
Dept. of Commerce / NIST / MEP

Manufacturing Extension Partnership

*supporting U.S. industry, Federal Laboratories, and DoD
in technology transfer and commercialization.*

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www.mep.nist.gov



Importance of U.S. Manufacturing

- Major source of the “best” jobs:
(employs 20% of private sector & 25% of payrolls)
- Leading contributor to national wealth:
(\$1.3 trillion or 29% of GDP)
- Largest generator of productivity growth:
(double the pace of the total economy)
- Greatest investment in U.S. R&D:
(most prolific innovators and adaptors of new technologies)



Value of U.S. Small Manufacturing Enterprises (SMEs)

- 99% of all manufacturers employ less than 500.
- There's lots of *them!*357,000 SMEs.
- They're the most agile, adaptable and creative firms: (leaders in innovation & users of technology).
- SMEs account for over 50% of total U.S. production.
- Foundation of a diverse industrial base & *OEM-Enablers*: (50% of "big business" revenues outsourced to SMEs).



MEP Mission Statement:

“To strengthen the global competitiveness of U.S. - based manufacturing by providing information, decision support, and implementation assistance to smaller manufacturing firms in adopting new, more advanced manufacturing technologies, techniques, and business best practices.”



National MEP System

Target Market
& Customers

> 350,000 Small & Medium Size Manufacturers

> 3,500 Affiliated Service Providers

National Service
Delivery

> 1,500 Field Agents

> 300 Service Locations

Evaluation and
Program Mgmt.

59 MEP Centers

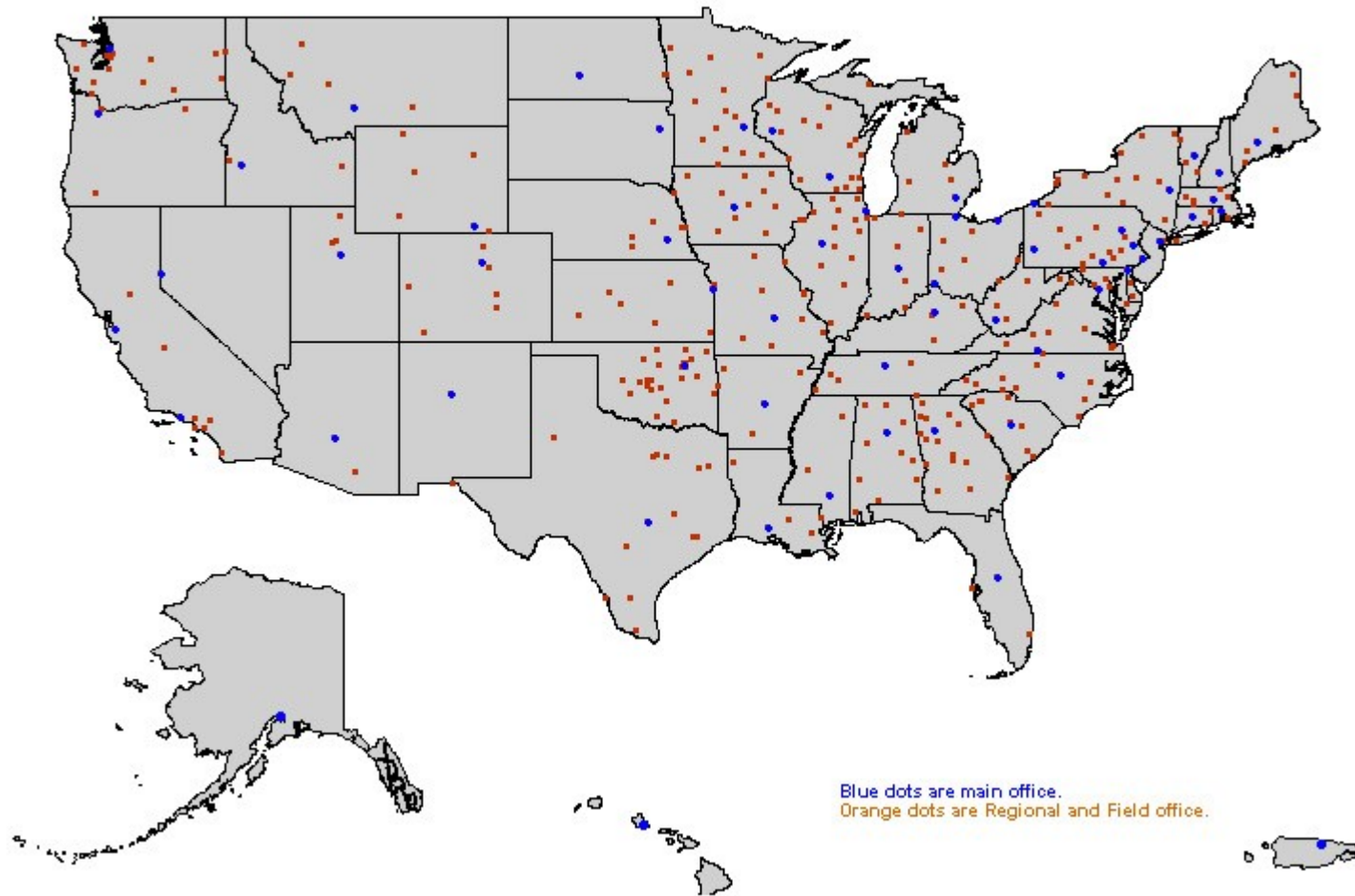
Mostly private, NFP
consulting firms

NIST MEP

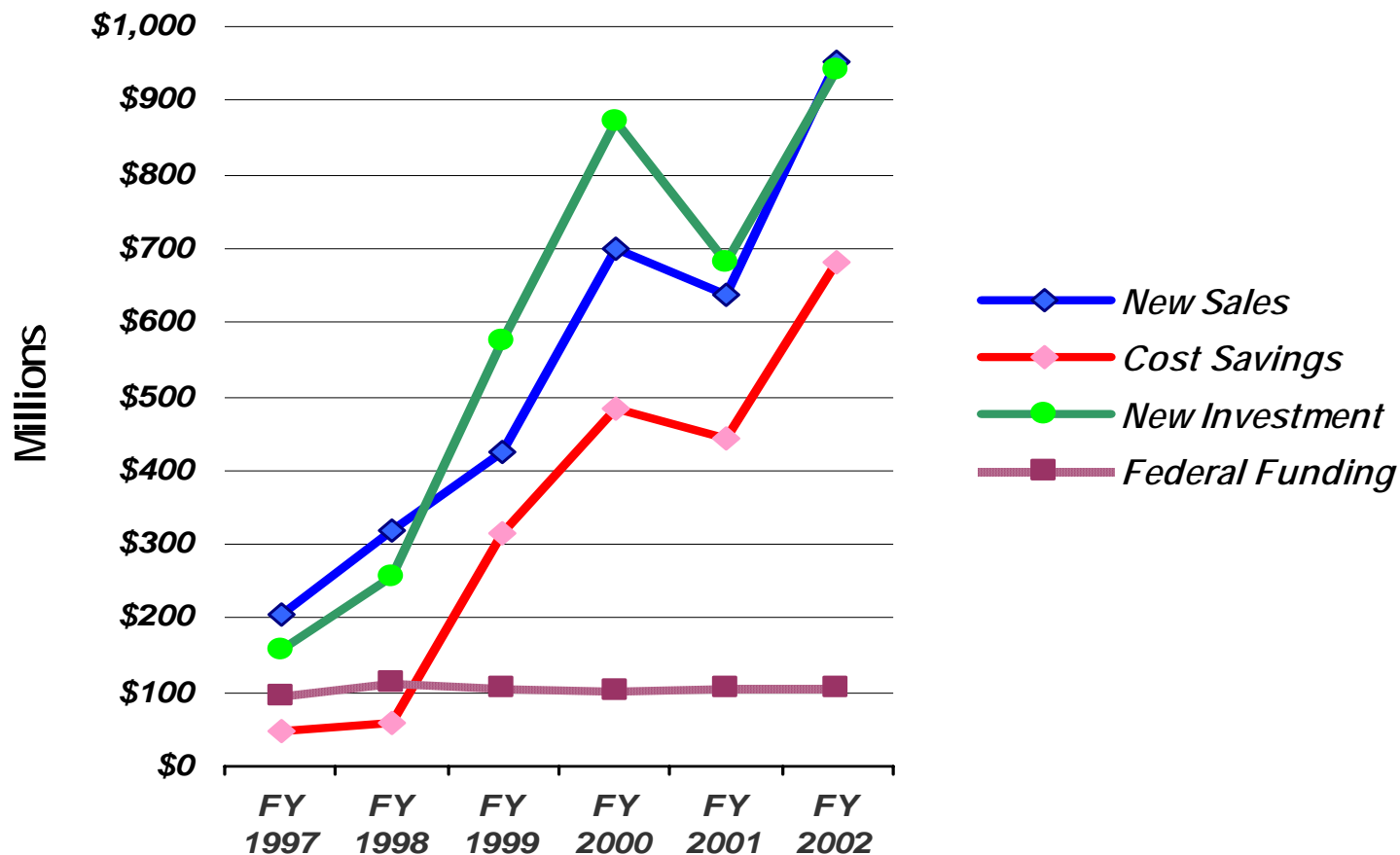
NIST MEP Offices -
Gaithersburg, MD



MEP System Office Locations



Client Impacts and ROI



MEP's Core Services "Tool Box"

- Strategic management and business systems
- Quality systems
- Environmental, Health & Safety
- Lean Enterprise
 - Lean Enterprise Simulation
 - Lean Enterprise Diagnostics
 - Value Stream Mapping (VSM)
 - Set-Up Reduction
 - Cellular / Flow Manufacturing
 - Total Productive Maintenance (TPM)
 - Lean Enterprise Planning & Implementation (Kaizen)
 - Other: 5S, Six Sigma, Lean Enterprise Accounting



Challenges to U.S. Manufacturers

- Coming out of a tough manufacturing recession: (record job loss, trade deficits, rising external costs)
- Demanding customers getting more demanding: (better, faster, cheaper + evolutionary-revolutionary)
- U.S. R&D growth down 50% & foreign share of R&D up!
- Widening productivity divide & growing innovation gaps: (keeping up and finding the right people and right tools)
- Greater Foreign Direct Investments for manufacturing in China and other low-cost regions.



Recent MEP Study on Global Competitiveness:

Sheltered

Sheltered. Businesses or product lines with competitive advantages v. China and low-cost regions. Have carved out protected position within industries or markets under pressure.

In Danger

In Danger. Face strong pressure from low-cost regions, but no clear competitive advantage. Will die a slow death unless find sheltered position.

Gone

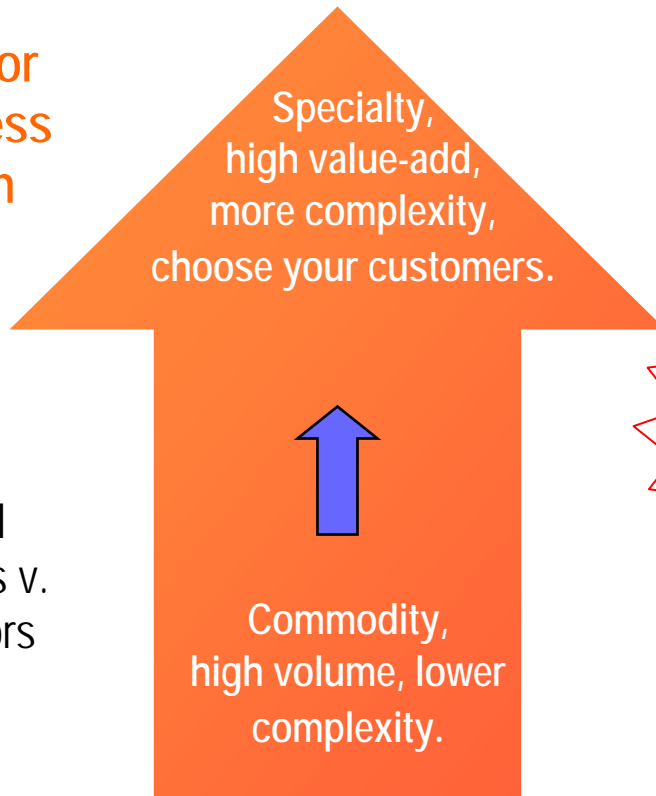
Gone. Production already migrated to China or other low-cost region. Business loss to U.S. manufacturers is unrecoverable.



Key Strategies for competing in low-cost world markets

1. INNOVATE for product / process differentiation

- to strengthen competitive advantage
- to offer higher total value to customers v. low-cost competitors

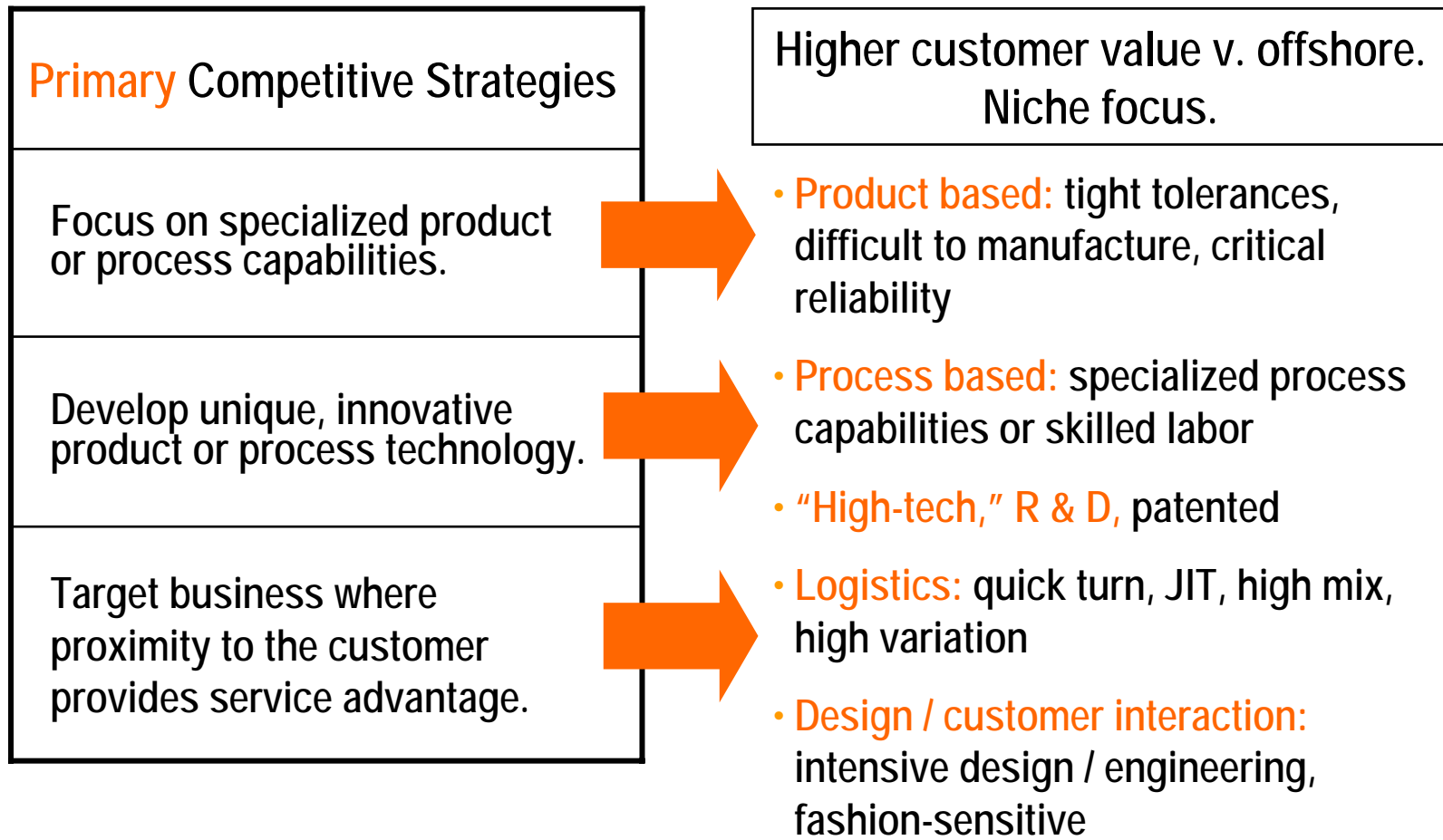


2. Become highly ADAPTIVE

Adaptive companies have the best chance for continued survival and growth.



Primary Competitive Strategies



Conclusions of MEP study on Global Competitiveness

- U.S. Manufacturers:
 - Must adopt new technologies to compete and survive amidst manufacturers in low-cost producing countries.
 - Must strategically select the industries, markets and customers they serve.
 - Must become more adaptive in embracing new technologies, new products, new business processes and practices.
 - Need guidance and assistance in vital areas of innovation, technology transfer, product development, marketing, business development and commercialization.



**“Innovation Capacity Building”
Client Services & Program Partners**



Background

Manufacturing In America

*A Comprehensive Strategy to Address
the Challenges to U.S. Manufacturers*

Donald L. Evans, Secretary of Commerce

January 2004

Partners On A Mission

Federal Laboratory Practices Contributing to Economic Development

Bruce P. Mehlman, Assistant Secretary for Technology Policy

November 2004



Innovation Services: Part I

Technological Development:

- New or Improved Innovations & Inventions (Products, Processes, Materials & Services)
- Supplement SME Technology Development Capacities
- Research, Development, Design & Engineering
- Test, Simulate, Prototype, Demonstrate & Validate



Innovation Services: Part II

Technology Commercialization:

- Business Formation or Expansion Plans & Strategy
- Strategic Marketing & New Business Development
- Intellectual Property Management (Patents, Lisc.)
- Seed & Growth Capital Access (Debt, Equity, Grants)
- Product Development (R&D) Project Management
- Design & Engineering for Manufacturability
- Supply Chain Development & Outsourcing Selection
- Joint Ventures, Business Partnerships & Alliances
- International Business Development



Partnerships

- **State Government:**
 - R&D Investment Funds and S&T Authorities
 - Economic Develop. Organizations (EDOs & EDDs)
- **Private Consultants:**
 - Business Planning & Enterprise Strategy
 - Market Research & Business Development
 - Financial Advisors & Capital Providers
- **Federal Program Support:**
 - Departments of Energy, Labor & Defense
 - EDA, NSF, SBA, EPA & SBIRs
- **Federal R&D Institutions:**
 - National Laboratories (NNSA - Sandia)
 - NIST Laboratories



DoC and DoD Collaboration

[Memorandum of Understanding – June 2004]



Collaborative Purpose

To accelerate the transfer and transition of appropriate technologies to the private and public sector industrial base in order to establish a national rapid response defense manufacturing supply chain.



Client Examples

Emerging Technology Start-Ups:

- Medical Equipment & Devices (Optics)
- Environmental Monitors (Oceanographic)

Innovations from Existing Companies:

- Composites Materials (Industrial Products)
- Consumer Retail Products (Clothing & Apparel)



POC for NIST MEP System

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