MEP • MANUFACTURING EXTENSION PARTNERSHIP

NATIONAL INSTITUTE OF STANDARDS AND TECHNOLOGY

The Evolution of MEP: The New Strategy

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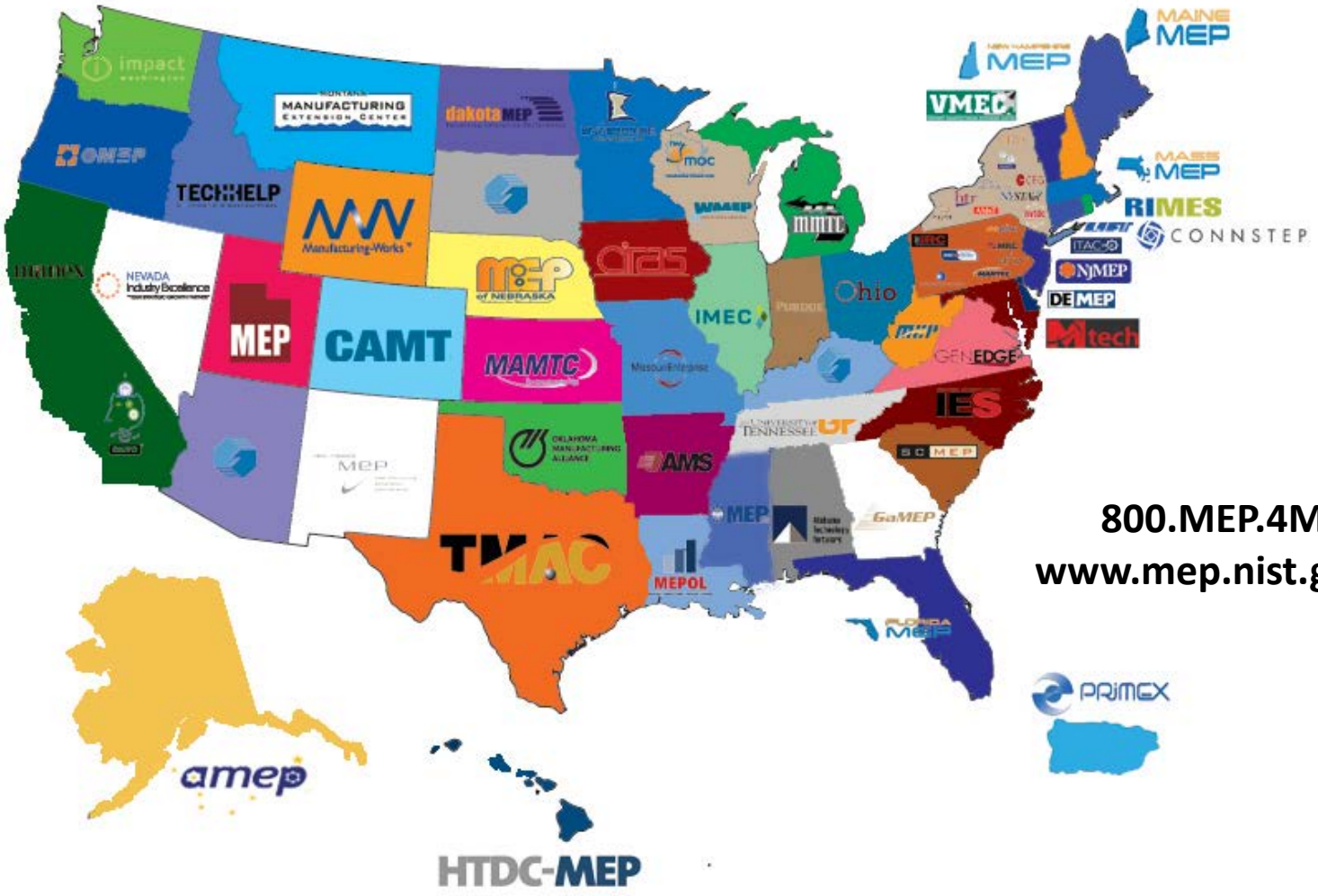
MEP Program Attributes

- **Objective** – enhance the productivity & technological performance of U.S. manufacturers . . . particularly small and medium sized manufacturers (SMMs)
- **Focused Mission** – driven by manufacturers' needs & opportunities
- **Primary Asset** – national network with direct access to SMMs
- **Network of public-private partnerships** – nationally and locally
- **Rigorous Performance Evaluation Processes**
- **High Visibility** – program & individual success stories

The MEP Program in Short . . .

- Program started in 1988, with at least one center in all 50 states by 1996
- 60 centers with 440 field locations
  - System wide, Non-Federal staff is over 1,300
  - Contracting with over 2,100 third party service providers
- Partnership Model – Federal/State/Industry
- MEP System budget ~ $300M
  - 1/3 Federal, 2/3 State and Industry (fees for services)
- Program started because of “market failures” in terms of access to information, technical expertise and cost. Subsequent study in 2003 by NAPA reconfirmed the continued existence of these market failures.
- Emphasis on performance – program and center – measured based upon impact of center services on client firms.

MEP Centers Across the U.S.



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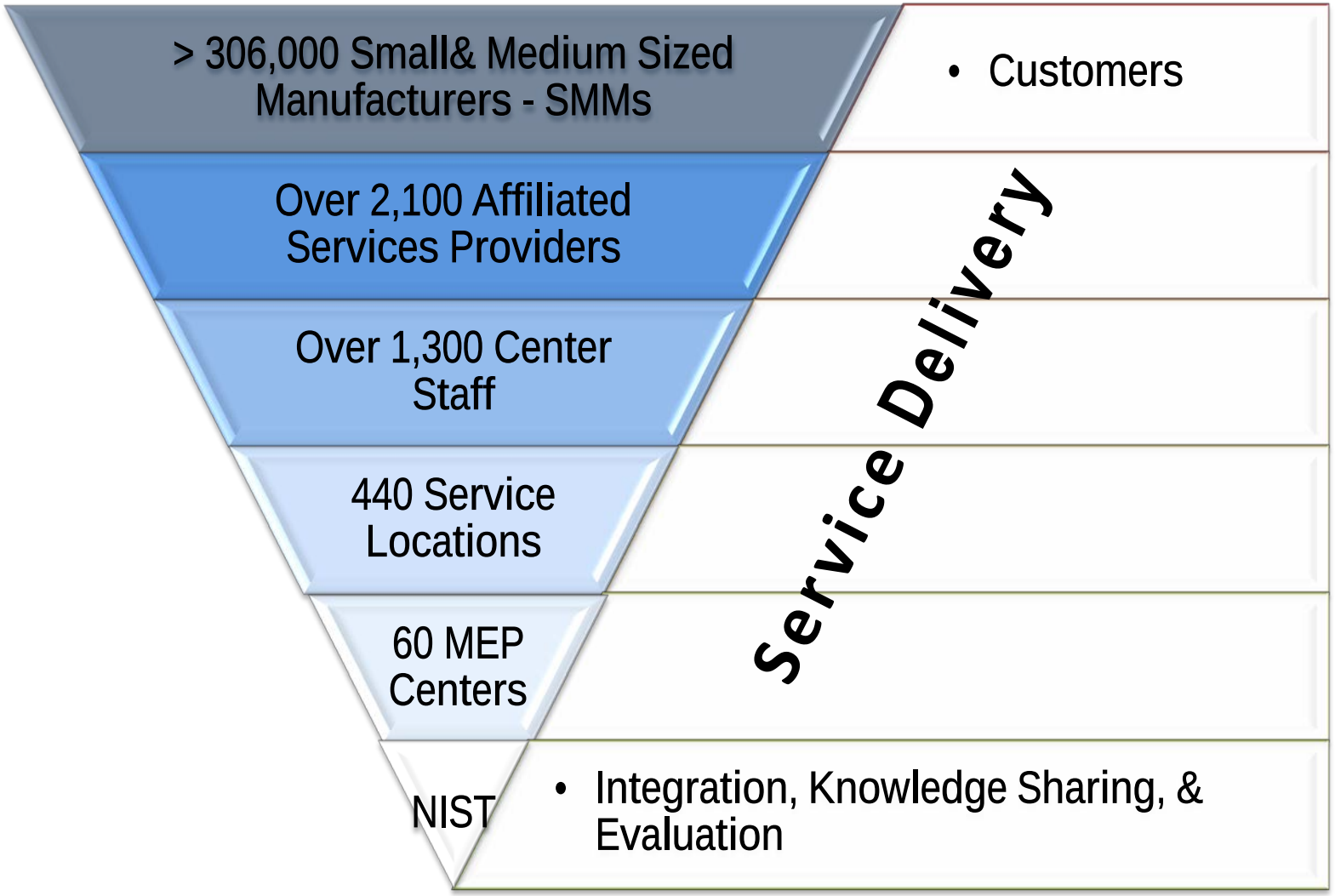
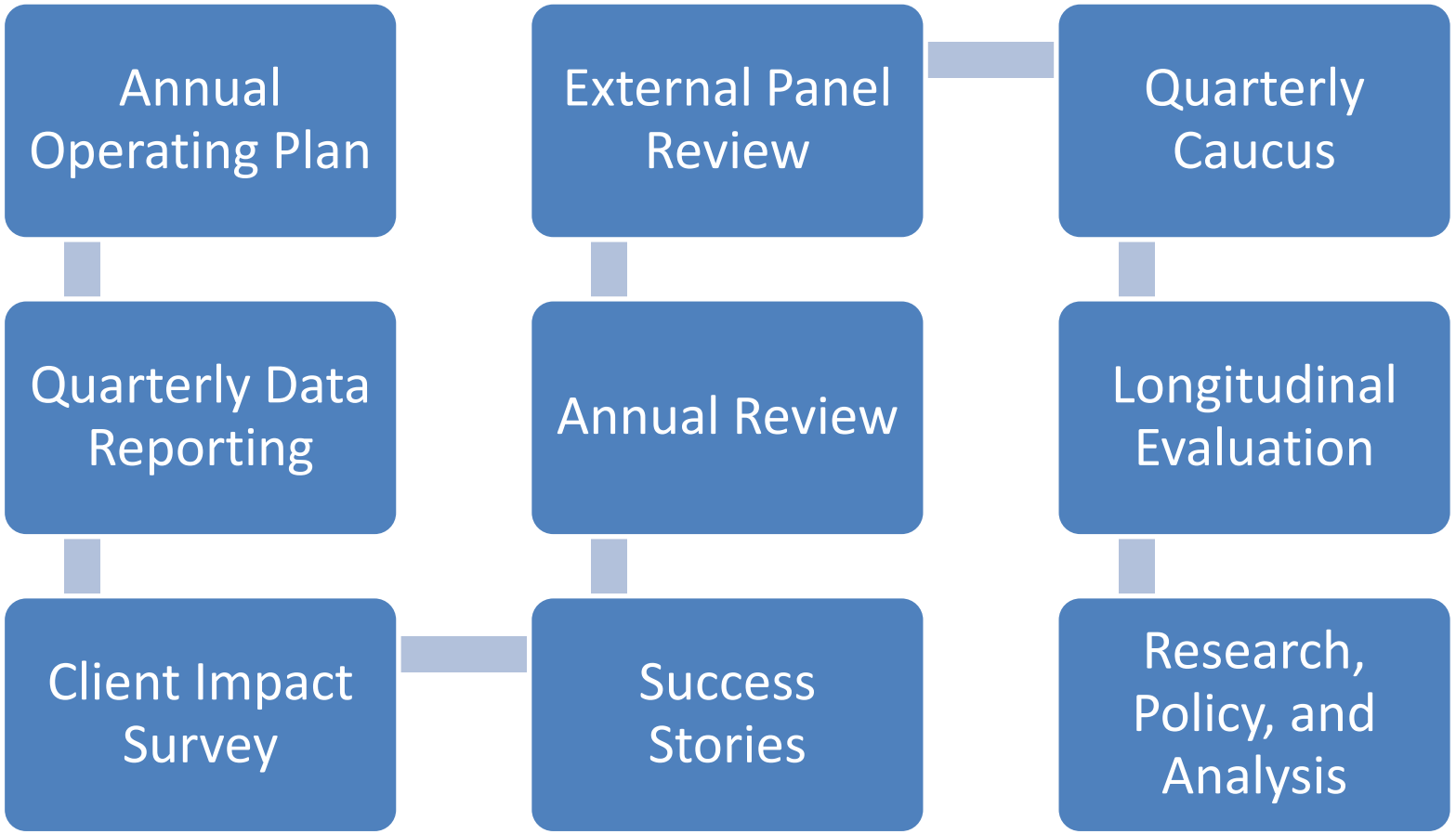
Partnering to Drive a National Program



MEP's Evaluation System



How Centers Work With Manufacturers

- **Initial contact** – group sessions, referral
- **Assessment** – informal walk-through, detailed company analysis
- **Identify** potential issues, define proposed project and approach for solving it
- **Negotiate** with company and sign project contract with fee paid to center
- **Project execution** – center staff, partner organization, and/or third party consultants
- After completion, project follow-up by center to assure customer satisfaction and explore further project opportunities

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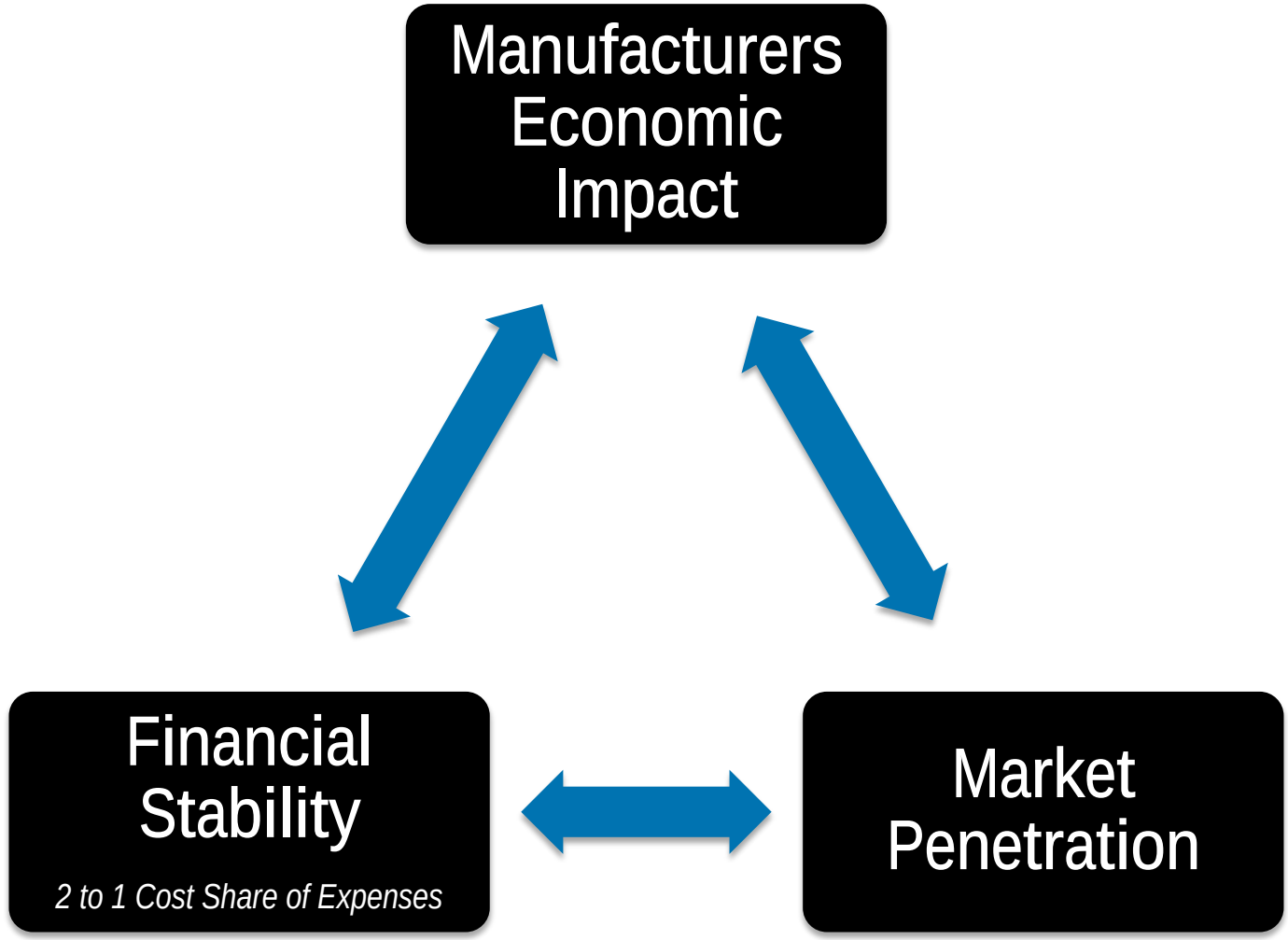
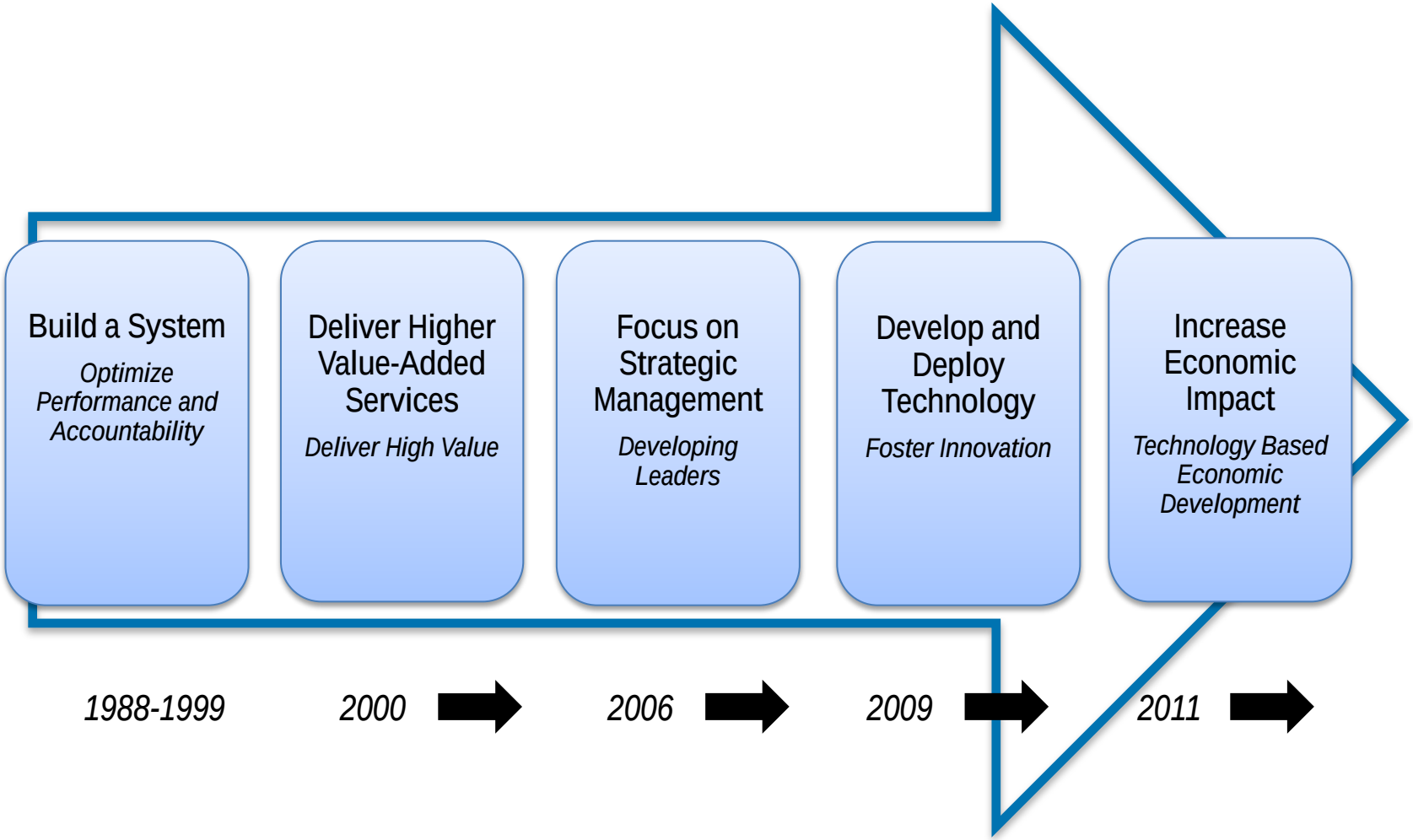
- Project impact data collected by contractor for NIST approximately 6 months after project completion

The Center Balancing Act

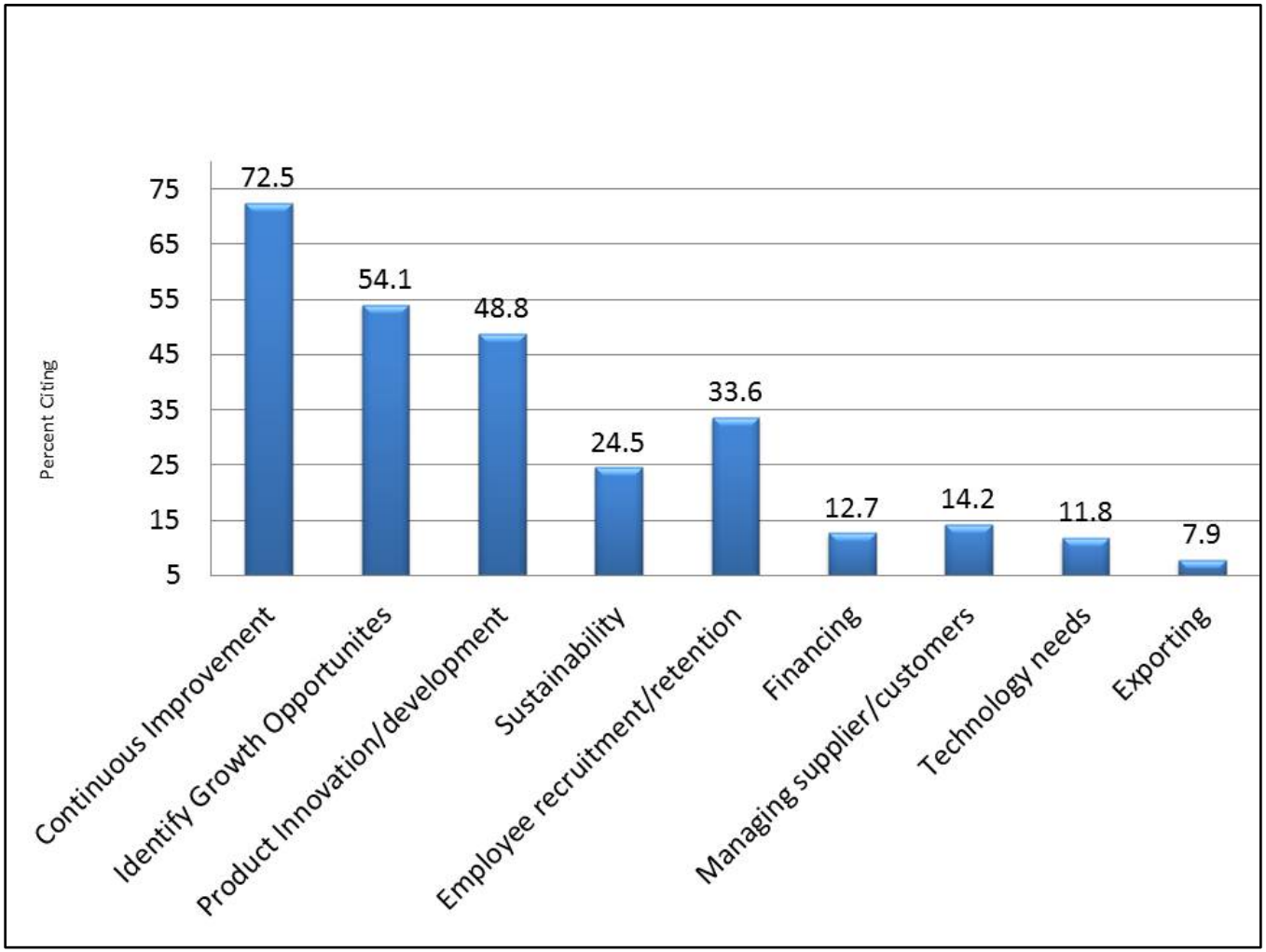


MEP Program Evolution

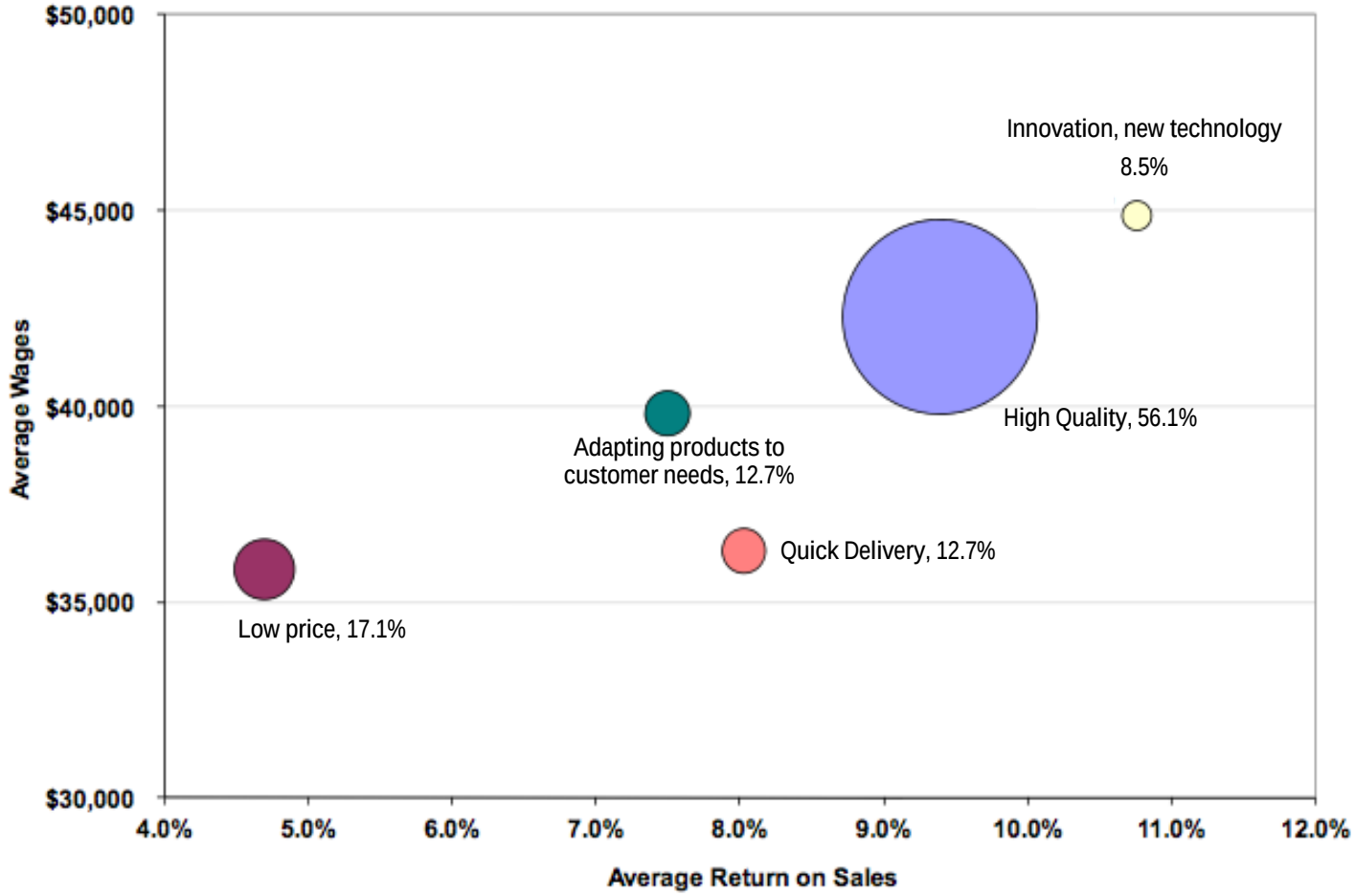


Challenges Facing MEP Clients

As you look forward over the next 3 years, what do you see as your company's three most important strategic challenges?



Innovation Pays off For Firms and Employees



Source: Georgia Tech University, “Innovation in Manufacturing: Needs, Practices, and Performance in Georgia 2012-2014”

Next Generation MEP Strategy

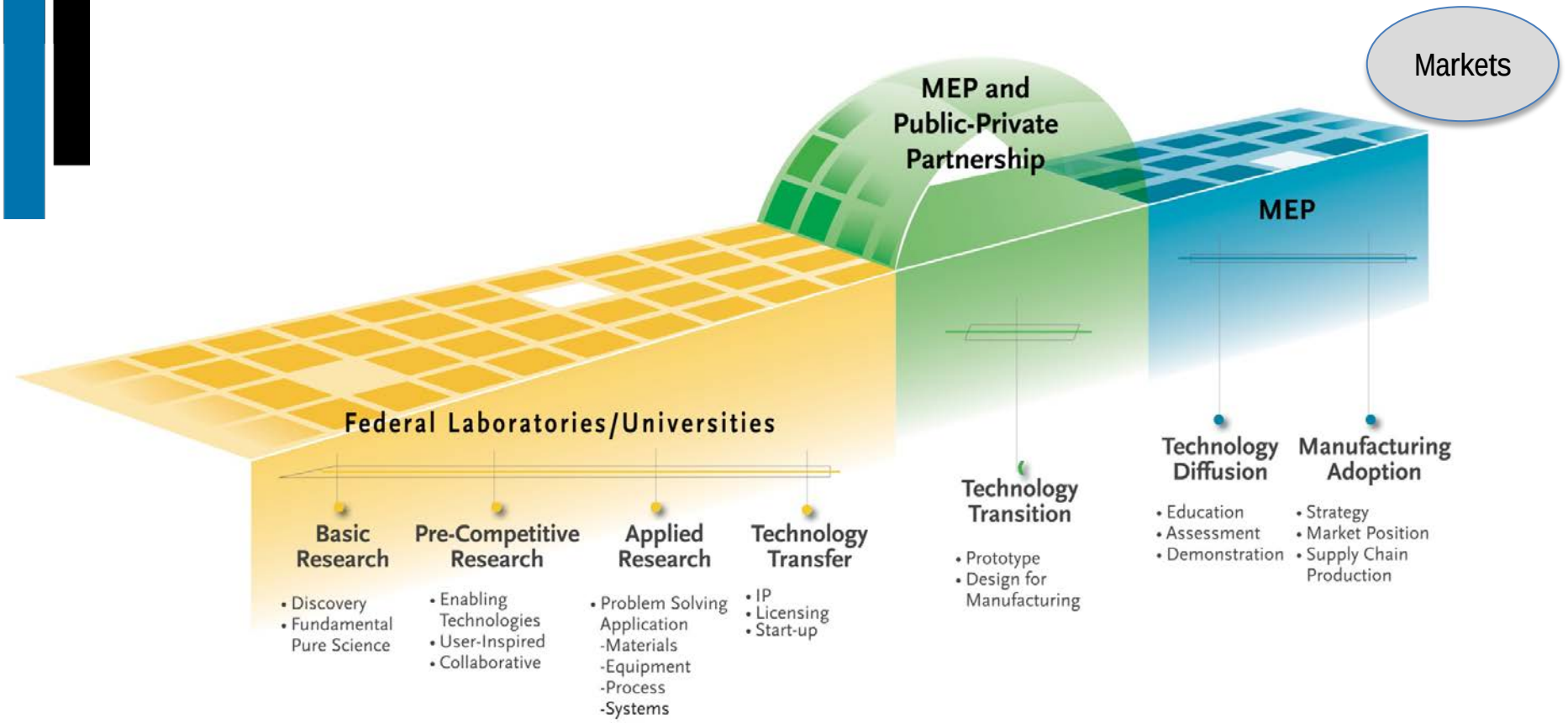
- Increasing manufacturers' ***capacity for innovation resulting in profitable sales growth*** is the overarching strategy for the MEP.
- The approach is to provide a framework for manufacturers that:
  - Reduces bottom line expenses through lean, quality, & other programs targeting plant efficiencies – 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 inter-related areas:
  - Continuous Improvement
  - Technology Acceleration
  - Supply Chain
  - Sustainability
  - Workforce

INNOVATION SERVICES

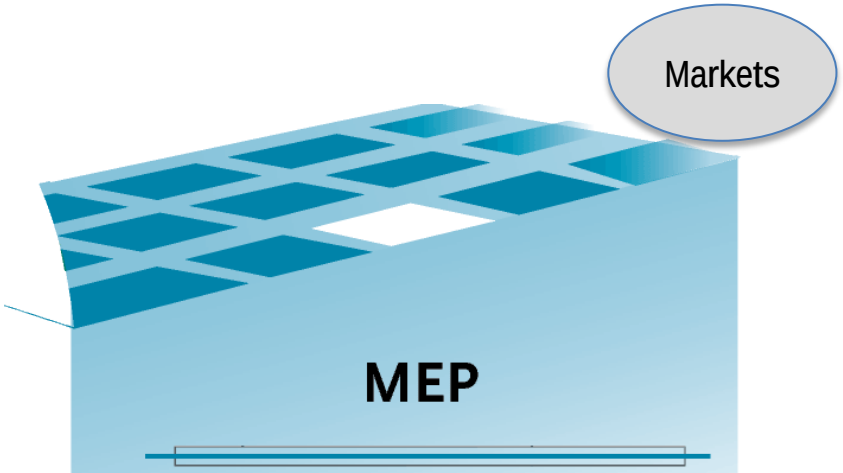
Providing a reliable system that guides companies through the creation of new ideas, discovery of market opportunities, and the tools to drive the ideas into implementation

NEXT GENERATION STRATEGY

Technology Acceleration Framework



Influencing Manufacturers' Growth Strategies



Tools and Services

- Continuous Improvement
- Innovation Engineering
- E3
- Tech Scouting
- ExporTech
- Market Diversification
- SMARTalent
- IP Assessment
- National Innovation Marketplace
- Supplier Scouting - Buy American
- Innovation Black Belts
- Sales Support

Partners

- Trade Assoc.
- OEMs
- DOE
- DOD
- DOL
- DOT
- EDA
- EPA
- ITA – USEAC
- SBA
- USPTO

Connecting to Technology Developers

Tools and Services

- Technology Translation
- National Innovation Marketplace
- SBIR
- Technology Scouting

Partners

- Universities
- Federal Labs
- USPTO
- Technology Intermediaries
- Innovation Organizations

Bridging the Gap

Tools and Services

- Technology Scouting
- Lean Product Development
- Technology-Driven Market Intelligence - TDMI
- National Innovation Marketplace
- Prototyping Technology
- Access to Finance

Partners

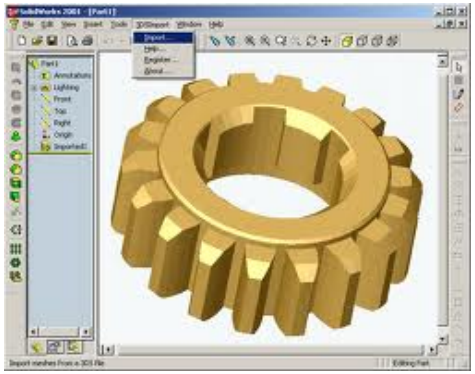
- Universities
- Federal Labs
- Prototyping Firms
- Technology Intermediaries
- Innovation Organizations
- Financial Organizations
- NNMI (initially NAMI)

Additive Manufacturing (AM) – Opportunities for MEP

Emerging manufacturing-enabling AM technologies include:

New Materials - *polymers, metals, new: carbomorph (flexible electronics)*
Evolving Machines – *$↓ tabletop, $↑ repeatable, precise*
Diverse Applications - *consumer, biomedical, aerospace, automotive*
Community Engagement - *NAMII, Thingiverse, Shapeways*

- 5 MEP Centers already actively engaged in AM projects with in-house build and modeling/FEM capabilities; other Centers leveraging 3rd parties for AM
- NIST MEP developing regional AM consortium in northern CA to leverage capabilities at MEP Centers, universities, community colleges and AM technologies/expertise at LLNL
- Ongoing system communications regarding AM resources, internal/external to network (Center specs, regional & national resources, success stories ...)
- Ongoing scouting/inventory for emerging resources and trends to analyze for gaps/opportunities and share with network



Advanced Modeling and Simulation for Manufacturing

OH!Polymer PolymerOhio Network

OVERVIEW

- MEP E-CAR Project led by **Polymer Ohio**, an Ohio (OH) Edison Technology Center
- Focused on process & capabilities improvement of small U.S. manufacturers via their use of advanced modeling & simulation (M&S) software
- Small polymer manufacturers in OH initial target; expanding beyond polymer industry & beyond OH
  - ✓ Assessing manufacturers needs, communicating potential benefits, training manufacturer's staff in applying methods, and providing access to M&S at affordable pricing

STATUS

- Developed and launched the **Polymer Portal** as principal access point for portfolio of M&S applications and training

POLYMER PORTAL

Software	Training	Technical Support
Available Software	Certificate Programs	Software Product Support
Software Pricing & Purchasing	Available Training Courses	Portal Customer Support
Access Software for Training	Receive Training Updates	How do I access my software?

- M&S assessment interactions with ~50 OH polymer manufacturers
- Several hundred manufacturers engaged via events
- Even with flexible business models and access, difficult to get small manufacturers to embrace M&S – perception of barriers: staff capabilities, required investment, uncertain returns
  - ✓ Direct company interactions are key – assess needs & opportunities, demo M&S benefits

A Fact & Challenges in Serving SMMs

- SMMs want and will pay for technology "services" and "solutions" that lead to profitable growth

How do we deal with –

- Integration across diverse business models of partners to create a seamless, efficient system
- Geography
- Capacity – not 10's, but 100's or 1000's of manufacturers
- Scale – incremental, not necessarily disruptive
- Time frame to transition and implement

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