

The National-Level Economic Impact of the Manufacturing Extension Partnership (MEP)

# REMI WEBINAR

# JUNE 14, 2017

**NIST**  
National Institute of  
Standards and Technology  
U.S. Department of Commerce



**MEP • MANUFACTURING  
EXTENSION PARTNERSHIP**

W.E.  
**UPJOHN INSTITUTE**  
FOR EMPLOYMENT RESEARCH

300 South Westnedge Avenue, Kalamazoo, MI 49007  
[www.Upjohn.org](http://www.Upjohn.org)

# W.E. Upjohn Institute for Employment Research

- The Institute is an activity of the W.E. Upjohn Unemployment Trustee Corporation, which was established in 1932 to administer a fund set aside by Dr. W.E. Upjohn, founder of the Upjohn Company.
- **MISSION:**
  - The W.E. Upjohn Institute for Employment Research is a private, nonprofit, nonpartisan, independent research organization devoted to investigating the causes and effects of unemployment, to identifying feasible methods of insuring against unemployment, and to devising ways and means of alleviating the distress and hardship caused by unemployment.

MEP is a public-private partnership that provides small and medium-sized manufacturers (SMMs) technology-based services needed to thrive in today's economy and create well-paying manufacturing jobs. MEP is managed by the National Institute of Standards and Technology (NIST), a U.S. Department of Commerce agency, and implemented through a network of industry-led centers located in all 50 states and Puerto Rico. MEP centers are not-for-profit corporations or state/university-based organizations that employ or partner with industry experts who work with manufacturers.







## MISSION

“

To enhance the productivity and technological performance of U.S. Manufacturing.

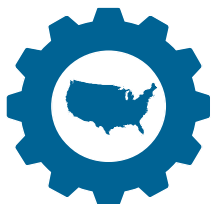
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## ROLE

MEP's state and regional centers facilitate and accelerate the transfer of manufacturing technology in partnership with industry, universities and educational institutions, state governments, and NIST and other federal and research laboratories and agencies.

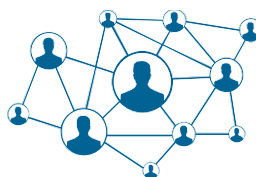


# MEP Program in Short



## Program Started in 1988

At least one center in all 50 states and Puerto Rico by 1996.



## National Network

51 centers with nearly 600 Field Locations.  
Nearly 1,300 non-federal staff nationwide, with over 2,500 partners.



## Partnership Model

Federal, State, University,  
and Industry



## MEP System Budget

\$130 Million Federal Budget  
with Cost Share  
Requirements for Centers



## Global Competitiveness

Program was created by the  
1988 Omnibus Trade And  
Competitive Act



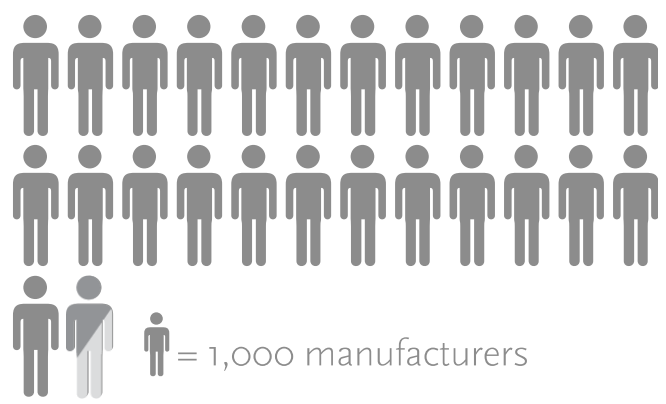
## Evolving Role

Program continues to evolve in  
order to support manufacturers  
during changing economic  
situations.



# Delivering Impacts for Clients

25,445  
Manufacturers  
reached in FY16



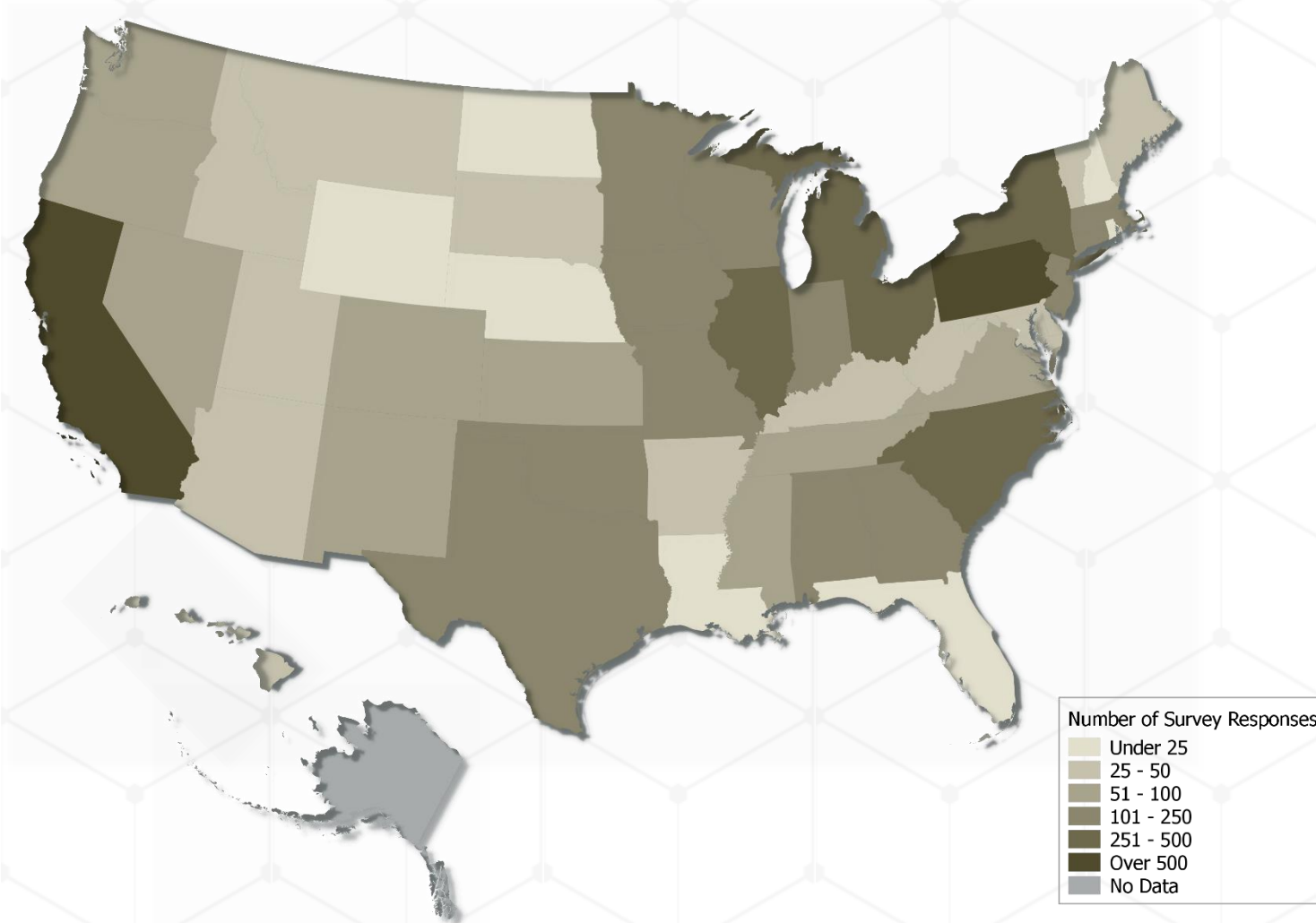
 JOBS RETAINED	 JOBS CREATED	 NEW CLIENT INVESTMENTS	 COST SAVINGS	 RETAINED SALES	 NEW SALES
66,922	19,680	\$3.5 Billion	\$1.4 Billion	\$7 Billion	\$2.3 Billion



# Study Purpose/Background

- The study's goal was to use the client-reported outcomes to estimate the overall effect of MEPs on the U.S. economy.
- NIST MEP contracted with the W.E. Upjohn Institute for Employment Research. Upjohn is a private, nonprofit, nonpartisan, independent research organization established in 1932.
- Data from the national FY2016 NIST MEP client survey was provided to Upjohn. This was used to estimate the overall effect of the MEPs on the U.S. economy.
- The study used new and retained jobs, new and retained sales, new investment, and cost savings reported by clients and then aggregated.
- The study used the survey results in combination with an economic impact model developed by Regional Economic Models Inc. (REMI) to estimate the indirect and induced effects of the reported increase in jobs, sales, cost savings, and investments by MEP clients.

# Survey Responses





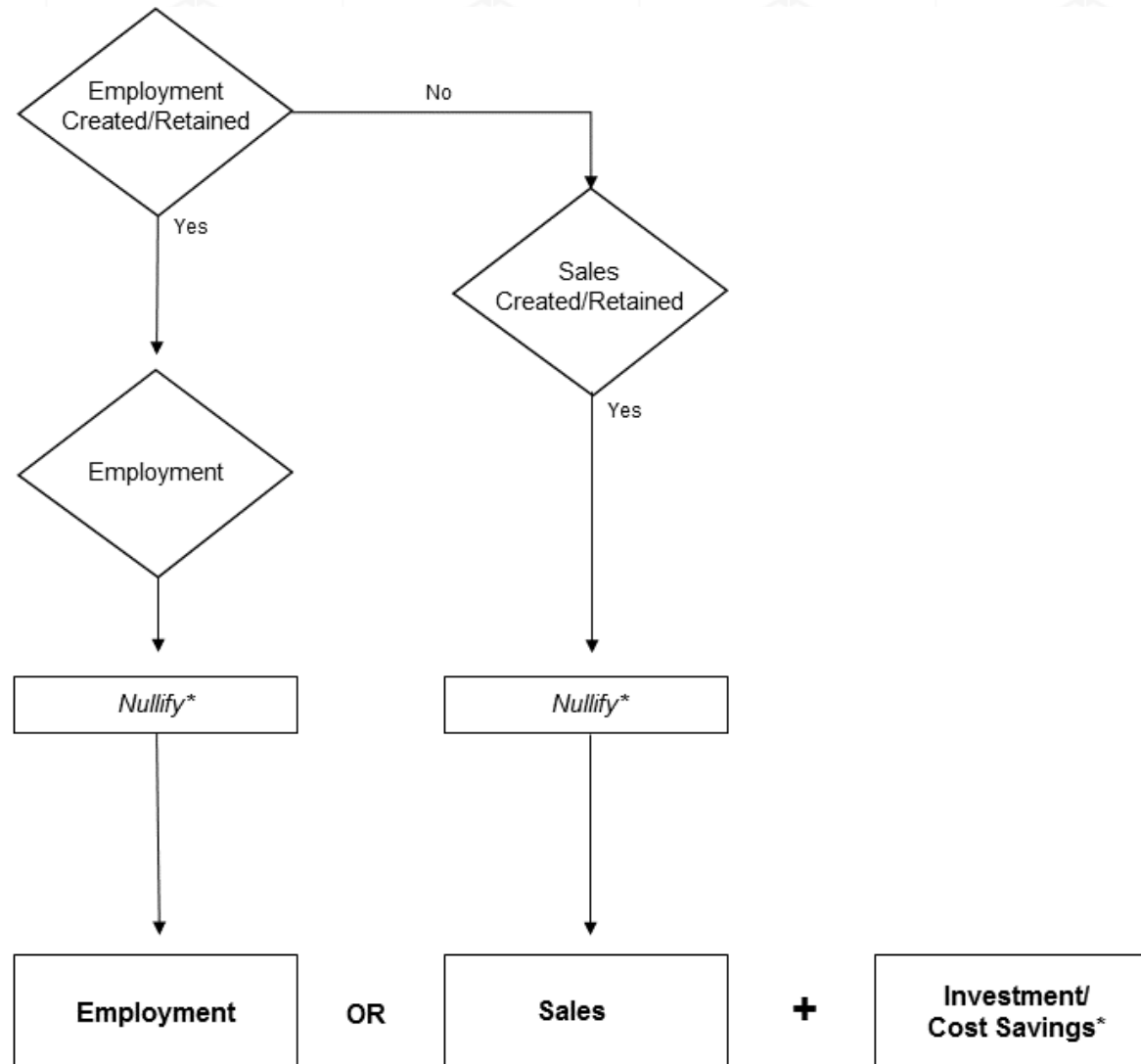
# Study Assumptions

- **The study takes the reported outcomes of MEP clients at face value. It did not attempt to validate the reported outcomes.**
- **It considers how the results would vary if only a fraction of the reported outcomes represented the actual effects of MEP activities.**
- **Recognizing that one use of this study is to determine whether the cost of the MEP program is justified by the benefits it generates, the study estimates the fraction of reported outcomes required for the program to break even, as measured by the projected personal income tax increases covering the annual cost of the program for FY2016 (\$130 million).**

# Study Overview

- **The study presents three scenarios.**
- **Scenario One: The unconstrained approach in which it is assumed that an increase in sales of one firm does not effect or reduce the sales of another firm. This assumption is not entirely realistic, since it does not take into account competition among firms and the displacement effects that occur from the competition across firms. This scenario is included to serve as an upper bound on the results.**
- **Scenario Two: A more accurate, yet conservative, scenario assumes that competition among firms reduces the outcomes as a result of competition.**
- **Scenario Three: A third model was run to examine how much the overall survey impacts used in the model must be discounted to generate enough federal personal tax revenue to equal federal funding. This is intended to serve as a lower bound on the results.**

# Modelling the Net Impact



# National MEP Client-Reported Outcomes Resulting from MEP Center Activities, FY 2016

**Sales:** **+\$9.33b**

- Increased: \$2.33b
- Retained: \$ 7b

**Jobs:** **+86,541**

- Created: 19,653
- Retained: 66,888

**Cost Savings:** **+\$857m**

**Investment Savings:** **+\$514m**

**Total Investment:** **+\$3.5b**

- Products & Process: \$1.07b
- Plant & Equipment: \$1.83b
- Systems & Software: \$134m
- Workforce Practices & Employee Skills: \$210m
- Other Areas of Business: \$227m

# The Findings in Brief



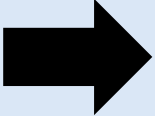


- This study finds that the effects of MEP projects on the U.S. economy and the \$130 million invested in MEP during FY2016 generated nearly a nine-fold increase in federal personal income tax – a 8.7:1 return.
- The study takes into account the competitive interactions among businesses and uses the client-reported effects of MEP projects, and are included in the model compared to when they are not.
- The W.E. Upjohn Institute for Employment Research conducted the national impact analysis based on results from the MEP Client Survey conducted by Fors Marsh using the REMI model, which forecasts the following outcomes in FY2016:
  - 142,000 additional jobs
  - Additional economic output of just under \$29.9B, and
  - A \$15.4 billion increase in GDP



# Some Things to Consider

- It is likely that all of a firm's growth and savings are not fully attributable to MEP center activities.
- The final forecast tests the sensitivity to this consideration. It asks, "How much of the changes to the firms must be attributable to MEP activities in order for the annual cost of MEP to equal its benefits?"
- By setting the return on investment (ROI) at 1:1, with personal income tax collection equal to MEP's FY2016 budget of \$130 million, the needed level of MEP attribution is about 11.5 percent. Even by claiming slightly over a tenth of the reported client outcomes, MEP activities are associated with an additional 16,532 jobs and nearly a \$1.8 billion increase in GDP.

# The Results

Forecast	 Jobs	 GDP	 Output	 Personal Income	 Returns to Treasury	<b>ROI</b> Return on Investment
Unconstrained Model Using Industry Variables	<b>575,870</b>	<b>\$63.04*</b>	<b>\$130.15*</b>	<b>\$34.64*</b>	<b>\$4.66*</b>	<b>35.8:1</b>
Constrained Model Using Firm Variables	<b>142,381</b>	<b>\$15.40*</b>	<b>\$29.89*</b>	<b>\$8.44*</b>	<b>\$1.13*</b>	<b>8.7:1</b>
11.5% Solution Using Firm Variables	<b>16,532</b>	<b>\$1.79*</b>	<b>\$3.46*</b>	<b>\$.98*</b>	<b>\$.132*</b>	<b>1:1</b>

\*Dollars in billions

# The Study Team

The team contributing to this report are:

- **Ken Voytek, NIST/MEP**
- **Chris Judson, REMI**
- **Upjohn:**
  - Jim Robey, Ph.D., Director, Regional Economic and Planning Services
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  - Kathleen Bolter
  - George Erickcek
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  - Nicholas Marsh
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  - Claudette Robey
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