



**MEP • MANUFACTURING
EXTENSION PARTNERSHIP**

NATIONAL INSTITUTE OF
STANDARDS AND TECHNOLOGY

Hollings Manufacturing Extension Partnership

Smart Wind Consortium
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October 16, 2014

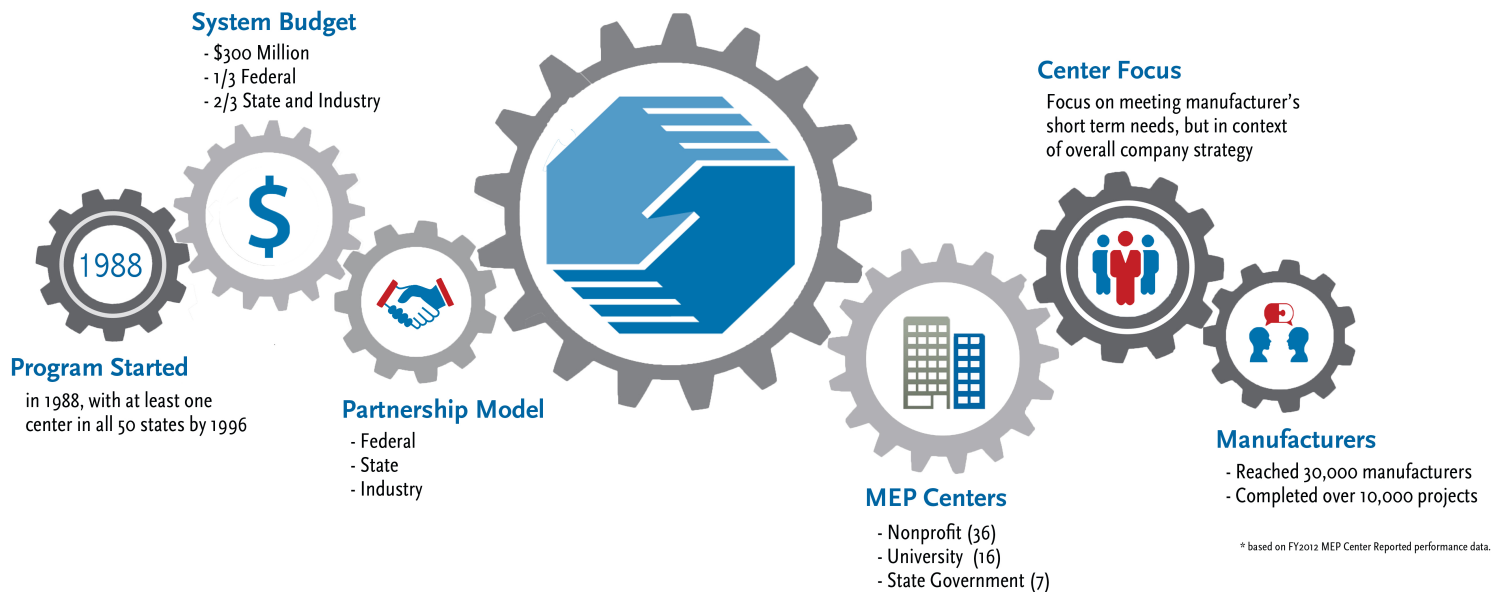
Vision

MEP is a catalyst for strengthening American manufacturing – accelerating its ongoing transformation into a more efficient and powerful engine of innovation driving economic growth and job creation.

MEP Drives Innovation

by serving as a strategic advisor to promote business growth and connect manufacturers to public and private resources essential for increased competitiveness and profitability.

The MEP Program in Short . . .



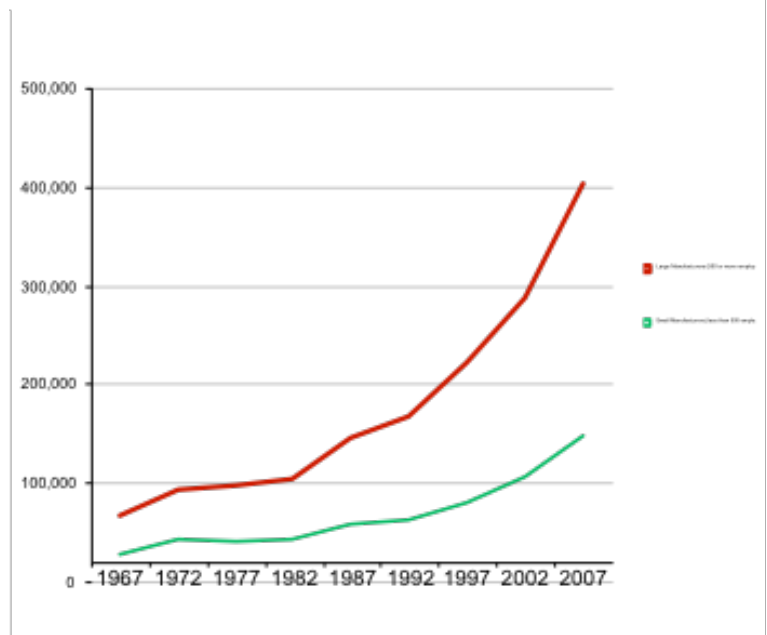
The Changing Face of Manufacturing: Getting Smaller – Need to Get Smarter

Facts about small manufacturers:

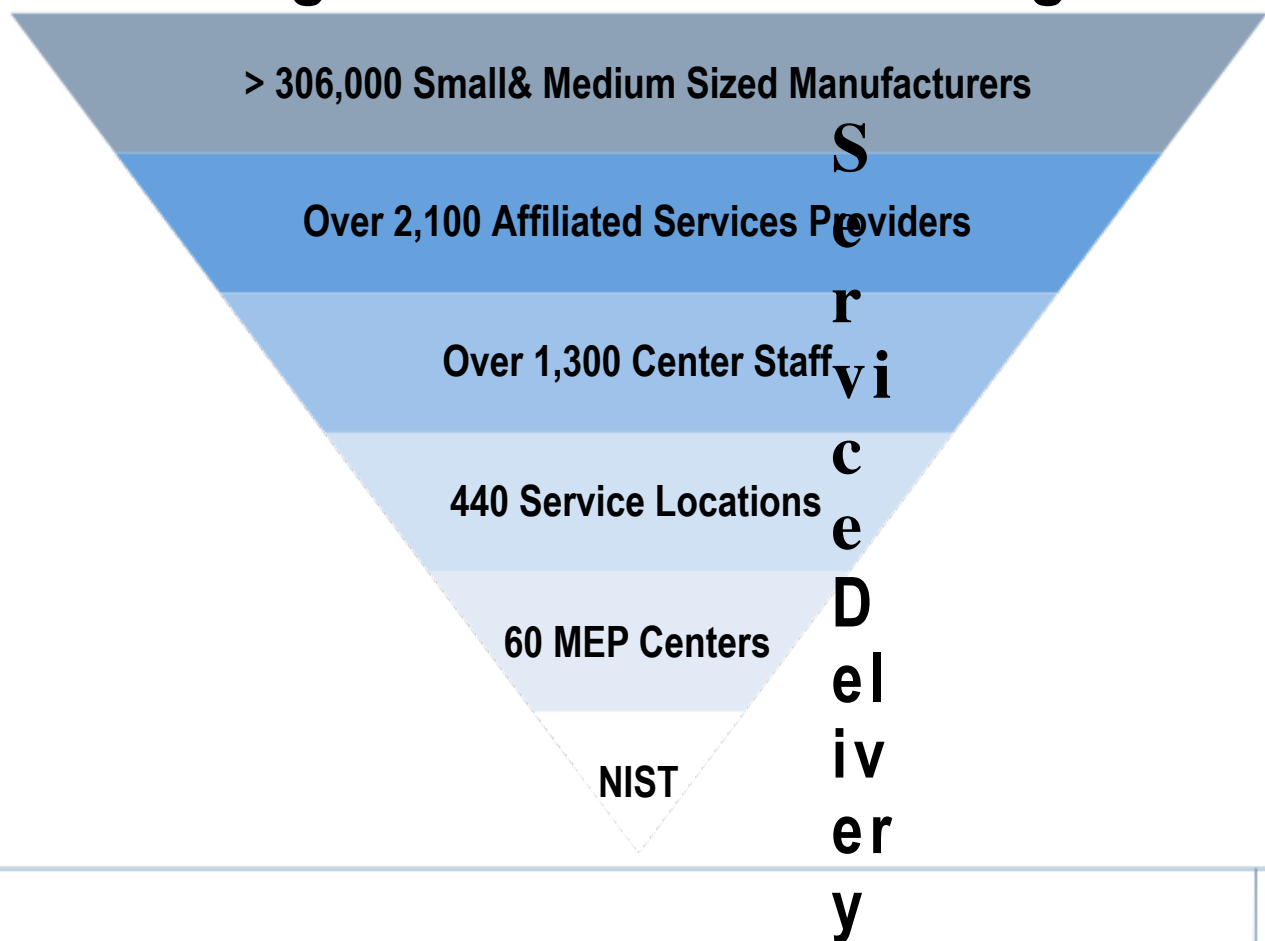
- 99 percent of all manufacturing establishments
- Employ 10.2 million people -- 70 percent of all manufacturing employment
- ~57 percent of the total value-added by all U.S. manufacturers

The Challenges for Small Manufacturers:

- Productivity among large firms continues to increase at a faster rate than small firms
- Market Failures in several dimensions: firm, inter-firm, consulting/services, public failure.



Partnering to Drive a National Program



MANUFACTURING EXTENSION PARTNERSHIP

MEP Centers Across the U.S.

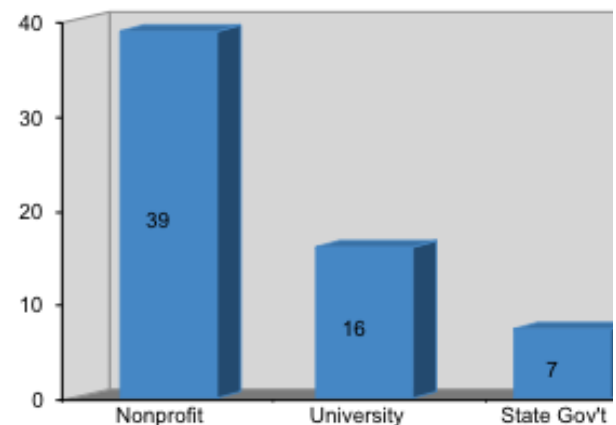


800.MEP.4MFG
www.mep.nist.gov



Center Operating Structure Diversity

- Utilizes existing local resources to provide manufacturing extension services ***relies heavily on partnerships***
- Staff are employees of the Center and its partners – ***not*** the Federal Government
- Geography: urban → rural – ***never more than 2 hours away!***
- Organization Type: Nonprofit, university, state government
- Organizational Structure:
 - Single location
 - Principal organization with independent partner organizations
 - Central office with regional offices
 - Headquarters operation with multiple field offices



What MEP Does

- Focus on meeting manufacturer's short term needs, but in context of overall company strategy
- MEP Center areas of common strength
 - Engineering Services for products and processes
 - Growth Services – new or expanded market opportunities
 - Lean Manufacturing
 - Quality Systems
 - Sustainability
 - Workforce Development
- Reach nearly 31,000 manufacturing firms and complete over 10,000 projects per year*

*Based on FY2011 MEP Center reported performance data.

Client Impacts Resulting from MEP Services – FY2011

1:20 ratio

For every one dollar of federal investment, the MEP generates nearly \$20 in new sales growth and \$20 in new client investment. This translates into \$2.5 billion in new sales annually. For every \$2,100 of federal investment, MEP

31,373

MEP Centers engaged with 31,373 manufacturing establishments throughout

5 out of 10

MEP clients reported



Next Generation MEP Strategy

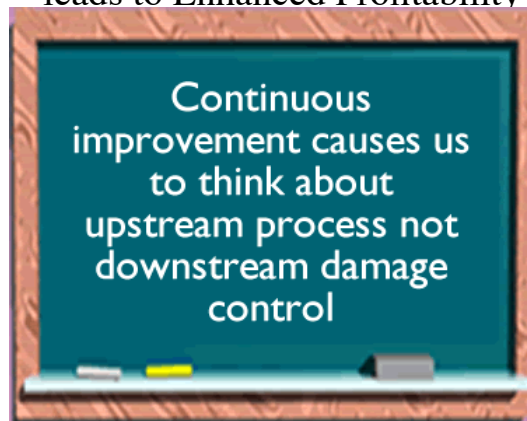
- Increasing manufacturers' **capacity for innovation resulting in profitable sales growth** is the overarching strategy for the MEP.
- The approach is to provide a framework for manufacturers that:
 - Reduces bottom line expenses through lean, quality, & other programs targeting plant efficiencies – which frees up capacity for business growth.
 - Adds to top line sales through business growth services focused on the development of new sales, new markets, and new products.
- Next Generation Strategies (NGS) – 5 key areas:
 - Continuous Improvement**
 - Technology Acceleration**
 - Supply Chain**
 - Sustainability**
 - Workforce**



Continuous Improvement

- A culture of continuous improvement is necessary to **enhance productivity and free up the capacity** that will provide manufacturers a stable foundation to **pursue innovation and growth**. MEP centers around the country have a strong record and solid reputation for providing superior lean and quality services as well as other programs that target plant efficiencies. MEP will continue to provide a unique approach to implementing the concepts of **lean manufacturing** across all aspects of the enterprise, **scaled for smaller companies** to readily adopt, and serving as a starting point to leverage the operational improvements into **company transforming strategies**.

leads to Enhanced Profitability



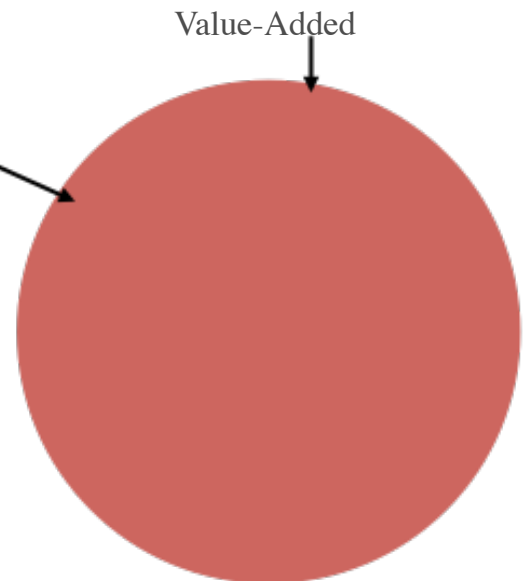
What is Lean?

- Lean establishes a systematic approach to eliminating waste and creating flow throughout the whole company
- Maximize customer value while minimizing waste (non-value added activities) with fewer resources
- Benefits:
 - Reduce cycle time
 - Reduce inventory
 - Reduce work-in-process costs
 - Increase capacity
 - Improve lead times and quality
 - Increase productivity and profits
 - Increase customer and employee satisfaction
 - Promote safety



Lean = Eliminating Waste

- Non-Value-Added
 - Overproduction
 - Waiting
 - Transportation
 - Non-value-added processing
 - Excess inventory
 - Defects
 - Excess motion
 - Underutilized people



– Typically 95% of all lead time is non-value-added.

8 Wastes of Lean

- Overproduction
 - Making more, earlier, or faster than is required by the next process
- Motion
 - Any movement of people or machines that does not add value to the product or service.
- Inventory
 - Any supply in excess of one-piece flow through the manufacturing process and/or
 - Any excess raw, WIP, and finished goods.

8 Wastes of Lean

Transportation

- Transporting parts and materials around the plant

Waiting

- Idle time created when waiting for

Under-utilized people

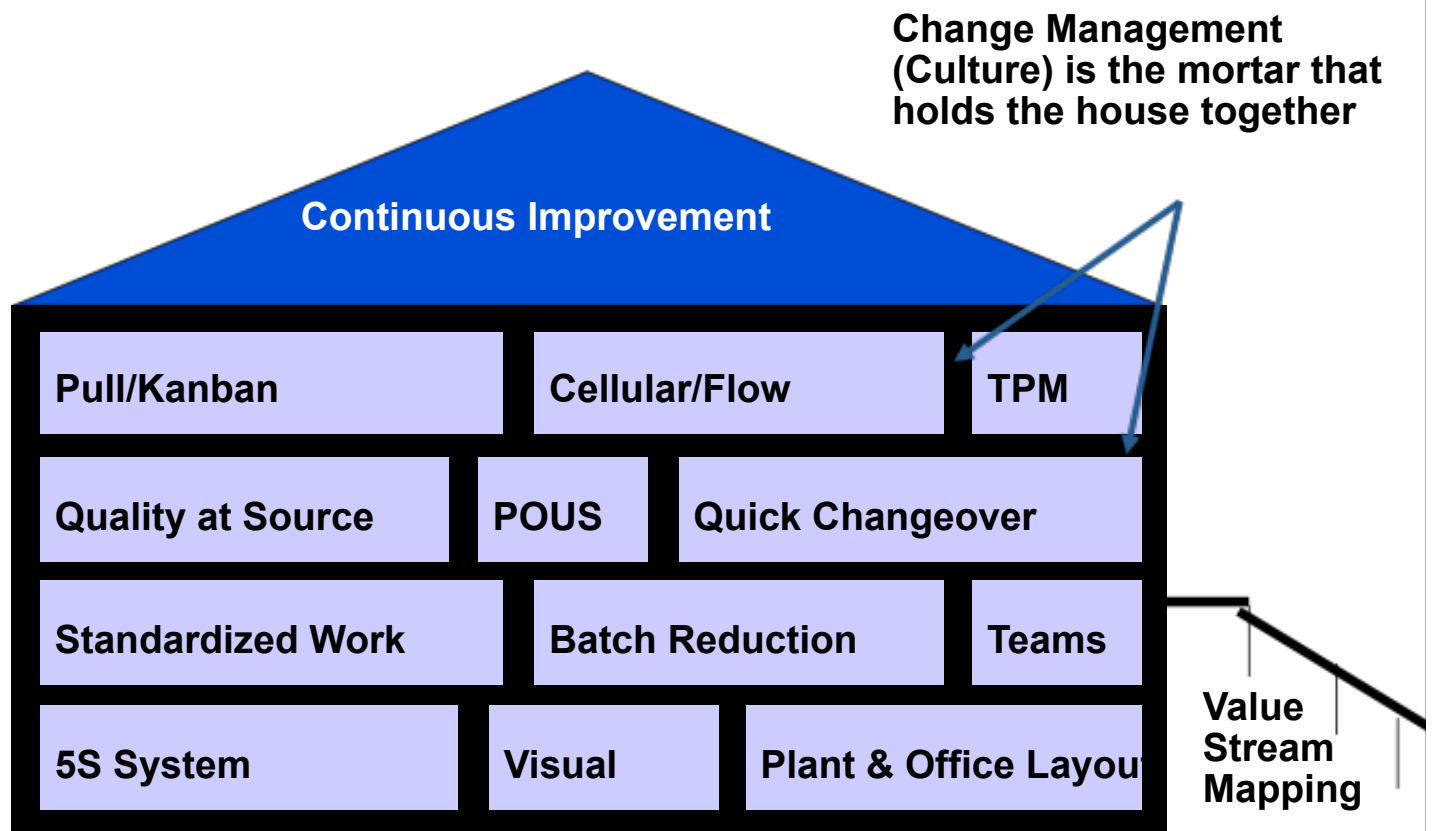
- Waste of not using people's abilities (mental, creative, physical, skill)



8 Wastes of Lean

- Defects
 - Inspection, scrap, repair/rework, and repackaging
- Over-processing / Non-Value-Added processing
 - Effort that adds no value to the product or service from the customer's viewpoint.
 - Counting parts and materials
 - Expediting
 - Sorting
 - ERP / MRP transactions

Lean Building Blocks



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