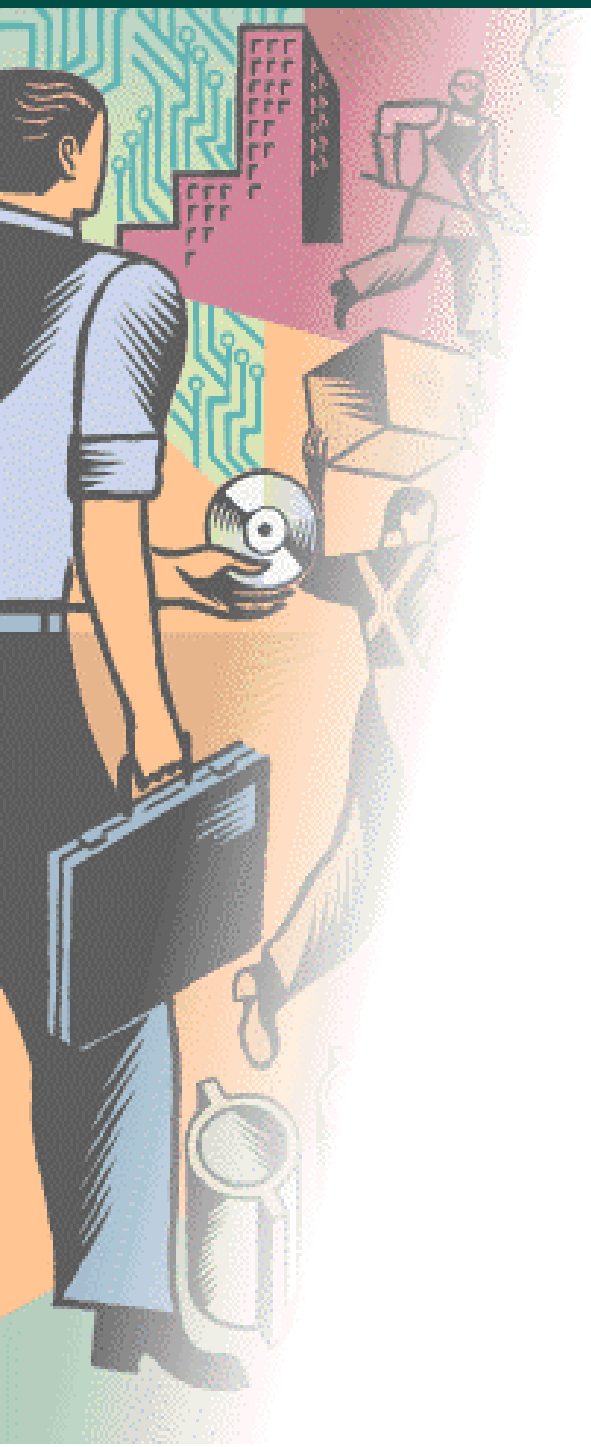

Manufacturing Competitiveness

Lean Enterprise Manufacturing & Innovation Capacity Building

Naval-Industry R&D Partnership Conference
Washington, D.C.

August 2004

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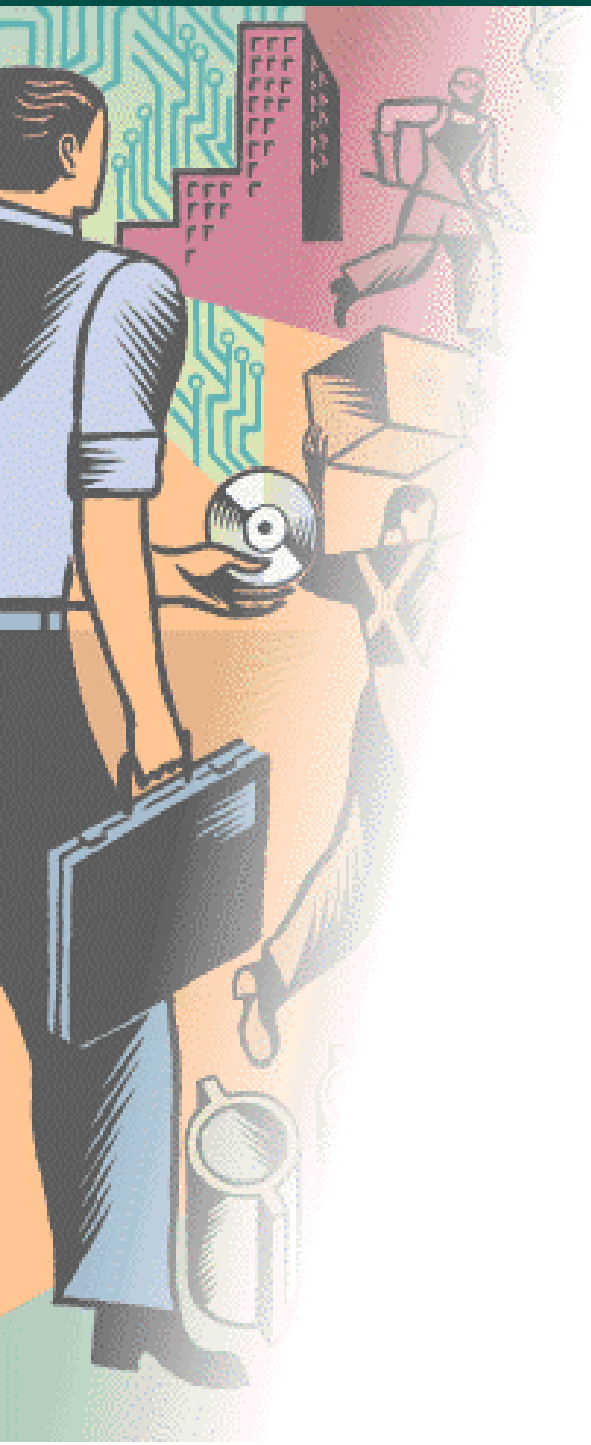
Manufacturing Extension Partnership (MEP)
National Institute of Standards & Technology (NIST)
United States Department of Commerce

www.mep.nist.gov

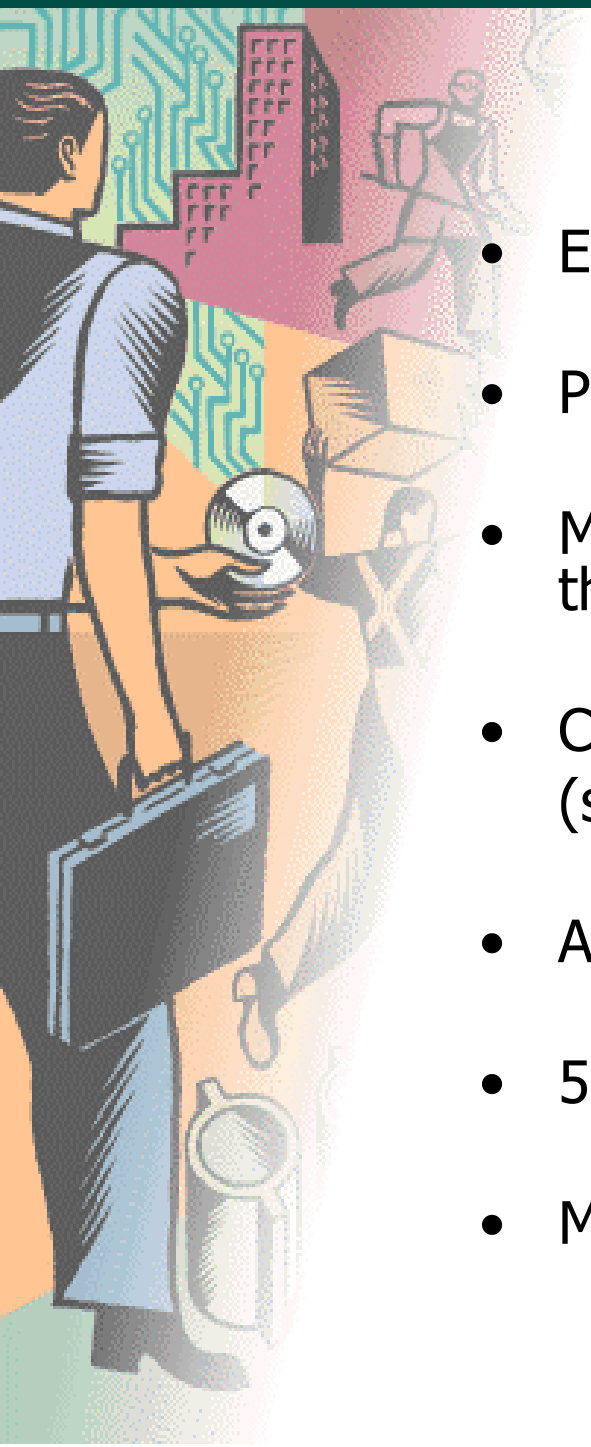


Overview

- Importance of U.S. Manufacturing & SMEs
- Manufacturing Extension Partnership (MEP)
- U.S. Department of Defense (ONR)
- U.S. Department of Labor (ETA)
- Closing Comments

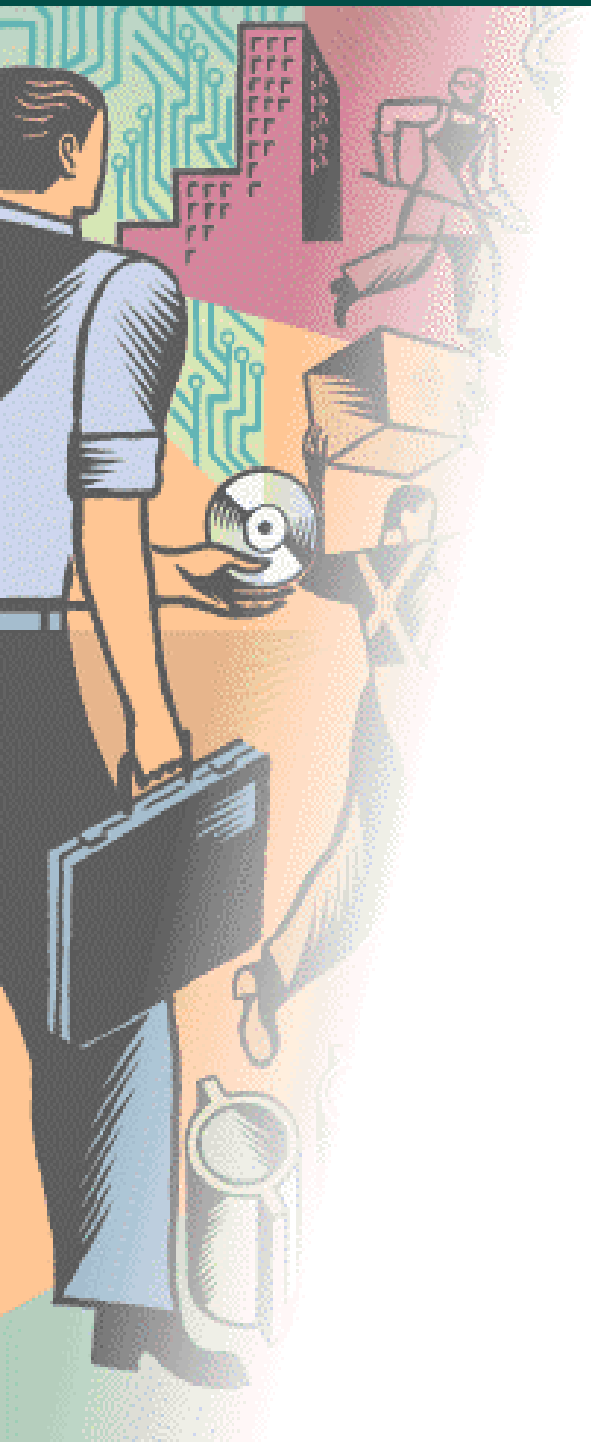
Importance of Manufacturing & SMEs

- Leader in productivity growth, wealth creation & best jobs.
- Greatest source of R&D investment & innovation capacity.
- SMEs support over 50% of production (95% of firms).
- Most agile & creative of firms & key OEM enablers.
- Coming out of a tough manufacturing recession.
- Increasing customer demands & growing competition.
- Widening productivity divide & innovation gaps.



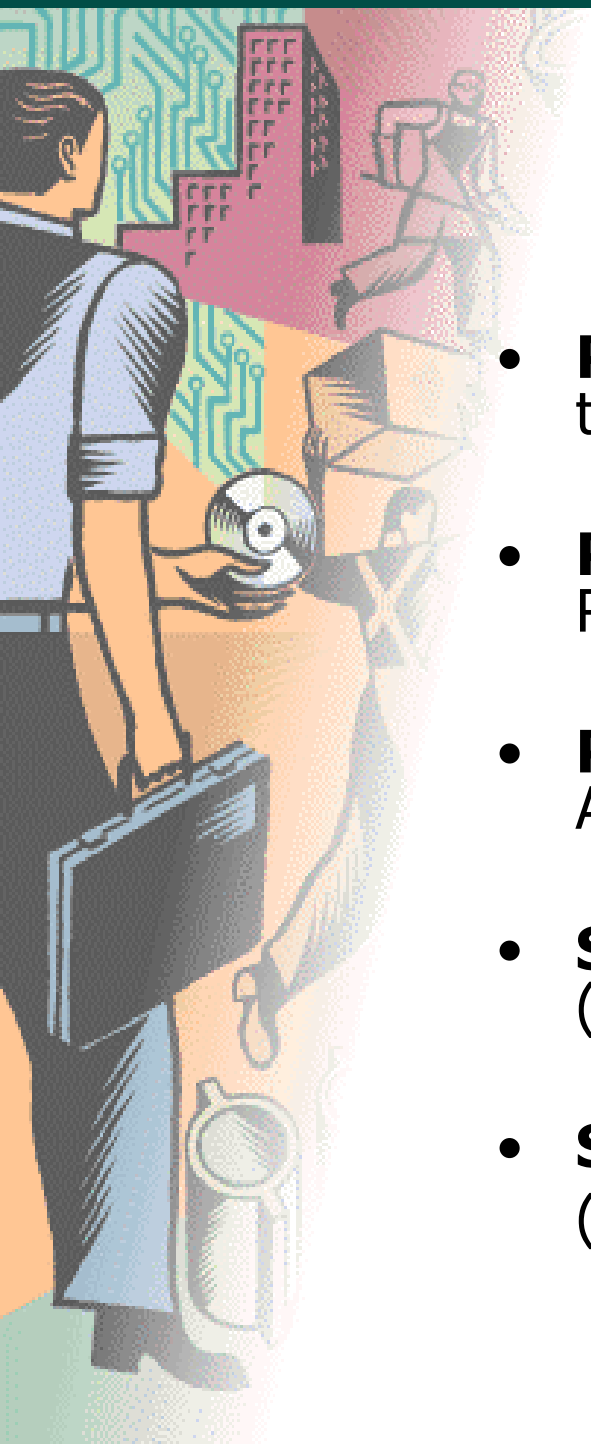
National MEP Program

- Established 1988 at the U.S. Department of Commerce:
- Public-Private partnership between government & industry.
- Mission: Increase U.S. manufacturing competitiveness through advance technologies & best business practices.
- Core services: Lean Manufacturing & Supply Chain: (specialized services in technology transfer & innovation)
- Assessments, training, technical assistance & cost-share.
- 50 states (400 offices) 1,700 agents & over 18,000 clients.
- MEP client performance increases 15% to 5 times greater.



U.S. Department of Defense
Office of Naval Research (ONR)

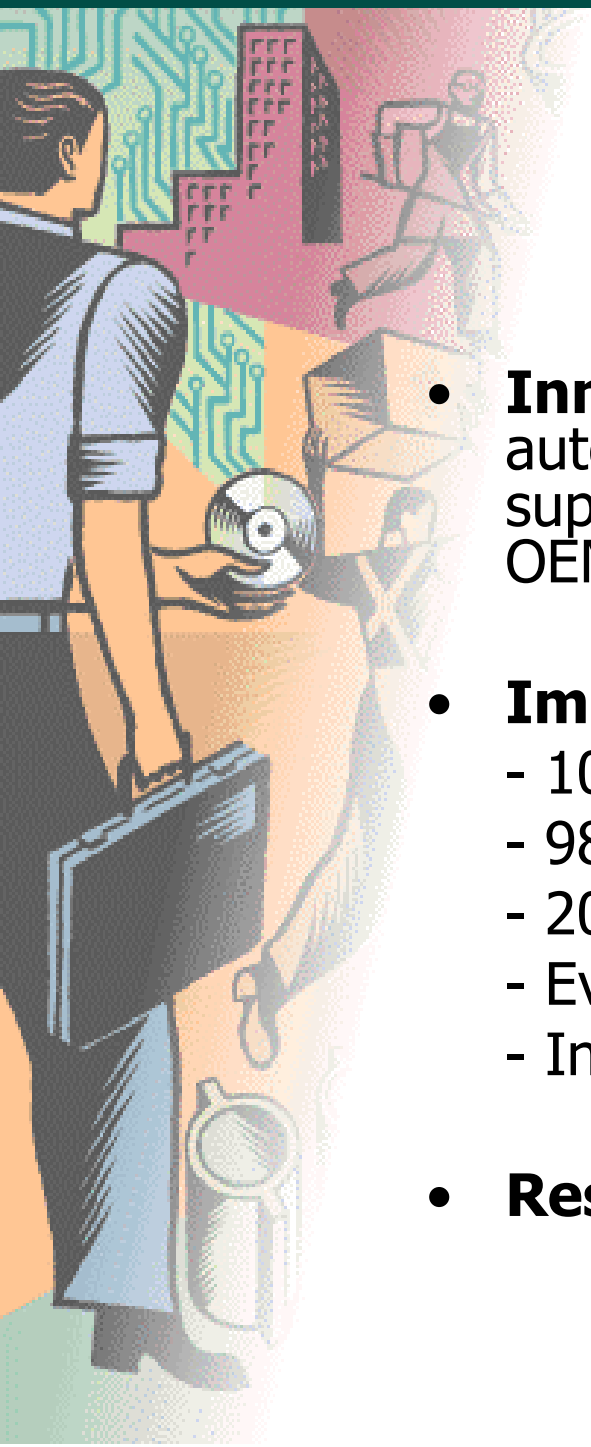
Lean Enterprise Manufacturing Workforce Development



Lean Enterprise Manufacturing

Workforce Development

- **Purpose:** Improve cost, quality, delivery & performance to USN systems through OEM supply chain improvements.
- **Primes:** Northrop Grumman, General Dynamics, Boeing, Rockwell Collins & Honeywell.
- **Platforms:** DDG51 Destroyer, F18 Fighters, LPD17 Amphibious Ship & SLAM-ER Missile.
- **Suppliers:** 21 firms diverse manufacturers (80% SMEs): (hydraulic, values, dehumidifiers, electronics & propulsion)
- **Solutions:** Lean Manufacturing workforce development: (training, simulation & implementation + funding)



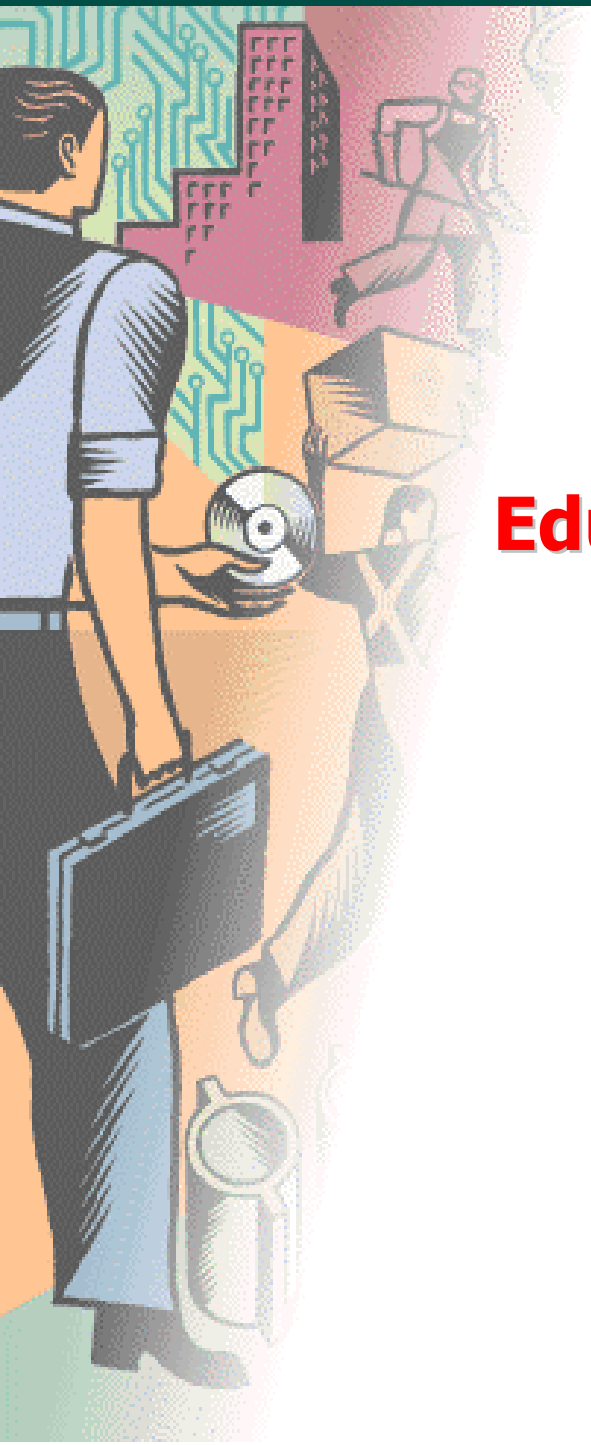
Lean Enterprise Manufacturing

Workforce Development

- **Innovations:** Transfer of world-class practices from the automotive industry to integrated defense-commercial supply chain manufacturers with on-site collaboration from OEM customers and Navy end-users "on-the-shop-floor".

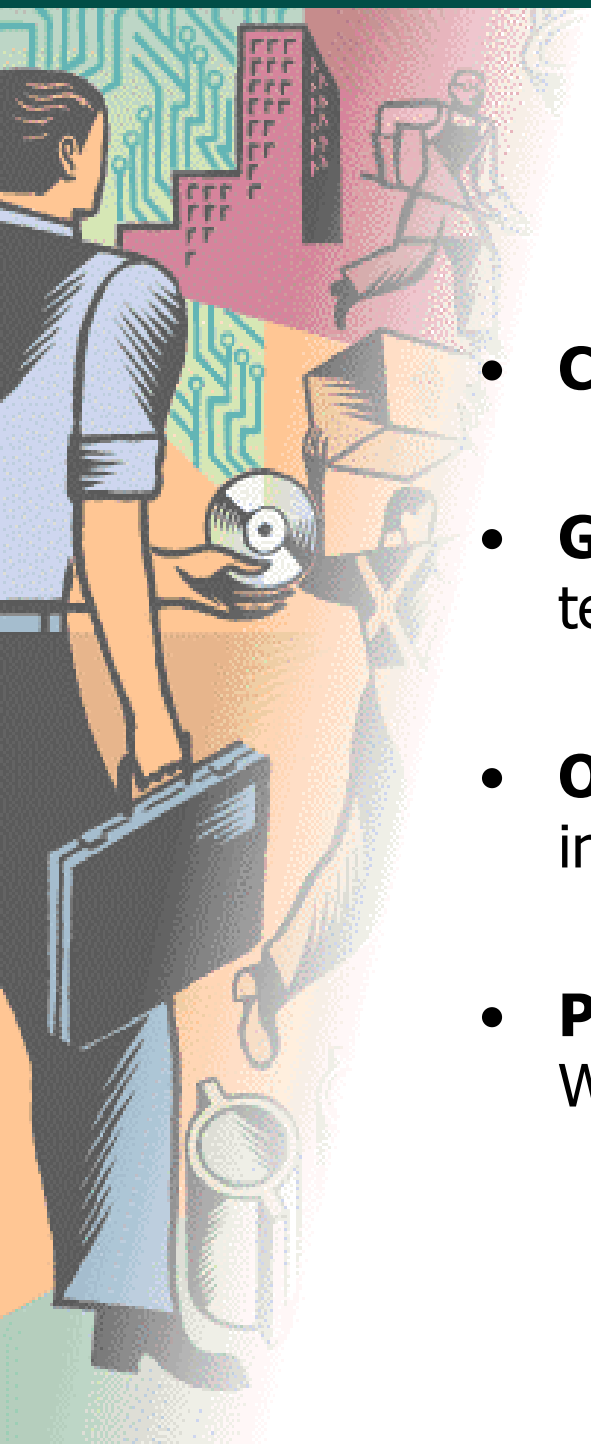
- **Impact:** 2 years & $30M savings in supplier improvements:
  - 100% reduction in delivery time.
  - 98% first past yield in quality from lows of 50%.
  - 20 to 40% cost reductions though waste elimination.
  - Every supplier gained increased DOD procurement sales.
  - Increased competitiveness for global commercial markets.

- **Results:** Navy gets better, faster, cheaper products!



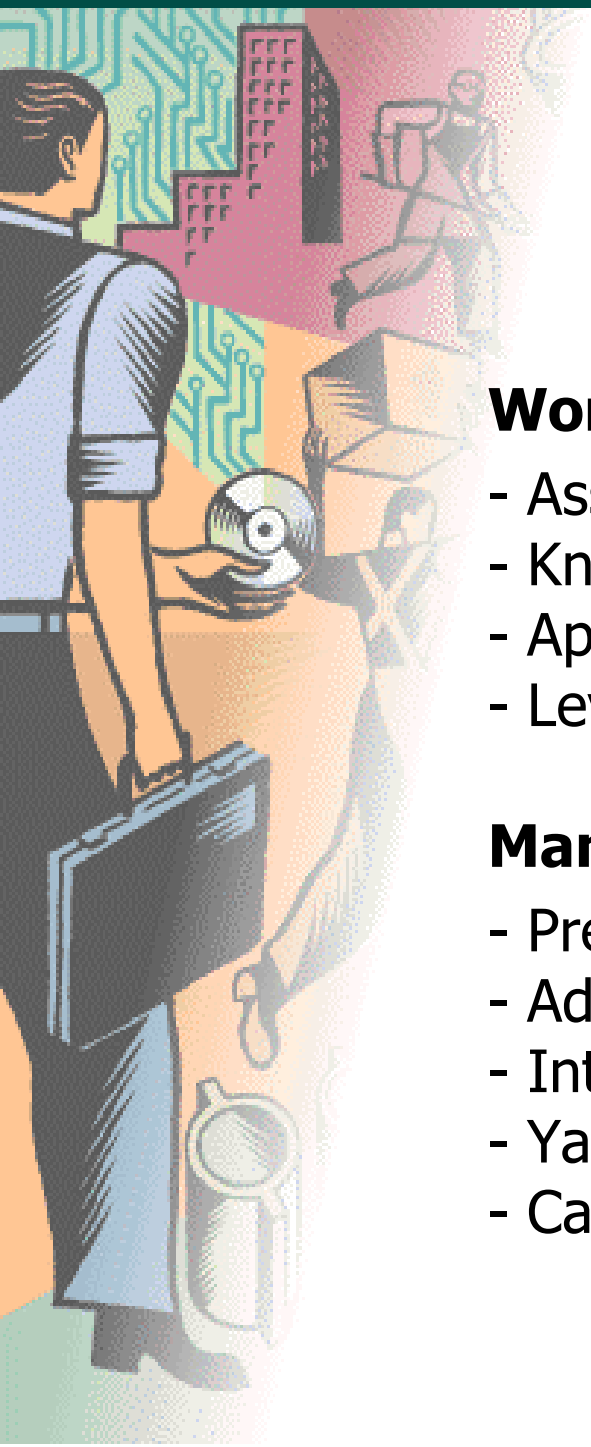
U.S. Department of Labor
Education & Training Administration (ETA)

Innovation Capacity Building
Workforce Development Initiative



Innovation Capacity Building
Workforce Development

- **Challenge:** Strengthen SME innovation capacity building.
- **Goal:** Increase SME workforce skills in advanced technology development & commercialization deployment.
- **Objective:** Improve SME global competitiveness & innovation capacity in product & process development.
- **Participants:** MEP Center partnerships with local Workforce Development Agencies, industry & laboratories.



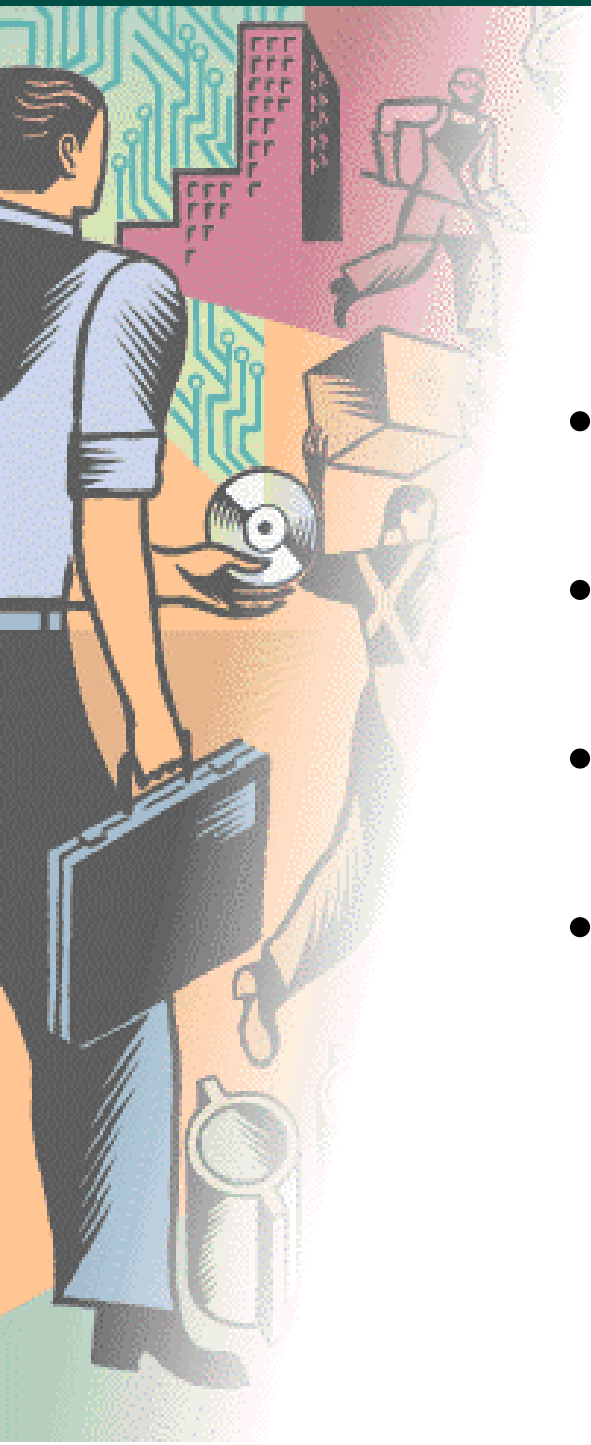
Innovation Capacity Building
Workforce Development

Workforce Solutions for SMEs & "S&E" Professionals:

- Assess and Road Map technological needs & opportunities.
- Knowledge sharing laboratory technologies & resources.
- Applied workforce skill development in commercialization.
- Leveraging public-private resources (assistance & funding).

Manufacturing SME "Dual-Use" Innovators:

- Precision welding for surface ship combatants.
- Advanced composite ballistics materials & testing.
- Interoperatablity wireless device development.
- Yacht building trades applied to Special Ops watercraft.
- Casino security RFID tag technologies for logistics.



Closing Comments

- Importance of U.S. manufacturing & SMEs.
- Competitive challenges & opportunities to compete.
- Public-private resources in productivity & innovation.
- Additional information & accessing assistance.