

# The NIST Manufacturing Extension Partnership

## Providing Localized Technical Assistance to U.S. Manufacturers on a National Scale

### Model-Based Enterprise Summit 2013

*NIST, Gaithersburg, MD*

*December 18, 2013*

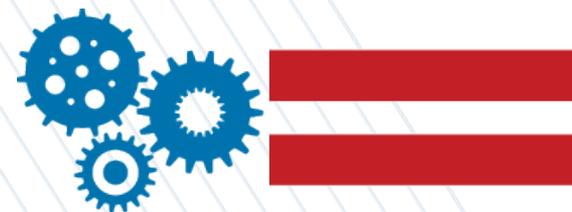
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[www.nist.gov/mep](http://www.nist.gov/mep)



**MAKE IT IN AMERICA**  
MANUFACTURING EXTENSION PARTNERSHIP

# THE MEP PROGRAM

**MISSION – “To act as a strategic advisor to promote business growth and connect manufacturers to public and private resources essential for increased competitiveness and profitability. ”**

- **60 centers with ~440 field locations**
  - 501 c3's, univ-based, state gov agency components
  - System wide, Non-Federal staff is > 1,300
  - Contract with >2,100 third party service providers
- **MEP System budget ~ \$300M: Federal / State / Industry**
  - 1/3 Federal (\$120M FY13 enacted), 2/3 State and Industry (fees for services)
- **MEP Program and Center performance measured per impact of services on client firms.**
  - ~34,000 manufacturers served, >10,000 projects conducted annually \*
  - Aggregate impacts include \$8.2B increased/retained sales; \$1.9B new client investment; \$1.3B cost savings; 60,497 jobs created/retained \*

*\*Based on Client Reported Data in 2011*



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– OR –

800-MEP-4MFG



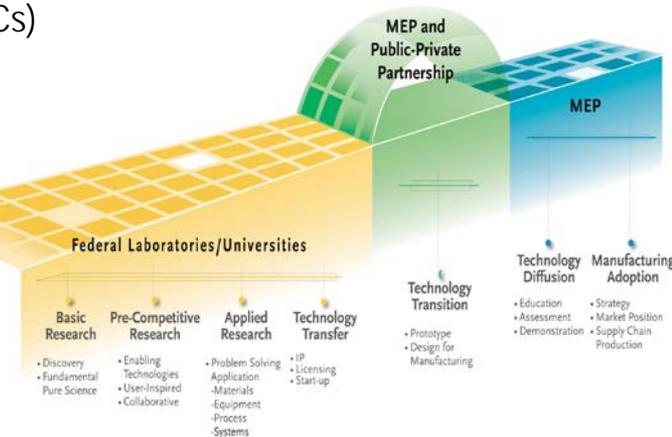
# MEP Assistance to Manufacturers

- MEP Strategies:
  - Overarching MEP Strategy: Increasing manufacturers' capacity for innovation, resulting in profitable sales growth.
  - Focus: *new sales, new markets, and/or new products.*
  - 5 key service areas: Continuous Improvement, Technology Acceleration, Supplier Development, Sustainability, Workforce



- M-TACs

- Administration request for MEP includes full funding of FY13 enacted level, plus \$25M increase for Manufacturing Technology Acceleration Centers (M-TACs)
- M-TACs will :
  - Provide technology transition and commercialization services needed by U.S. small manufacturers to foster their readiness to adopt and/or adapt advanced technologies into their manufacturing processes and products.
  - Help small U.S. manufacturers grow and compete within manufacturing *supply chains* as innovative, value-adding components of our nation's economy.
  - Serve as coordination point within key *supply chains*.
- Significant existing MEP infrastructure of tools and service offerings for Supply Chains
- NIST MEP about to award M-TAC Pilot Projects in 2014



# The MEP Approach to Supply Chains

- Proactively engage Manufacturing Supply Chains operating in the U.S. to systemically address:
  - ✓ the top-down driven needs of the overall supply chain
  - ✓ the needs of individual manufacturers operating at any level within the supply chain
  - ✓ the company-to-company needs of the manufacturer interfaces within the supply chain
- MEP Supply Chain Infrastructure, Programs, Tools, Service Offerings:
  - ✓ M-TACs
  - ✓ Supplier Scouting
  - ✓ *Model-Based Enterprises*
  - ✓ Supply Chain Optimization
  - ✓ Supplier Development
  - ✓ Market Diversification
  - ✓ E3/GSN
  - ✓ Lean/Six Sigma/ISO/AS/ ... Certification – Continuous Improvement
  - ✓ Market Diversification/ExporTech ... new products/sales/markets
  - ✓ Access to Capital / Financing



# MEP and MBE

- 2009 MBE Capabilities Assessment

- ✓ *Small manufacturers are generally ready to operate with 3D data*

- MBE Education and Training Summits, 2010-2011

- ✓ *Small manufacturers are interested in using 3D models as basis for design and production; are anticipating receipt of models, requirements*

- MBE Website, Launched 2010

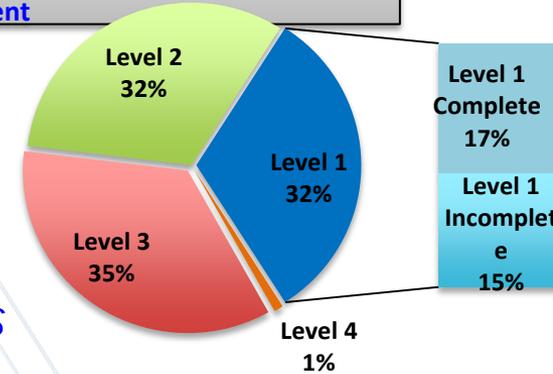
- ✓ [www.model-based-enterprise.org](http://www.model-based-enterprise.org)

- ✓ *Planned upgrade for 2014 by Catalyst Connection (MEP Center in Pittsburgh, PA)*

- 2012 3D TDP Assessment

- ✓ *3D TDP Tool developed by ManTech contains all info needed to make a part and is better than 2D drawings*

\* MBE Analysis Metric  
 \* Analysis & Results: **2/3 of participating suppliers are ready to operate in an MBE environment**



Level 0	<ul style="list-style-type: none"> <li>• Drawing Centric</li> <li>• Disconnected Manufacturing - Disconnected Enterprise</li> <li>• Primary Deliverable: 2D Drawing</li> </ul>
Level 1	<ul style="list-style-type: none"> <li>• Model Centric</li> <li>• Native Model CAM - Disconnected Enterprise</li> <li>• Primary Deliverable: 2D Drawing and Native CAD Model</li> </ul>
Level 2	<ul style="list-style-type: none"> <li>• Model Centric</li> <li>• Native Model CAM - Disconnected Enterprise</li> <li>• Primary Deliverable: 2D drawing and Native CAD Model</li> </ul>
Level 3	<ul style="list-style-type: none"> <li>• Model Based Definition</li> <li>• Integrated Manufacturing - Disconnected Enterprise</li> <li>• Primary Deliverable: 3D Annotated Model and Light Weight viewable</li> </ul>
Level 4	<ul style="list-style-type: none"> <li>• Model Based Definition</li> <li>• Integrated Manufacturing - Disconnected Enterprise</li> <li>• Primary Deliverable: 3D Annotated Model and LightWeight viewable via PLM</li> </ul>
Level 5	<ul style="list-style-type: none"> <li>• Model Based Enterprise</li> <li>• Integrated Manufacturing - Integrated Internal Enterprise</li> <li>• Primary Deliverable: Digital Product Definition Package and TDP</li> </ul>
Level 6	<ul style="list-style-type: none"> <li>• Model Based Enterprise</li> <li>• Integrated Manufacturing - Integrated Extended Enterprise</li> <li>• Primary Deliverable: Digital Product Definition Package and TDP via the web</li> </ul>



# MEP and MBE: Possible Next Steps

- MEP continues to be interested in providing assistance to defense manufacturers for the implementation of MBE approaches to the design and manufacture of military systems
- M-TACs represent a potential tangible mechanism to provide MBE services to defense manufacturers
  - ✓ *Possible connection point with, and point of service supplement to NNMI Institutes, including Digital Manufacturing Design Innovation Institute*
- MEP Contact:

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