congress finds that there should be a planned renewal of the system triggered by the age of centers greater than 10 years.
  - Policymakers see MEP as an outlier in the federal grant structure when compared to other agencies.
  - We may be able to tie the center renewal process together with our argument for additional funding and cost share changes.
  - The process to get cost share relief may be complicated if we do not meet their requirements.
  - NIST MEP has thought about how to untie this knot.
    - The idea of running some pilot processes is being discussed.
    - MEP can provide a 5 year award reducing the annual renewal paperwork.
    - Reduce the number of panel reviews to one every third year.
    - Can reset funding levels to reflect national recognition of the importance of manufacturing.
    - Adjust for the regional distribution of manufacturing activities.
    - Further reduction and harmonization of reporting requirements.
    - This provides the opportunity to realign center activities with state economic development strategies resulting in increased state support.
- My hypothesis is that by doing this we can make a stronger argument for cost share to permanently move to 1:1 and to increase our funding.
  - By showing initiative here we will reflect well.
  - The pace and scope of this highly depends on the FY 15 budget.
- MEP needs to grow to survive; this is the manufacturing moment, which has brought about much more competition.
- This is not settled, and we will be discussing all facets of this over a period of time.

Next Meeting

The next advisory board meeting will be held on May 20, 2014.

Adjournment

With no further comments, Mr. Dotson adjourned the meeting.