MEP Advisory Board Meeting

Charleston, South Carolina

May 19, 2016

Welcome and Brief Introductions

Vickie Wessel, Advisory Board Chair

MEP Updates

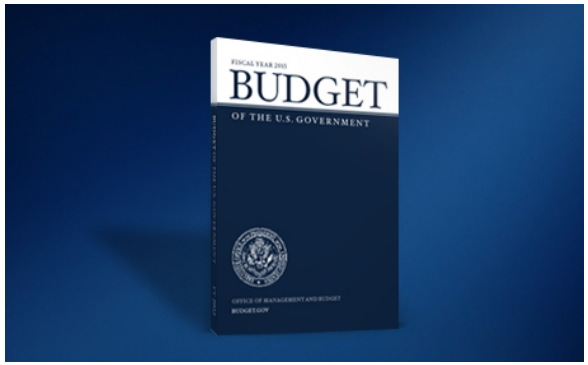
Carroll Thomas, NIST MEP Director

Topics

- Budget: Historical, FY16 Spend Plan and FY17 Anticipated Plan
- Proposed Legislation
- MEP Competition: To Date and Going Forward
- People: MEP Center and NIST MEP
- Strengthening the System
- Building Our Partnerships
- Building Our Value
- Building Our Brand
- MEP: Ready for Industry 4.0

MEP Program Funding History

	($ million)
FY 2011	$128.4
FY 2012	$128.4
FY 2013	$123.0
FY 2014	$128.0
FY 2015	$130.0
FY 2016	$130.0
FY2017 (President's request)	$142.0



NIST MEP FY 2016 Spend Plan

	($ million)
Appropriated Funds	$130.0
Centers Renewals and Additional Competition Funds	$109.4
MEP System Support/Staff/Overhead	$ 20.6
Total Planned Expenditures	$130.0

FY 17 President's Budget for the Hollings Manufacturing Extension Partnership (+$11.1 M)

- **Complete the recompetition of national MEP centers**
  - Enhance local flexibility and increase accountability
- **Provide MEP centers with greater capability**
  - Better serve very small, rural, and start-up companies
- **Expand efforts to transfer federally funded technologies**
  - Better reach smaller manufacturers
  - Connect manufacturers with business opportunities

- Increase Requested:
- To provide additional manufacturers with tools needed to respond to the rapid technology change
  - **12 M** Americans employed in manufacturing jobs
  - **12.5%** manufacturing's contribution to the GDP
  - **58**MEP centers nationwide
  - **1,200** MEP technical experts solving manufacturers' challenges
  - **29,101** served by MEP centers in FY 2015

MEP Improvement Act- Draft

- **Permanently adjust the federal MEP cost share to one-to-one.**
- Strengthen and clarify the MEP Center review process and require re-competition of MEP Center awards every 10 years.
- Authorize MEP Centers to support the development of manufacturing-related apprenticeship, internship and industry-recognized certification programs.
- Increase the MEP program authorization level to $260 million per year through 2020.
- Require the MEP program to develop open-access resources describing best practices for America's small manufacturers.

Competition Status

Round 1 Competition of 10 states: *complete!*	• CO, CT, IN, MI, NC, NH, OR, TN, TX, VA • Start date July 1, 2015
Round 2 Competition in 12 states: *complete!*	• AK, ID, IL, MN, NJ, NY, (OH*), OK, (UT*), WA, WV, WI • Start date January 1, 2016
Round 3 Competition in 13 states: *in process*	• AL, AR, CA, GA, LA, MA, MO, MT, OH, PA, PR, UT, VT • Start date October 1, 2016 (reviewing proposals)
Round 4 Competition in 11 states: *in development*	• DE, HI, IA, KS, ME, MS, NM, NV, ND, SC, WY • Planned start date April 1, 2017 (FFO release o/a July 1, 2016)

Some Early Observations: Round 1 Awards

- Increased focus on very small and rural manufacturers (60%)
- New resources in many centers aimed at workforce development – connecting with additional partners (80%)
- Increased focus on a growth framework in working with companies (80%)
- New technology acceleration/ NNMI partnering activities (60%)

Leadership Changes at Centers Since Sept

- Dave Garafano – Center Director, RevAZ
- Chuck Spangler – Center Director, SCMEP
- Jennifer Hagan-Dier – Center Director, TNCIS
  Returning from maternity leave
- Dan Manetta – Center Director, IMC (PA)
- Bob Bengel retiring at end of June – Center Director, NWIRC (PA)

GET TO KNOW MEP

MEP • MANUFACTURING EXTENSION PARTNERSHIP

New Hires:

- Deputy Director—**Dave Cranmer**
- Executive Officer—**Chancy Lyford**
- Center Operations—**Margy Phillips**
- Regional Manager, Mid-Atlantic—**Jeff Lucas**
- Regional Manager, Southeast—**Jose Colucci**
- Events and Board Specialist—**Cheryl Gendron**

On Detail:

- **Mike Simpson**—NIST/AMNPO
- **Kari Reidy**—NIST/CLA
- **Sunni Massey**—OMB
- **Heidi Sheppard**—NEA

MEP DIRECTOR
Carroll Thomas

Provides overall leadership and direction.

Deputy Director
Dave Cranmer

Serves as the focal point for MEP interactions with NIST on MEP program operational matters.

Administration and Finance

Provides oversight of administrative, IT, panel reviews and financial activities.

Chancy Lyford, Executive Officer


Monica Claussen


Melissa Davis


Tony Gomez

Autumn Hernandez


Kathy Martin


Justin Mocca


Michele Montgomery


Megan Spangler

Center Operations

Oversees the use of federal funds awarded through MEP center cooperative agreements and grants.

Margy Phillips, Director


Mellissa Ayala


Nadine DeJesus


Diane Henderson


Jennifer Leon


Sunni Massey


Gloria Solomon


Hope Snowden

Partnerships and Program Development

Develops and maintains programs that will help MEP centers improve/further/enhance/leverage the services they offer. Work with MEP centers to foster partnerships with federal, state, and local partners.

Mark Troppe, Director


Clara Asmail

Megean Blum


Samm Bowman


Mary Ann Pacelli


Mark Schmit


Heidi Sheppard


David Stieren


Ben Vickery

System Operations

Helps MEP centers identify opportunities for serving manufacturers. Regional managers serve as primary points of contact with MEP Centers.

Mike Simpson, Director


Beth Colbert


Doug Devereaux

Jose Colucci


Brian Lagas


Wiza Lequin

Jeff Lucas

Carol Shibley


Dileep Thatte


Gary Thompson


Phillip Wadsworth


Tab Wilkins

Communications

Manages public outreach and internal and external communications.

Zarra Brunner, Acting Manager


Nicole Ausherman


Cindy Orellana Good

Cheryl Grendon

Manufacturing Policy and Research

Conducts performance evaluations for the MEP center system and facilitates reporting of MEP performance data.

Ken Voytek, Acting Manager


Kim Coffman

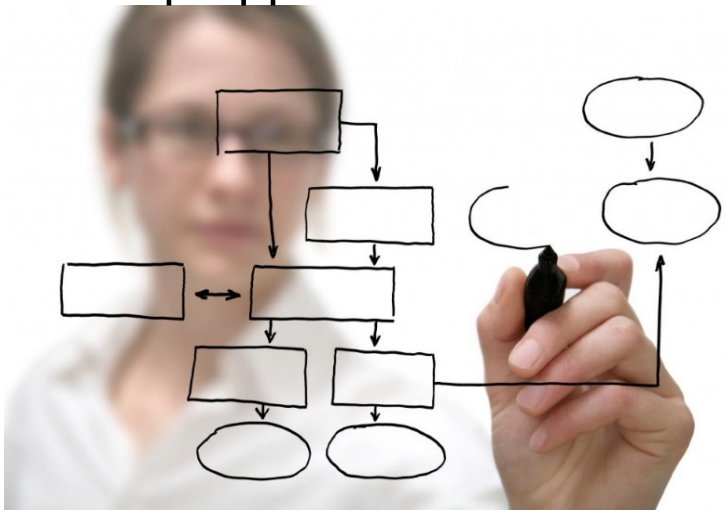

Holly Jackson


Dede McMahon


Nico Thomas

Proposed NIST MEP Re-Alignment

- A structure designed to better support the goals and strategic objectives of the program.
- A new reporting structure to optimize the flow of information for efficient decision making
- Staff requested new management and leadership opportunities.

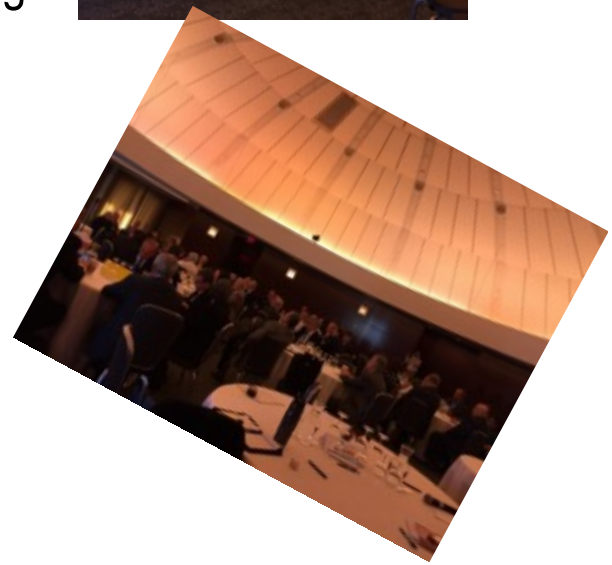


Board Updates

Center Board Distinctive Practice Meeting, DC

Roundtable Discussions:

- Sharing and Networking
- Top Challenges Facing Boards
- Board Recruitment
- Board Assessment
- Voice of and for Manufacturing



NIST Director's Charge to Board

Provide guidance on the following:

- MEP 2017-2022 Strategic Plan
- Connecting user facilities, research and technologies at NIST and other federal laboratories with small and mid-sized manufacturers
- Establishment of an MEP Learning Organization

Strengthening the System

- Performance-Based Rolling FFO
- Data As A Service (DaaS)
- Utilizing Technology
- Financial Management Analysis Project
- Performance Management Policy
- 2017 Summit

Preparing a New Rolling FFO

- Performance-based opportunity in key areas
- Open throughout the fiscal year to proposals from MEP Centers
- Utilizing supplemental funding
- No cost share
- Intended to incentivize broader reach to more small and medium size manufacturers
- Anticipated release for October 2016

Data As A Service (DaaS)

- Building out this service to include data and analytical support using both NIST MEP and external data sources.
- Supports both Center and internal NIST MEP research and analysis.
- Work to date includes:
  - **Industry Profiles (using NIST MEP data)**
  - **Center Cohort Analysis Tool**
  - **EMSI and other analysis tools**

- Future work to include access to a library of Industry Studies from IBISWorld and work with Chief Data Scientist to develop profiles of manufacturers likely to become MEP clients.

Utilizing Technology: Going Mobile

- Internal MEP team exploring the opportunity to expand the organizations' technical assistance offerings
- In leveraging mobile technology, MEP is looking to efficiently serve more clients through:
  - Improving the sharing of information across the MEP network
  - Enhancing data collection and use to better assist field staff delivering services

MEP Financial Management Analysis Project

Do you know what these Center Directors have in common with each other?

They've participated in the pilot project and a few are going to share with you!!









Performance Management Policy

Annual Review/Operating Outcomes/Performance Measures/Other information (Qualitative/Quantitative)

Information Gathered Here Used to Identify Key Areas of Need to Target Assistance to Improve Performance

Panel Review/Annual Reviews/Performance Measures/Operating Outcome/Other Information (Quantitative/Qualitative)

Information Gathered Here Used to Identify Key Areas of Need to Target Assistance to Improve Performance and Build System Distinctive Practices

Decision Point: Information in blocks 1 & 2 help to determine type of center support needed; progress reported on identified deficient items and recommendation provided by RM with input from Panel Chair and FPO support decision to Renew or Compete

MEP National Summit: 2017

2nd or 3rd week in June (with end of April as back up)

Estimating ~600 attendees

Milwaukee, Minneapolis, Denver, or Dallas

Three Tracks

- **M**: Manufacturing Technology Services; Manufacturing Trends
- **E**: Extension Services/Consulting; Distinctive Practices
- **P**: Partnerships at all Levels; the ROI in Collaborating

Building Our Partnerships

- MOU
- State Relations
- Partnerships through embedded NIST MEP staff

New MOU and State Relations Developments

- **MOU signed—**The Department of Commerce (DOC) and Department of Energy (DOE) signed an MOU
  - **Encouraging collaboration** between the NIST MEP program and a variety of DOE Labs.
  - **Collaborations in progress**: Cyclotron Road, Lab-Corps
  - **Small Business Vouchers**, and Technologist-in-Residence are showing a trend towards doubling of economic impacts for the Lab Impact Initiative.
- **State Relations—**New five-year cooperative agreement to SSTI and CREC last week.

Partnerships Through Detail Assignments

- **Mike Simpson**—NIST/AMNPO
  - Competition Manager for NIST Institutes
- **Kari Reidy**—NIST/CLA
  - Legislative Liaison
- **Sunni Massey**—OMB
  - OMB Intern
- **Heidi Sheppard**—NEA
  - Project Manager

Building Our Value

- Embedding in NNMI
- Tech Connector
- Working w/Startups & Very Small Mfgs
- Workforce
- MTAC
- B2B
- FSMA
- ExporTech

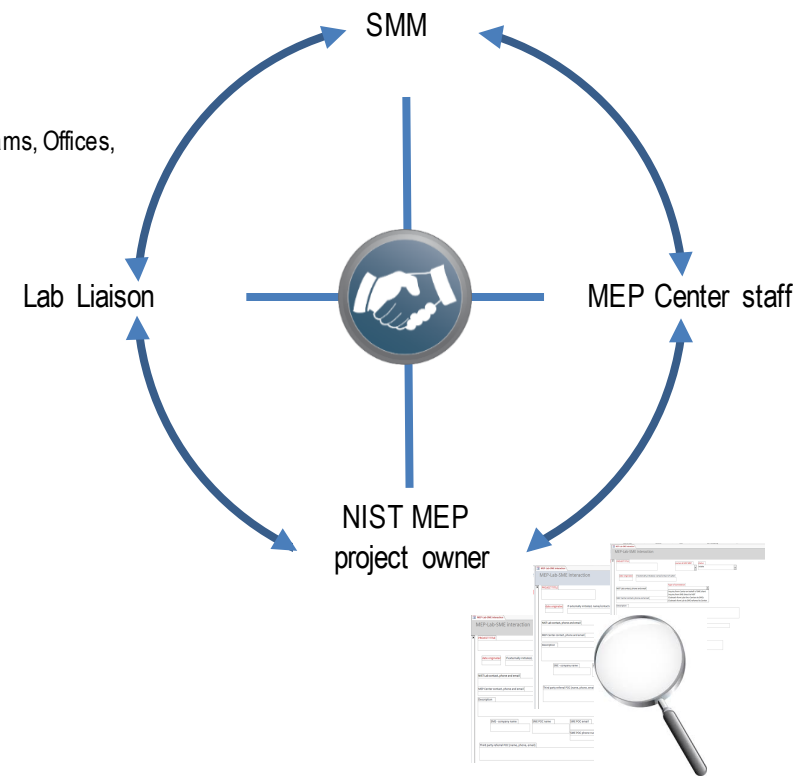
NNMI Embedding

Current FFO provides NIST MEP funding resources to facilitate expanded collaborations involving the NNMI Institutes and MEP Centers

- Purpose: To enhance the scale of Institute impacts on small U.S. manufacturers by ***conducting new pilot projects*** that ***broaden and deepen engagements*** involving NNMI Institutes and MEP Centers
- Funding between $300,000 and $600,000 per year, or total federal funding between $600,000 and $1,200,000 over two years.
- Approximately $7,000,000 in total federal funding available for awards.

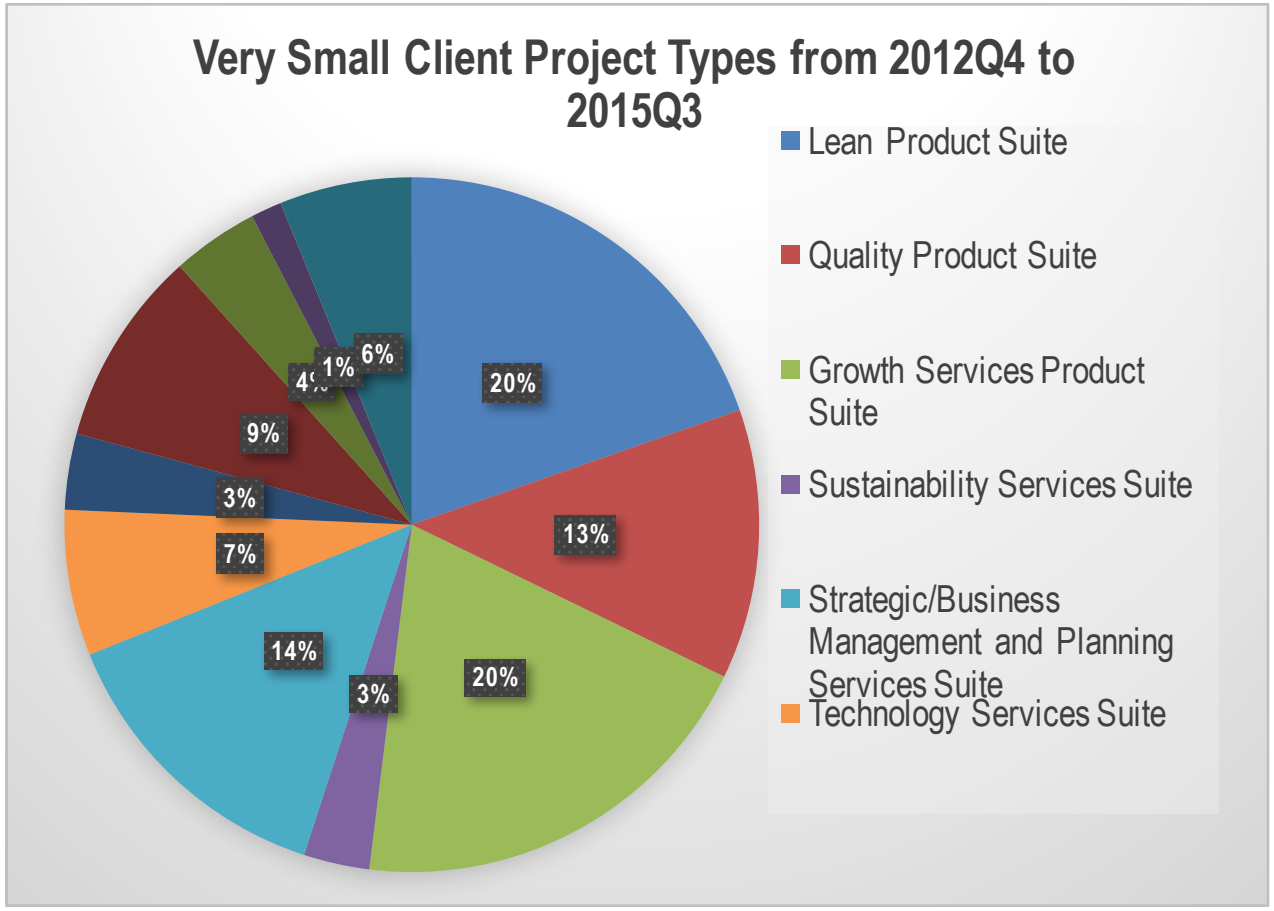
Technology Acceleration Connector Protocol

NIST
Laboratory Programs, Offices, Centers and User Facilities



- More formally connect MEP and NIST Labs
- Track the flow of requests
- Understand the volume
- Learn about best ways to assist

Start Ups, Rural, Very Small Manufacturers



White House National Week of Making June 17 – 23, 2016

- **Maker to Manufacturer event, June 21, 2016**
- **MEP Commitments**
  - Design for Manufacturability in the U. S.
  - Connect Makers to Short-Run Mfgs
- **Build up to Manufacturing Day events**

Workforce Development

MEPs and Workforce

MFG DAY

dream it. DO IT.™

Workforce Collaborations

WIOA Partnerships
Career Pathways
Certificates
Apprenticeships

Client Growth through Workforce Development

Management and Supervisor Development
Recruitment Assistance
Organizational Development
Training Plans and Implementation

Future Pipeline

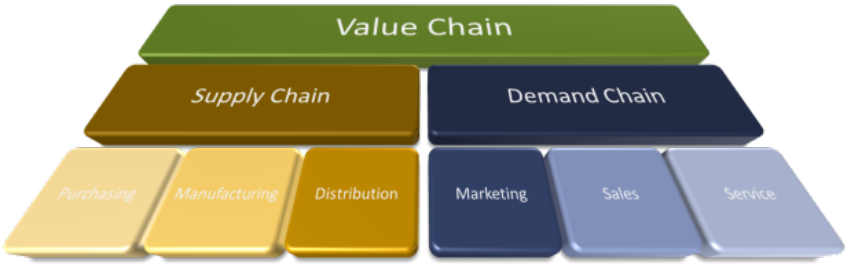
Video Contests
Robot Contest

M-TACs

MEP funded pilot projects to:

- Explore approaches to MEP technology acceleration assistance for small U.S. manufacturers –within the context of specific supply chains
- Five awardees received $500,000 for a two-year project in 2014-2015.

B2B Pilots

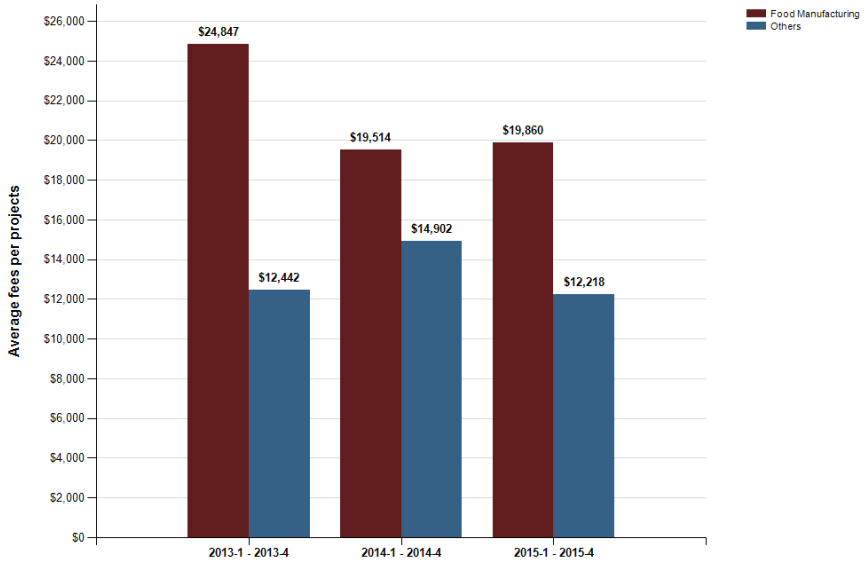


MEP funded pilot projects to:

- Develop, deploy and maintain a Business-to-Business (B2B) Network to support active business opportunity, supplier, technology and / or market matching within regions.
- Ten awardees received $250,000 for a two-year project with a start date of 12/1/14.

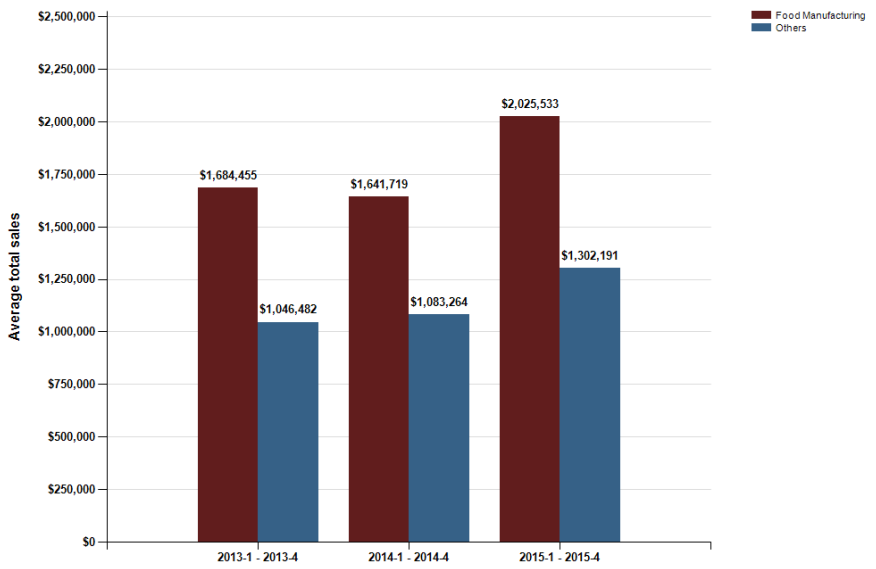
FSMA Projects : Average Total Fees and Sales Impact (New and Retained) Food Manufacturing Vs All Others (2013-1 to 2015-4)

Average Fees Per Project
Food Manufacturing Vs All Others (2013-1 - 2015-4)



NIST MEP MEIS Client/Project Information data. Food Manufacturing data based on 2670 projects.

Average Total Sales Impact (New and Retained)
Food Manufacturing Vs All Others (2013-1 to 2015-4)



NIST MEP Client Impact Survey. Food Manufacturing data based on 1240 client surveys.

News Flash

FSMA Projects On Average Have Higher Total Fees and Sales Impact !

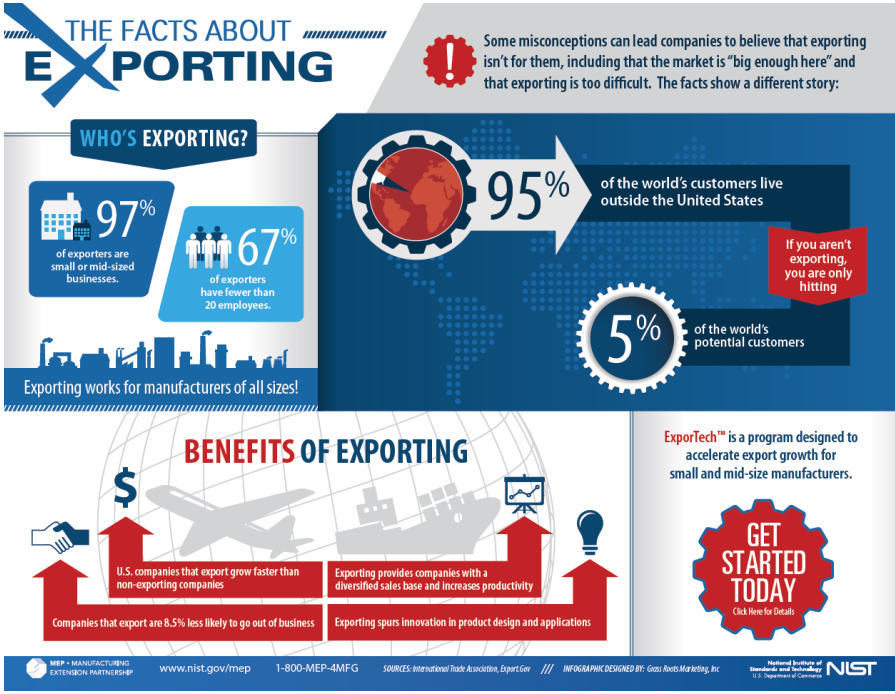
Data and Info about ExporTech (2006 – 2014):

Since 2006 overall stats include:

- 114 ExporTech sessions
- 29 states have completed an ExporTech program
- 619 clients have completed the program
- 6 centers are self-sufficient in running program

Average impacts:

- $770,000 average sales increase / retention per company
- $50,000 average cost and investment savings per company
- $400 Million in total program sales (new / retained) to date
- $12,000 average follow-on sales for centers per client



Building Our Voice

- Building our Brand
- Social Media
- MFG Day 2016

Building the MEP National Network Brand

WHY

- Need consistency of messaging
- Need clear brand meaning
- 75% CENTERS want national brand recognition
- Continuity of strategic alignment
- Reach more manufacturers and deliver on mission

WHAT: *Building a brand identity/image for the MEP National Network*

to increase:

- national awareness and reach
- customer success / focus

and build:

- stronger, more effective alliances
- culture of value creation
- national brand curriculum

WHO: Everyone in the MEP National Network Value Chain.

Delivering superior customer value = Working together to create and enhance the value of the MEP National Network

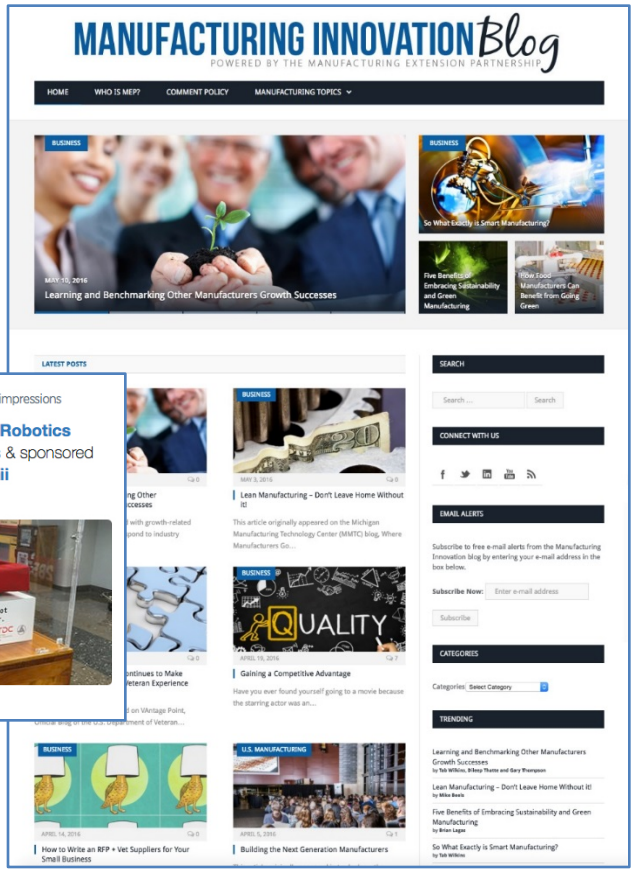
We hear you:

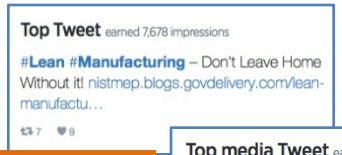
- Mixed feelings towards branding efforts
- Strict branding boundaries and alignment
- Legacy Centers

We will coordinate with center representatives and look at entire value chain of the MEP National Network to understand the needs, restrictions and gaps in order to identify value opportunities for the entire system.

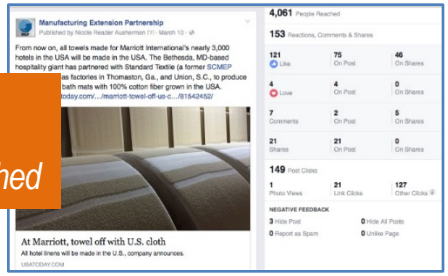
MEP Social Media Prowess

- Manufacturing Innovation Blog: *14,223 Subscribers*
- Facebook: *8,390 Likes*
- Twitter: *4,198 Followers*
- LinkedIn: *1,023 Members*





66.1K *Tweet Impressions*



5,498 *People Reached*

MANUFACTURING DAY 2016

MFG DAY | MANUFACTURING DAY | 10.07.16
See Manufacturing in Action Across America

2016 Goals

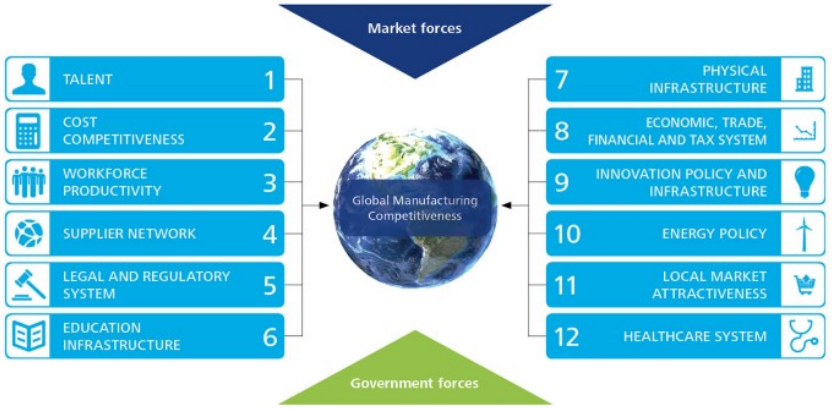
- 3,000 registered events
- 500k+ participants, especially students
- Continued positive trends in perception

Vision: MEP Ready to Enable Industry 4.0

Highlights from Deloitte/Council on Competitiveness 2016 Global Manufacturing Competitiveness Index (GMCI)

Study found top major determinants of global manufacturing competitiveness:

1. **Talent**
2. **Cost competitiveness**
3. **Workforce productivity**
4. **Supplier network**



Source: Deloitte Touche Tohmatsu Limited and US Council on Competitiveness, 2016 Global manufacturing competitiveness index

Industry 4.0: Unlocking Future Competitiveness

CEOs say- *"Advanced manufacturing technologies are key to unlocking future competitiveness."*

As the digital and physical worlds converge within manufacturing, the path to manufacturing competitiveness is through advanced technolo

Predictive Analytics,
Internet-of-Things (IoT),
Smart Products and Smart Factories
Advanced Materials

Enabling Industry 4.0—We will change the way the world defines manufacturing

We must expand and strengthen our system capabilities-- to a level that will allow us through **the power of technology and partnerships to advance and transform U.S. manufacturing**

*We must guide our clients through the maze of new technologies, help them build capabilities, make important connections for them—**be the beacon to the future of manufacturing.***

MORNING BREAK

Strategic Planning

Vickie Wessel and Dave Cranmer

Where We've Been

- System evolution 1989-2008
- Prior Strategic Plans
  - 2008-2014 Next Generation Strategies
  - 2014-2017 Four Strategic Goals
- But first…

Let's Start with a Basic Question: What Strategy is *not*…

Strategy as Aspiration

-"Our strategy is to be number #1 or #2"

-"Our strategy is to reach $5.0 billion by 2020"

Strategy as Action

-"Our strategy is to merge…"

-"Our strategy is to acquire…"

Strategy as Vision

-"Our strategy is to become the undisputed world leader in …

Strategy as Operational Improvement

-"Our strategy is to match our competitors…"

What then is Strategy?

- Strategy is a **plan** that creates and maintains **superior long term return on investment (value capture)**
- The content of strategy includes the decision on **competitive positioning (value creation)**, **value chain configuration (value delivery)**, choosing what ***NOT*** to do, resource allocation, organizational infrastructure, and continuity.

MEP Program Maturity

Achieve National Coverage

- Building partnerships
- Establishing presence
- Identifying partners
- Building components
- Meeting needs

"foundation building"

1989 – 1996

Optimize Center & System Performance

- Building capacity
- Increasing efficiency and effectiveness
- Stabilizing resources
- Integrating systems

"transitioning to high performance"

1996 – 2003 – 2005

Deliver Higher Value-Added Services

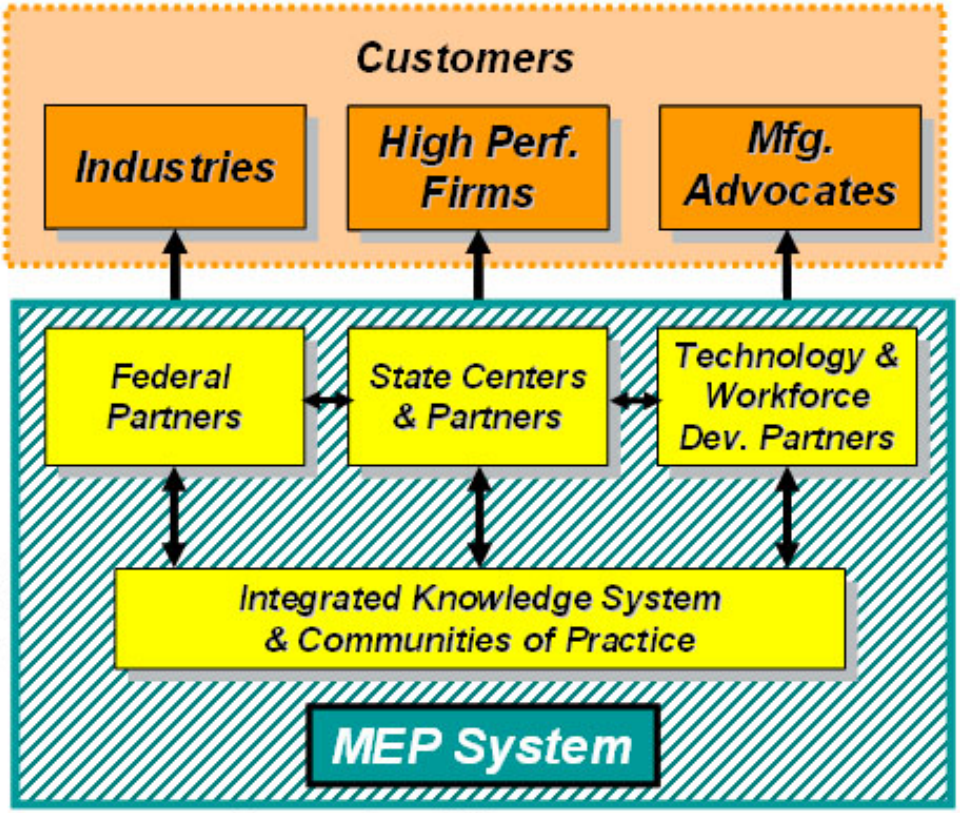
- Innovation for "world-class" companies
- Enterprise-wide supply chain integration
- Exploiting national presence

"delivering high value"

2005 – 2006

MEP Program Evolution: The Next Generation

MEP Strategy



Leverage Local-National Model:
- Local Leadership
- Business and Technology Advisors
- Training & Education
- Technology Capacity
- Speed to Market

Focus on Innovation:
- Transformation & Innovation Models
- Industry Knowledge Base
- Technology into Application

Increase Capabilities:
- Leveraging Information & Knowledge
- Leveraging Strategic Partnerships
- Product, Service & Staff Development

2008-2014 Next Generation Strategies

- **Vision**
  - MEP is the focal point of American manufacturing, accelerating the ongoing transformation of manufacturing into a more efficient and powerful engine of innovation driving economic growth and job creation.

- **Mission**
  - To serve as the voice of industry, as an expert advisor for manufacturing growth, and as the key connector of manufacturers, federal and state governments, private sector resources, research laboratories and educational communities.

Background and Status of MEP Strategic Planning Process

1. June 2013: NIST Director Gallagher charged the Advisory Board to … provide guidance for a strategic planning process

2. Sep 2013: After completion of cost share study and presentation of NAS report to Advisory Board, strategic planning process begins under direction of G. Yakimov and J. Lucas, with guidance from Board Committee of the Whole chaired by D. Dotson

3. Jan 2014: Detailed presentation and visioning exercise presented to the Board and discussed with Centers at Charlotte meeting – extensive outreach work conducted in Spring 2014

4. May 2014: Goals and strategic objectives reviewed and approved by the Board

5. Sep 2014: Draft implementation plan presented to the Board; NIST Director May charges Advisory Board to address NIST MEP connections; two Board Committees formed – tech acceleration and board governance

6. Fall 2014 – Finalization of implementation plan put on hold pending completion of first round of recompetition process, selection of permanent MEP Director

Strategic Plan Update (May 2014)

Strategic Goal: Enhance the Economic Competitiveness of U.S. Manufacturers (Enhance Competitiveness)

Strategic Objective: Deliver services that create value for all manufacturers, particularly focusing on small and mid-sized manufacturers ("SME's")

Increased focus on SME's is a major goal of the recompetition; permanently adjusting the cost share to 1:1 will provide Centers with flexibility to work with SME's

Strategic Objective: Enable centers to make new manufacturing technology, techniques and practices usable by U.S. based SME's

MEP Advisory Board Committee on Technology Acceleration has developed a detailed action plan for review by the Board in May 2015

Strategic Objective: Develop "Data as a Service" for Competitive Advantage

Extensive development and piloting of industry profiles, center "cohort" benchmarking (e.g., by organization type, size, region), mapping of industries and clients

Strategic Plan Update

Strategic Goal: Serve as a Voice to and a Voice for Manufacturing (Champion Manufacturing)

<u>Strategic Objective:</u> Champion the importance of SME's and ensure their inclusion in the economic competitiveness policies and programs of the U.S. government.

Active participation in White House led initiatives in supply chain, NNMI, workforce

<u>Strategic Objective:</u> Increase the role of national and center boards

MEP Advisory Board Committee on Board Governance and Distinctive Practices has developed a detailed action plan for review by the Board in May 2015

MEP Advisory Board Committee on Technology Acceleration has developed a detailed action plan for review by the Board in May 2015

Strategic Plan Update

Strategic Goal: Support National, State and Regional Manufacturing Eco-Systems and Partnerships (Support Partnerships)

<u>Strategic Objective:</u> Provide centers with local flexibility and adaptability to operate based on regional priorities and client needs.

Recompetition provides centers with the opportunity to align their strategies with their regional partners; permanently adjusting the cost share to 1:1 will provide Centers with flexibility to more actively participate in regional initiatives

<u>Strategic Objective:</u> Support national policy goals

Leveraging on-going work at the center level in workforce, supply chain, technology transfer; identifying national opportunities I n defense adjustment, "maker movement"

Strategic Plan Update

Strategic Goal: Develop MEP's capabilities as a learning organization and high performance system (Develop Capabilities)

Strategic Objective: Promote system learning

Restructure system meetings to encourage/facilitate center-to-center interaction
Reinstate national conference in 2016/2017

Strategic Objective: Evolve MEP performance system

Continued emphasis on reporting on system-wide impacts
Recompetition provides opportunity to adjust measures of regional value creation and allow "center-specific" metrics

Strategic Objective: Continue administrative reform

Center reporting burden has been reduced for current centers and recompeted centers
Increased attention to financial reporting and compliance
Improved timeliness of grant processing procedures

Manufacturing Extension Partnership (MEP) System Strategic Plan 2014-2017

MISSION

To enhance the productivity and technological performance of U.S. manufacturing.

ROLE

MEP 's state and regional centers facilitate and accelerate the transfer of manufacturing technology in partnership with industry, universities and educational institutions, state governments, and NIST and other federal research laboratories and agencies.

PROGRAMMATIC STRENGTHS

National Program with at least one center in every state.

Federal/State, public-private partnership with local flexibility.

Cost share policy that matches federal investments with state and private sector investments.

Market driven program that responds to the needs of private sector manufacturers.

Leverage partnering expertise as strategic advantage.

Local knowledge of, focus on, and access to manufacturers.

Manufacturing Extension Partnership (MEP) System Strategic Plan 2014-2017

ENHANCE COMPETITIVENESS

Enhance the competitiveness of U.S. manufacturers, with particular focus on small and medium-sized companies.

CHAMPION MANUFACTURING

Serve as a voice to and a voice for manufacturers in engaging policy makers, stakeholders, and clients.

SUPPORT PARTNERSHIPS

Support national, state, and regional manufacturing eco-systems and partnerships.

DEVELOP CAPABILITIES

Develop MEP's capabilities as a learning organization and high performance system.

Feedback

- Center Board Chairs
- Center Directors
- Manufacturing Associations

Moving to Implementation Planning

- At May meeting we would like to spend the bulk of our discussion getting your input on potential strategies for achieving some key objectives

- Think ahead questions on following slides

Strategies to Achieve Objectives

GOAL: Enhance the competitiveness of U.S. manufacturers, with particular focus on small and medium-sized companies

"How can the MEP system enable centers to make new manufacturing technologies usable by U.S. based small and mid-sized companies?" (Helpful hint: Consider sub-bullets such as working with federal research facilities, educational institutions, research consortia, non-traditional resources, technology road mapping, etc.)

Strategies to Achieve Objectives

GOAL: Support national, state, and regional manufacturing eco-systems and partnerships

"How can the MEP system support workforce development and human capital through partnerships with existing organizations while leveraging the manufacturing expertise within MEP centers?"

Strategies to Achieve Objectives

GOAL: Serve as a voice to and voice for manufacturers to engage policy makers, stakeholders, and clients

"How might we increase the connectivity between the National and center boards and help board members at all levels become greater advocates for manufacturing?"

Strategies to Achieve Objectives

GOAL: Develop MEP's capabilities as a high-performance system and learning organization

"As we evolve the MEP performance system, how can we best implement a process that allows for the identification of center-specific metrics, and what might be quantitative metrics for rewarding centers for regional economic value creation (beyond client specific impacts.)

Strategies to Achieve Objectives

- GOAL: Develop MEP's capabilities as a learning organization and high performance system

- "How can the MEP system increase its capabilities as a learning organization?"

Today

- New MEP Director is in place
- First (and second) rounds of re-compete are in place
- Third round of re-compete in process
- Fourth round of re-compete is scheduled to start in July

NOW WHAT?

At the March 2016 NAB meeting, the Board received a charge from NIST Director May regarding the strategic plan

Reengaging senior management to provide guidance and advice to create the 2017-2022 Strategic Plan

- MEP began development of a strategic planning process in fall, 2012, and has developed a Strategic Framework which now needs to support the vision that the Director has for the Program.

- Taking the next step of completing a 3-year strategic plan will aid in preparing the MEP Program for the next Administration, which will take office in January 2017.

The Board is requested to provide guidance to the MEP Program on the completion of a system-wide strategic planning process that would engage all stakeholders.

MEP Mission: Enhance the productivity and technological performance of U.S. Manufacturing

What is Vision?

- Vision is the leader's idea of the future—an image of the potential future state.
- To bring the vision to life we analyze the present as it is and form a plan with goals that help us pave the way to the future.

Strategic Goals

Enhance Competitiveness
Champion Manufacturing
Develop Capabilities
Support Partnerships

An exciting time to be in manufacturing!?

The Third Industrial Revolution:
The digitization of manufacturing will transform the way goods are made. *The Economist April, 2012*

"We're on the verge of a complete new era in manufacturing"
Industry Week August 2014

There is nothing more difficult to take in hand or more perilous to conduct…than to take the lead in the introduction of a new order of things. – Niccolo Machiavelli

On the Precipice of the Next Great Revolution in Manufacturing

May 2015 issue of Harvard Business Review

Chris Labrooy (rendering); Shapeways (3-D printing); Bruce Peterson (photography)

But what can a small meagerly funded program do that would make a difference?

Never doubt that a small group of thoughtful committed citizens can change the world. Indeed, it is the only thing that ever has. – **Margaret Mead, Anthropologist**

We can and need to be enabling the next great revolution in manufacturing

Right now we're expanding, developing and strengthening our system capabilities and reach…

…intuitively guide our clients through the maze of new technologies, helping them build capabilities, making important connections by being their beacon to the future of manufacturing.

The MEP Network will advance and transform U.S. manufacturing through the power of technology and partnerships

The Manufacturing Extension Partnership: Changing the Way the World Defines Manufacturing!

Change will not come if we wait for some other person, or if we wait for some other time. We are the ones we've been waiting for. We are the change that we seek.

– **Barack Obama**

2017-2022 Going Forward

- Mission
- Vision
- Four Strategic Pillars

- What do we, NIST, need to do next to complete an actionable plan?

What NIST Must Do

Our enabling legislation [15 U.S.C. 278(k) and (l)]:

1. Create and Support Centers
   a. Competitions
   b. Panel Reviews
2. National Advisory Board
3. Competitive Grants Program
4. Innovative Services Initiative
5. Evaluate Obstacles Unique to SMEs
6. Provide assistance to States (STEP)

What Centers Must Do

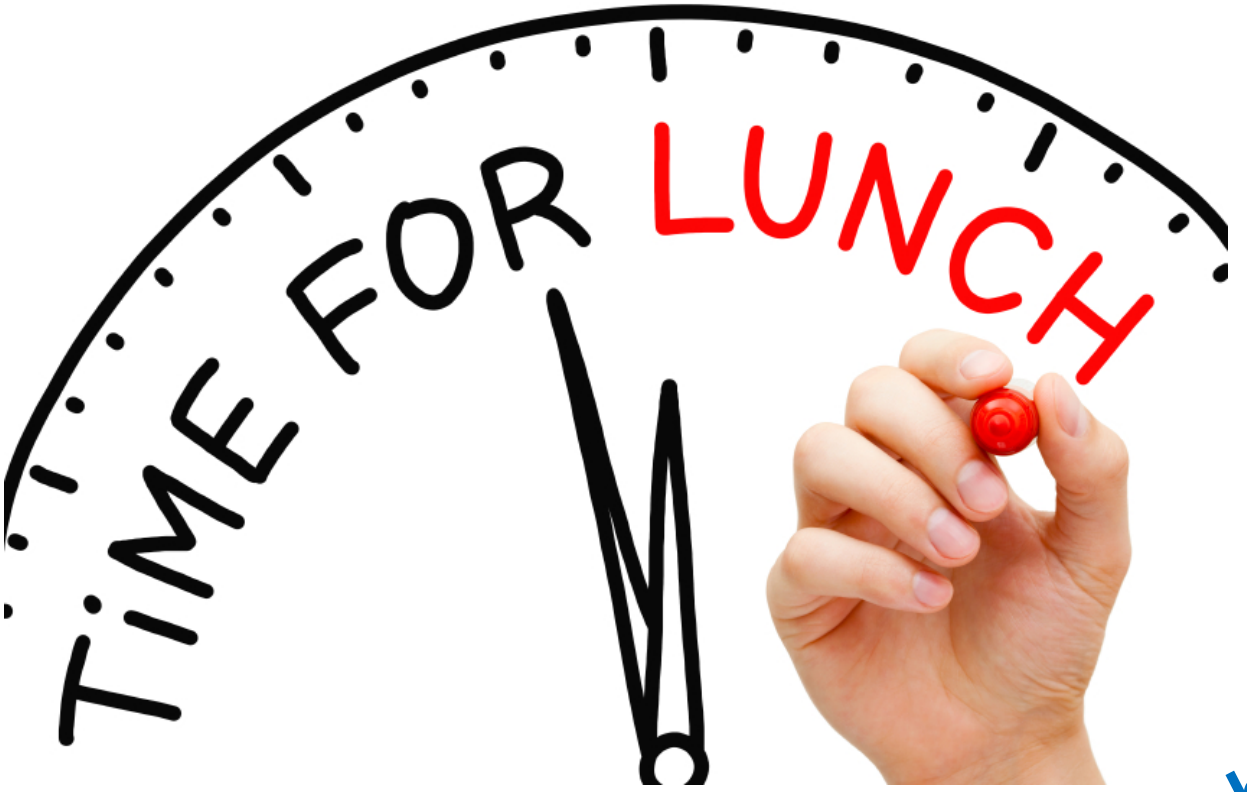
Enhance Productivity and Technological Performance of U.S. Manufacturing

- Transfer manufacturing technology and techniques…
- Participate in cooperative technology transfer activities
- Make efforts to make new manufacturing technology and processes usable by U.S. SMEs
- Actively disseminate scientific, engineering, technical, and management information about manufacturing to industrial firms
- Utilize the expertise and capability that exists in Federal laboratories other than the Institute
- Provide to community colleges information about the job skills needed in small- and medium-sized manufacturing businesses in the regions they serve.

Center Activities

- Establishment of automated manufacturing systems and other advanced production technologies, based on research by the Institute, for the purpose of demonstrations and technology transfer
- Active transfer and dissemination of research findings and Center expertise to a wide range of companies and enterprises, particularly small- and medium-sized manufacturers
- Loans, on a selective, short-term basis, of items of advanced manufacturing equipment to small manufacturing firms with less than 100 employees.

LUNCH ON YOUR OWN



Be back by 1:00PM

Manufacturing Policies to Support US Manufacturing

J.J. Raynor, Special Assistant to the President for Economic Policy
National Economic Council

Defining NIST Director's Charge: MEP Learning Organization

Agenda

- The Call to Action
- History of MEP 'Learning'
- Current State
- Next Steps
  - Charter
- Questions/Discussion

MEP Learning Organization

Learning Organization is embedded in one of the MEP Strategic Goals:

Strategic Goal 4:

- Develop MEP's capabilities as a learning organization and high performance system (Develop Capabilities)
  - Strategic Objective: Promote system learning
  - Strategic Objective: Continue administrative reform

The 2016 Charge to the MEP Advisory Board from Dr. Willie May:

Recommendations on the establishment of an MEP learning Organization which would be a continuance and further development that came out of the Board Governance charge

- MEP plans to have the first comprehensive gathering of the Network since 2012 in 2017 to strengthen connections and reacquaint MEP staff with sharing best practices.
- Working Groups and Communities of Practice will be reestablished and the MEP University will be reborn

MEP Learning Organization -- Why

- To create a national framework to enable Center's to focus on and gain access to:
  - –best practices
  - –knowledge and education designed to enhance Center performance
  - –expand market penetration
  - –encourage technology transfer
  - –increase client top and bottom line performance.

Learning Organization

- Who is it for?
  - Center Staff to develop skills and competencies to support their business models
    - Internal operations
    - Business Services – new services, refreshing current services
    - Center Staff development: recruitment, retention, succession planning

Learning Organization—History

- New Services/Products
  - Programs developed to support center delivery of services
  - Program materials included Instructor guides, participant materials, simulation kits (where applicable), Train the Trainer programmer
  - Service suite includes:
    - Lean suite
    - Growth Services
    - Performance Business Advisor
    - Export Tech
    - Technology Driven Market Intelligence (TDMI)
    - Technology Scouting (TS)
    - Innovation Engineering

Learning Organization—History

- ~ 2003 MEP recognized the need to 'manage' the delivery of these services training leading to MEPU
  - –Contracted with outside firm– AMCI
  - –Developed on-line portal for information, scheduling, registration, participant transcripts
  - –Portal also designed to support recordings of webinars for future viewing
  - –Long-term plan to continue to identify new needs and facilitate/coordinate development and delivery

Learning Organization -- History

Working Groups

- Started in late 1990's
- Focused on specific Center related needs
- Facilitated by MEP 301 staff, with Center staff interested in the topic.
- Participated in identification and development of new service offerings early on
- Many still active as communities of practice, sharing best practices and advancing the joint knowledge of the group
  - Continuous Improvement
  - TDMI/Tech Scouting
  - Export
  - Growth
  - Workforce
  - Technology Acceleration (includes sub groups for Digital and Additive)
  - Marketing

Current State

- MEPU contract was ended in 2012
  - Training for some of the programming still continues
    - Hosted by centers as they need them
    - Utilize center trainers and consultants to deliver
    - Schedule communicated via MEP weekly email
    - Information posted on MEP Connect
  - Many centers, with new staff are not aware of what's available or how to access

Current State

- Working Groups continue
- Some new services or potential services developed in recent projects
  - –Supplier Scouting
  - –Business 2 Business portals
  - –Additive Manufacturing Business model Train the Trainer
  - –Digital Manufacturing Train the Trainer
- Coordination from MEP staff for scheduling
- Centers asking for MEPU type programming

Centers are Asking for Learning!

ASMC Survey-Fall 2015

- Asking Centers about MEPU and Working groups
  - 88% responded Working Groups are important to their success
  - 60% responded they or staff participated in MEPU in the past
  - Ideas for refreshing it:
    - On line courses
    - Training that is defined with outcomes and metrics
    - Center operations support – courses on MEP, reporting, EI
    - Center staff development – Client Consulting (c-level development), coaching, sales management, business development, new technology

American Small Manufacturers Coalition (ASMC)

Centers are asking for Learning

- Conversations with Center Directors
- Outcomes desired from Learning Organization System
  - Help accomplish center goals
  - Easy access, one place to start
  - Networking and sharing with others
- Critical 'components'
  - Staff Development
  - Working Groups
  - Meetings/Summits
  - Access to Experts
  - Sharing Best Practices

MEP Learning Organization

Center Operations

- MEP processes
- Staff Development
  - C-level consulting
  - Strategic Planning
  - Coaching
- HR Support – succession planning, recruit/retain

Center Business

- Technology—Additive, Digital
- Client Services – TDMI, Lean, Export….
- New Program development

Continuous Learning

- Sharing Best Practices – Summits/conferences
- Working Groups
- Networking platforms (MEP Connect or other)

Charter: Advisory Board Committee on MEP Learning Organization

Purpose:

To provide Board guidance to shape the development of an integrated MEP Learning Organization.

Objectives: The Advisory Board Committee on Learning Organization will:

- Define the target audience
- Identify needs – needs analysis
- Develop the key components of a long term strategy to include:
  - MEPU-type system
  - Network Summits and Updates
  - Working Groups and Communities of Practice
  - Define Metrics
- Prioritize key activities
- Identify resource needs

Schedule:

- Launch Committee initiate first meeting — May 5, 2016
- Confirm Charter and present draft to Advisory board — May 19, 2016
- Tbd
- Tbd

About Learning Organization

Establish a mind set in the network to contribute to the expansion of shared knowledge for the continuous improvement of centers in their service to clients

Learning Organization: Culture, system, Sharing of knowledge across the network

MEP Team Contacts:

- Mary Ann Pacelli NIST MEP
- Jeff Lucas NIST MEP
- Dileep Thatte NIST MEP
- Megan Spangler NIST MEP

Board Committee Members:

- Carolyn Cason, Chair
- Kathay Rennals
- Tommy Lee

Opportunities for Center Input:

CLT Members:--

Center leader Team –
do we want one?

Critical Issues:

- Center input to shape update meetings and National summit is critical
- To re-launch MEPU type system– will require outside resources. Need to consider timeline for inviting consultants

Next Steps

- Revise Charter with input from today
- Needs Analysis
  - –What do centers need
- Asset Map
  - –What are the Distinctive Practices that exist
  - –What are the opportunities for scalability
- Draft Plan with priority of Action Steps

Discussion

AFTERNOON BREAK

2:45PM – 3:00PM

Report to the MEP Advisory Board on the Lab Connecting Sub-Committee

Agenda

- Our Charge
- Technology Acceleration Connector
- Additional Activity with NNMI Institutes & DOE Labs
- Questions / Discussion

The Charge

Guidance on the development of a protocol to connect user facilities, research and technologies at NIST and other federal laboratories with small and mid-sized manufacturers

- The development of a connection protocol would leverage the benefit that the MEP Program has in being part NIST.
- The MEP Program is becoming more engaged in larger OEM supply chains that require smaller manufacturers to use advanced manufacturing production processes that are customizable and secure.

The Board is requested to provide advice concerning the MEP Program methods to connect NIST resources to the MEP Network for the benefit of U.S. small and medium-sized manufacturers.

Lab Connecting Sub-Committee

- Members:
  - Jeff Wilcox, Lockheed-Martin - **Chair**
  - Bernadine Hawes, DVIRC
  - Ed Wolbert, Transco Products Inc.

- Staff
  - Clara Asmail
  - Mark Troppe
  - Ben Vickery

- Report out to the MEP Advisory Board on Defining NIST Director's Charge: Connecting User Facilities and Labs with SMMs
  - May 19, 2016 in Charleston, SC

Agenda

- Our Charge
- Technology Acceleration Connector
- Additional Activity with NNMI Institutes & DOE Labs
- Questions / Discussion

Lockheed Martin ENGAGE CRM

- A Web-based CRM/repository to track data dynamically
- Based on a COTS platform (Microsoft) to provide integrated cross-team insight into activities.
- Features include:
  - Contacts
  - Programs/Contracts
  - Activities
  - Queries (Views)
  - Reports
  - Dashboards
- Demonstrated to MEP Staff, 4/26/16
- Lessons Learned to help shape the MEP Technology Acceleration Connector protocol moving forward!

Technology Acceleration Connector

Protocol Function

Provide a connection between NIST Labs, NIST MEP, MEP Centers, and SMMs

Protocol Vision

Team the MEP network with its host NIST Labs to support and reinforce common missions

Protocol Objectives

Promote, Identify, Manage and Track:

- NIST Lab – SMM research projects that could benefit from MEP
- SMM – MEP projects that could benefit from NIST Lab support

Responsive Connections

SMM or Center originates connection to NIST Lab

A. Inquiries from Centers on behalf of SMM clients for NIST Lab support/consultation

B. Inquiries from SMMs direct to NIST

NIST MEP staff & Lab Connector Liaison together:

- identify NIST Lab resource(s),
- ensure right fit,
- follow-up on project,
- involve Center staff for learning and complementary support

Proactive Connections

NIST Lab or NIST MEP originates connection to SMM or Center

C. Outreach from NIST Labs through Centers to SMMs

D. Outreach from NIST Labs with SMMs to Centers

NIST MEP staff & Lab Liaison together:

- identify NIST Lab research "right and ready" for transfer to SMEs or in need of SMM input/testing,

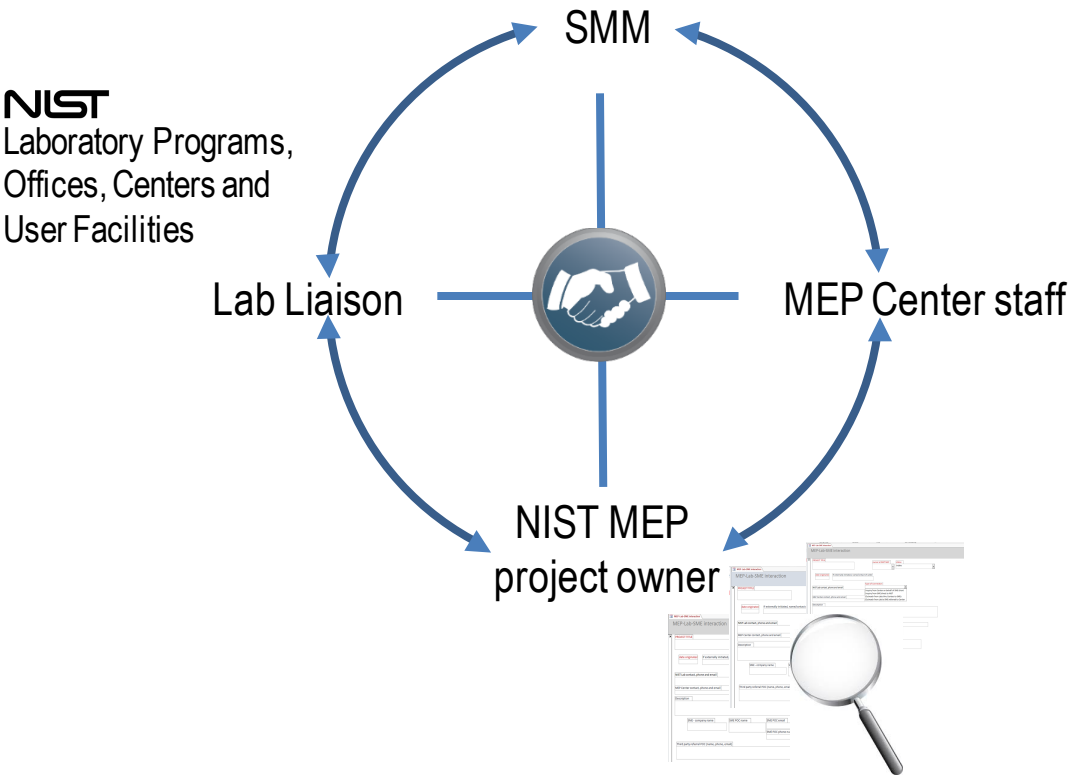
or

- Identify NIST Lab collaborations with SMMs may benefit from MEP support,

and then

- define a set of connections projects to Centers and SMMs.

Technology Acceleration Connector Protocol



Technology Acceleration Connector Protocol

Promotion

NIST MEP in-reach to Labs through Lab Liaisons

NIST MEP communications to:

Centers, partners, public

Projects Management

Identify & track inquiries from public, through Centers for NIST Lab support in metrology, etc.

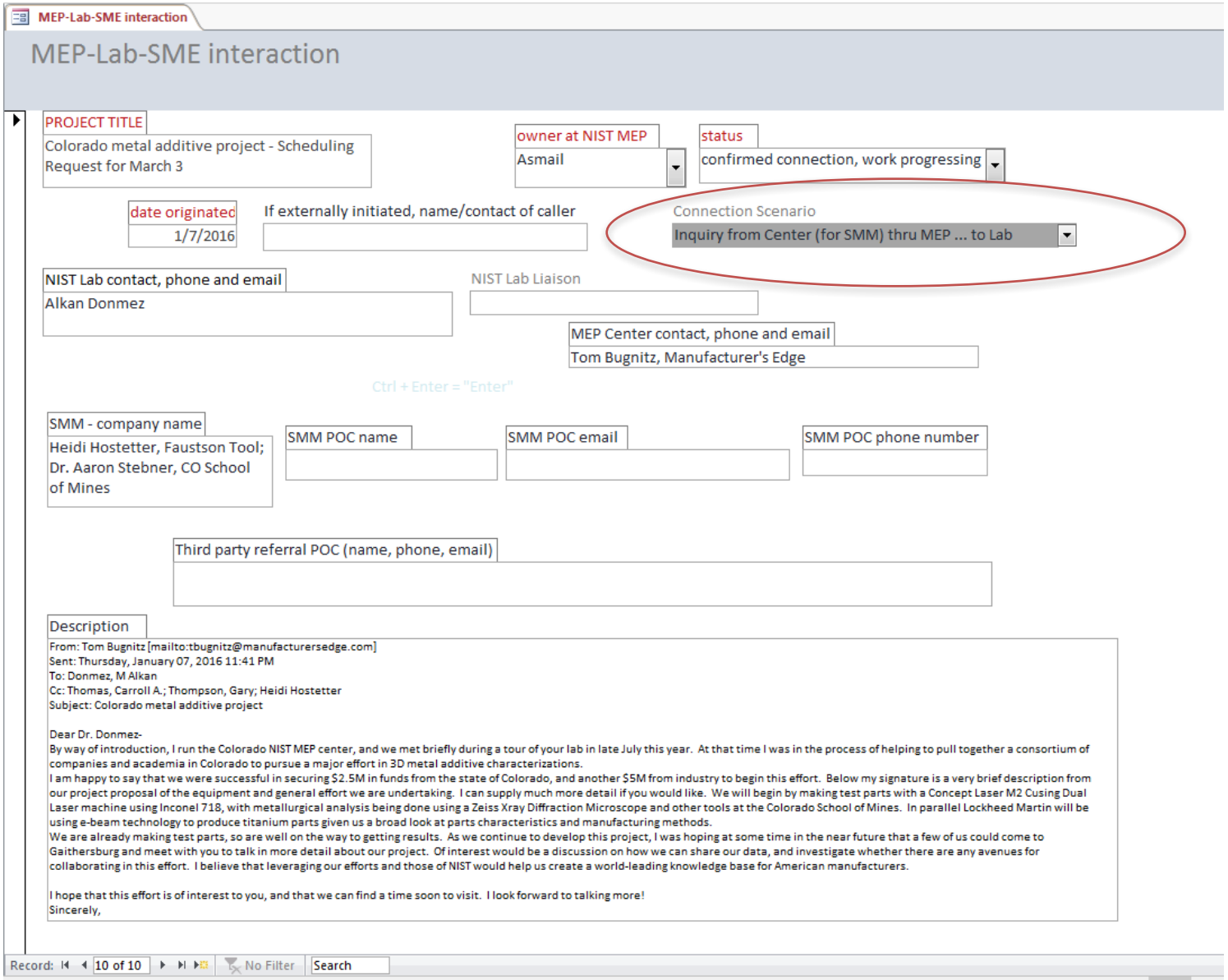
Identify Lab programs right/ready for SMM adoption, manage appropriate outreach through Centers to SMMs; track resulting projects

Connections Tracking Database

- Capture projects from all scenarios in one system that will allow:
  - Project management through satisfactory completion
  - Analysis of outcomes from outreach "campaigns" to allow:
    Redesign of outreach and project management

Challenges:

- Connector program evaluation may not be sourced from impacts from MEP projects because of difficulty in attribution to connection to Lab vs other MEP services
- PR for some successful projects may be impeded by confidentiality of Center-client relationship



MEP-Lab-SME interaction

MEP-Lab-SME interaction

PROJECT TITLE
Colorado metal additive project - Scheduling Request for March 3

owner at NIST MEP
Asmail

status
confirmed connection, work progressing

date originated
1/7/2016

If externally initiated, name/contact of caller

Connection Scenario
Inquiry from Center (for SMM) thru MEP ... to Lab

NIST Lab contact, phone and email
Alkan Donmez

NIST Lab Liaison

MEP Center contact, phone and email
Tom Bugnitz, Manufacturer's Edge

Ctrl + Enter = "Enter"

SMM - company name
Heidi Hostetter, Faustson Tool; Dr. Aaron Stebner, CO School of Mines

SMM POC name

SMM POC email

SMM POC phone number

Third party referral POC (name, phone, email)

Description

From: Tom Bugnitz [mailto:tbugnitz@manufacturersedge.com]
Sent: Thursday, January 07, 2016 11:41 PM
To: Donmez, M Alkan
Cc: Thomas, Carroll A.; Thompson, Gary; Heidi Hostetter
Subject: Colorado metal additive project

Dear Dr. Donmez-
By way of introduction, I run the Colorado NIST MEP center, and we met briefly during a tour of your lab in late July this year. At that time I was in the process of helping to pull together a consortium of companies and academia in Colorado to pursue a major effort in 3D metal additive characterizations.
I am happy to say that we were successful in securing $2.5M in funds from the state of Colorado, and another $5M from industry to begin this effort. Below my signature is a very brief description from our project proposal of the equipment and general effort we are undertaking. I can supply much more detail if you would like. We will begin by making test parts with a Concept Laser M2 Cusing Dual Laser machine using Inconel 718, with metallurgical analysis being done using a Zeiss Xray Diffraction Microscope and other tools at the Colorado School of Mines. In parallel Lockheed Martin will be using e-beam technology to produce titanium parts given us a broad look at parts characteristics and manufacturing methods.
We are already making test parts, so are well on the way to getting results. As we continue to develop this project, I was hoping at some time in the near future that a few of us could come to Gaithersburg and meet with you to talk in more detail about our project. Of interest would be a discussion on how we can share our data, and investigate whether there are any avenues for collaborating in this effort. I believe that leveraging our efforts and those of NIST would help us create a world-leading knowledge base for American manufacturers.

I hope that this effort is of interest to you, and that we can find a time soon to visit. I look forward to talking more!
Sincerely,

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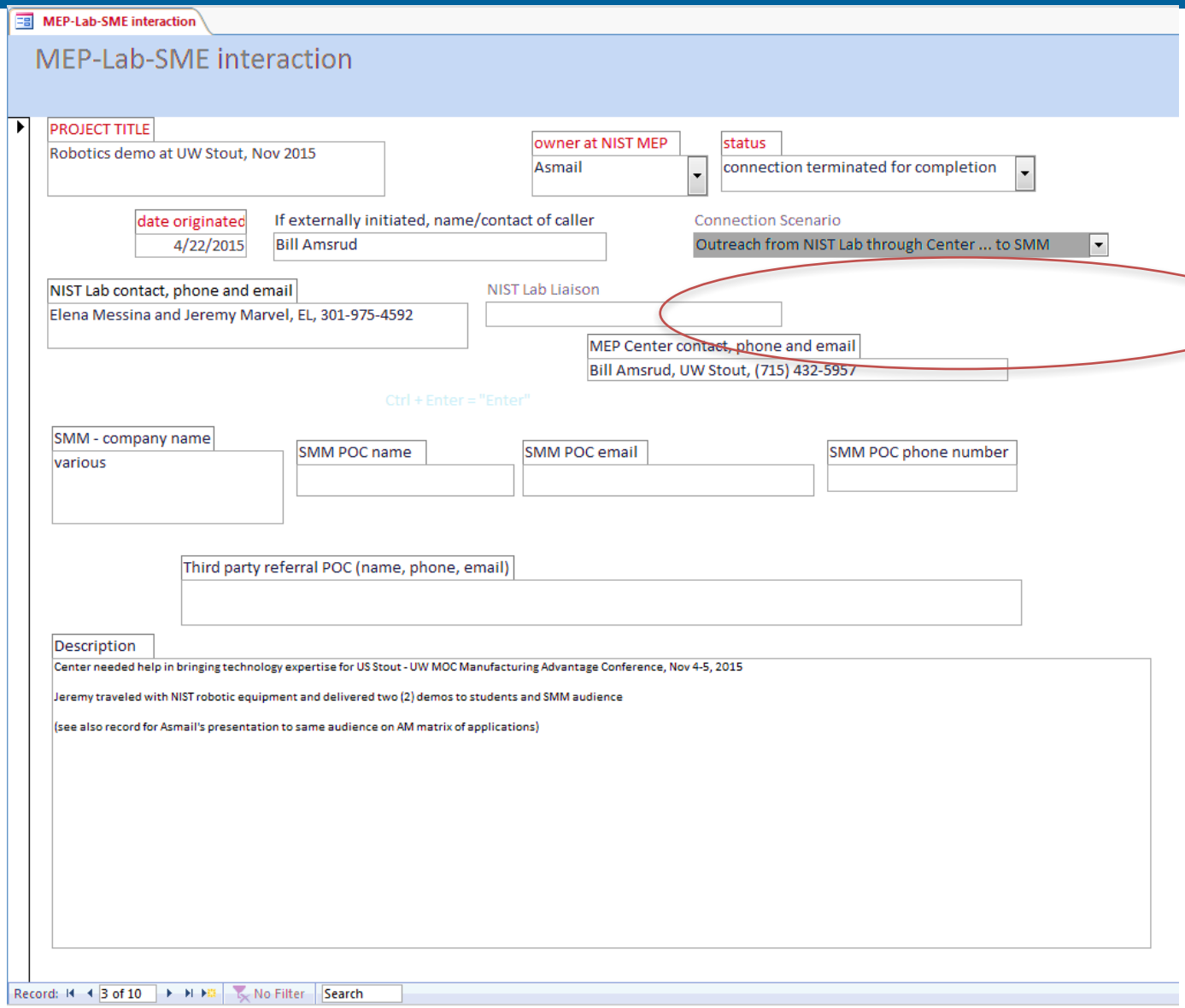

MEP-Lab-SME interaction

MEP-Lab-SME interaction

PROJECT TITLE
Robotics demo at UW Stout, Nov 2015

owner at NIST MEP
Asmail

status
connection terminated for completion

date originated
4/22/2015

If externally initiated, name/contact of caller
Bill Amsrud

Connection Scenario
Outreach from NIST Lab through Center ... to SMM

NIST Lab contact, phone and email
Elena Messina and Jeremy Marvel, EL, 301-975-4592

NIST Lab Liaison

MEP Center contact, phone and email
Bill Amsrud, UW Stout, (715) 432-5957

Ctrl + Enter = "Enter"

SMM - company name
various

SMM POC name

SMM POC email

SMM POC phone number

Third party referral POC (name, phone, email)

Description
Center needed help in bringing technology expertise for US Stout - UW MOC Manufacturing Advantage Conference, Nov 4-5, 2015

Jeremy traveled with NIST robotic equipment and delivered two (2) demos to students and SMM audience

(see also record for Asmail's presentation to same audience on AM matrix of applications)

Record: 3 of 10 No Filter Search

Agenda

- Our Charge
- Technology Acceleration Connector
- Additional Activity with NNMI Institutes & DOE Labs
- Questions / Discussion

Advisory Board Committee on Technology Acceleration Charter

Purpose:

To provide Board guidance to shape MEP's Technology Acceleration strategy and activities, which contribute to the MEP mission of enhancing the productivity and technological performance of U.S. manufacturing.

Objectives: The Advisory Board Committee on Technology Acceleration (ABCTA) will:

- Represent manufacturers' — and especially SMMs' (small- and medium-sized manufacturers') — viewpoints regarding current MEP services and emerging opportunities.
- Assist with setting priorities among competing demands and focus on highest-impact Technology Acceleration activities.
- Seek alignment between MEP Technology Acceleration activities and existing structures of MEP Centers.

Schedule:

• Launch Committee and schedule meetings (NIST MEP)	Nov/Dec 2014
• Collect data on current TA activities (NIST MEP)	Nov 2014-March 2015
• Present to Board draft work plan for analysis and research (Committee)	Jan 21, 2015
• Inform/validate findings and recommendations with Center leaders (NIST MEP)	Nov 2014-May 2015
• Deliver MEP Technology Acceleration Implementation Plan to Board (Committee)	May 19, 2015

About Technology Acceleration:

- MEP defines Technology Acceleration as integrating technology into the products, processes, services and business models of manufacturers to solve manufacturing problems or pursue opportunities and facilitate competitiveness and enhance manufacturing growth. Technology Acceleration spans the innovation continuum and can include aspects of technology transfer, technology transition, technology diffusion, technology deployment and manufacturing implementation.

Contacts:

- Mark Troppe — NIST MEP
- Ben Vickery — NIST MEP
- Clara Asmail — NIST MEP

Committee Members:

- Jeff Wilcox, Chair
- Carolyn Cason
- Roy Church
- Bernadine Hawes
- Bill Shorma
- Ed Wolbert

Opportunities for Center Input:

- Inventory of Center Activities Nov-Dec, Jan-Feb 2015.
- Nashville Quarterly Update meeting Nov.
- Inform/validate findings and recommendations Jan-May 2015.
- Convene Center Leadership Team (CLT) on TA March 2015.

CLT Members:

- Christian Cowan
- Dan Curtis
- Karen Fite
- Steve Hatten
- Phil Mintz
- Petra Mitchell
- Jim Watson

Critical Issues:

- Collect and analyze data from inventory and Nashville System Update Meeting in time to incorporate into draft work plan.
- Respond to stakeholder interest in expanded MEP role with realistic goals.

About the Technology Acceleration Implementation Plan

Structure of Implementation Plan:

- Background
- Work Plan
- Key Findings
- Eleven Recommendations:
    - *I. Setting Priorities*
    - *II. Barriers and Incentives*
    - *III. Scale-Up and Sustainability*
- Available at the NIST MEP public site (http://nist.gov/mep/about/advisory-board-meetings.cfm)

ABCTA Recommendations

I. Setting Priorities

2. MEP should give priority to developing and implementing TA opportunities with NIST labs and National Network for Manufacturing Innovation (NNMI) Institutes over the next year, while also pursuing the emerging collaboration with DOE labs.

- *Organizational Lead*: NIST (MEP, Labs and Advanced Manufacturing Program Office) and Centers that are engaging early with Institutes
- *Deliverable*: Listing and descriptions of specific actions engaging MEP with NIST Labs, NNMI Institutes, and DOE Labs.

ABCTA Recommendations - Execution

Priority to developing and implementing Technology Acceleration opportunities with NIST, NNMI and DOE

- Technology Acceleration Connector
- Embedding MEP Center Staff in NNMI Institutes FFO
- NIST MEP-DOD MOU including DMDII – MEP Pilot
- NIST MEP-DOE MOU to focus on DOE-funded NNMI Institutes
- DOC-DOE MOU to focus on collaboration with DOE Labs
- DOE Lab Small Business Voucher Pilot
- Penn State University Additive Manufacturing Challenge
- NIST Engineering Lab-MEP Collaborative Robotics & Flexible Automation Workshop
- Technology Collaboratives
- Additive Manufacturing Community of Practice – Training Workshop

Agenda

- Our Charge
- Technology Acceleration Connector
- Additional Activity with NNMI Institutes & DOE Labs
- Questions / Discussion

Questions / Discussion

Wrap-Up

Next: MEP Center Board eNewsletter

Safe Travels

See You In September