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*Manufacturing Extension Partnership Program: An Overview*

Wendy H. Schacht, Resources, Science, and Industry Division

August 20, 2008

**Abstract.** Through FY2004, funding remained fairly constant despite the Administration's FY2003 budget that proposed an 88% reduction in support such that MEP centers "with more than six years' experience operate without federal contribution." Financing was cut 63% in FY2004, but restored in FY2005. The President's FY2006, FY2007, and FY2008 budgets again proposed funding reductions; however in FY2006 MEP received \$104.6 million, \$104.6 million in FY2007, and \$89.6 million in FY2008 (14.4% less than the FY2007 figure). The President's FY2009 budget request (as amended) includes \$2 million to close out the federally funded portion of the program. The FY2009 appropriations bill ordered reported from the House Committee on Appropriations would fund MEP at \$122 million, while S. 3182, as reported from the Senate Committee on Appropriations, would provide \$110 million. P.L. 110-69, the America COMPETES Act, authorizes funding for MEP through 2010 and creates several new manufacturing R&D programs.

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# Manufacturing Extension Partnership Program: An Overview

Wendy H. Schacht  
Specialist in Science and Technology Policy

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## Summary

A program of regional centers to assist small and medium-sized manufacturing companies use knowledge and technologies developed under the auspices of the National Institute of Standards and Technology (NIST) was created by P.L. 100-418. The Hollings Manufacturing Extension Partnership (MEP) has centers in all 50 states and Puerto Rico that provide technical and managerial assistance to firms. Federal funding is matched by non-federal sources. Funding increased until FY1999, when support declined reflecting a decrease in the federal portion of financing from one-half to one-third as individual centers operated longer than six years. Through FY2004, funding remained fairly constant despite the Administration's FY2003 budget that proposed an 88% reduction in support such that MEP centers "with more than six years' experience operate without federal contribution." Financing was cut 63% in FY2004, but restored in FY2005. The President's FY2006, FY2007, and FY2008 budgets again proposed funding reductions; however in FY2006 MEP received \$104.6 million, \$104.6 million in FY2007, and \$89.6 million in FY2008 (14.4% less than the FY2007 figure). The President's FY2009 budget request (as amended) includes \$2 million to close out the federally funded portion of the program. The FY2009 appropriations bill ordered reported from the House Committee on Appropriations would fund MEP at \$122 million, while S. 3182, as reported from the Senate Committee on Appropriations, would provide \$110 million. P.L. 110-69, the America COMPETES Act, authorizes funding for MEP through 2010 and creates several new manufacturing R&D programs.

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## Background

The trade debate in the mid-1980s, which ultimately resulted in passage of the Omnibus Trade and Competitiveness Act, P.L. 100-418, underscored the critical role of technological advance in the competitiveness of individual firms and in long-term national economic growth and productivity. Reflecting these and other ideas, legislation established a public-private program to assist smaller, U.S.-based manufacturing firms in identifying and adopting new technologies. The focus on small and medium-sized companies derived from their perceived contribution to job creation, innovation, and manufacturing. Research has shown that businesses of fewer than 500 employees are about 2.5 times as innovative per employee as large firms. The 341,000 firms that fit this category represent over 99% of the nation's manufacturing enterprises, employ over 10 million people, and account for 70% of total U.S. manufacturing employment.<sup>1</sup>

The improved use of technology by small and medium-sized businesses is seen as important to the competitiveness of American manufacturing firms. How a product is designed and produced often determines costs, quality, and reliability. Lack of attention to process technologies and techniques may be the result of various factors, including finances, absence of information, equipment shortages, and/or undervaluation of the benefits of technology. The purpose of the centers program is to address these issues through outreach and the application of expertise, technologies, and knowledge developed within the manufacturing research activities of the federal government, particularly the National Institute of Standards and Technology (NIST).

## The Program

P.L. 100-418 mandated that NIST, a laboratory of the Department of Commerce, create a program based on regional centers to assist companies in adopting and adapting new technologies and manufacturing techniques generated by the federal agencies in pursuit of their various missions. The transfer of public sector expertise and technology suited to individual requirements of firms is to be accomplished through a "manufacturing extension" system. Federal funding is offered on a competitive basis to nonprofit, state, or local organizations for development and management of the centers. Government financing was initially limited to six years, a provision temporarily suspended by the FY1997 and FY1998 appropriations acts, and eliminated by P.L. 105-309. Non-federal sources are required to provide 50% or more of each center's capital and costs through matched dollars, fees for service collected, and/or industry contributions. After six years, federal funding may be provided at no more than one-third of these costs if the center has received a positive, independent evaluation.

Centers were selected in response to open and competitive solicitations and are merit based. According to NIST, the selection criteria include "knowledge of target firms in the proposed region; linkages to sources of technology; technology delivery mechanisms; and management and financial plans." The sponsor, locally based, is expected to provide expertise reflecting the needs of the business community and the type of industries in that region. No direct financial support is

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<sup>1</sup> Manufacturing Extension Partnership, *Making A Difference For America's Manufacturers*, available online at [http://www.mep.nist.gov/documents/pdf/about-mep/impacts/2007-MEP\\_MakingDifference21207.pdf](http://www.mep.nist.gov/documents/pdf/about-mep/impacts/2007-MEP_MakingDifference21207.pdf).

available for companies; the program offers only technical and managerial assistance that is generally reimbursable on a sliding scale.

The original regional centers program expanded in 1994, creating the Manufacturing Extension Partnership (MEP). There are now centers in all 50 states and Puerto Rico. Since the program was established 1989, awards have resulted in the creation of approximately 350 offices. NIST also took over support of the 36 extension centers originally funded by the Department of Defense through the Technology Reinvestment Project, which was terminated in FY1994.

Centers offer expertise, needs evaluation, application demonstrations for new production technologies, training, and information dissemination. Larger, regional organizations use federal, university, and private sector technologies, knowledge, and skills in providing improved manufacturing techniques designed to increase efficiency and quality and to decrease costs. They also can furnish individual project engineering, help in selecting and employing software and equipment, factory assessments, and provide on-site assistance with new technologies. Managerial, financial, and marketing services are accessible. No new R&D is conducted by the centers, which only use technologies available elsewhere in the network. One center may have several field offices to provide support to a broader population. Generally these programs are associated with operating technical or training institutions such as community or technical colleges, vocational institutions, university manufacturing programs, or state technical assistance efforts. They are located in areas of the country where there is less industrial concentration and serve companies out of range of the larger programs.

The Partnership leverages existing resources—whether from government, business, or academia. It does not attempt to supplant the private sector. The program endeavors to build on existing state and local activities and industrial extension efforts. According to NIST, cooperative efforts involve other federal agencies, the National Association of State Development Agencies, the State Science and Technology Institute, the National Association of Manufacturers, and various universities and community colleges.

The America COMPETES Act, P.L. 110-69, creates and authorizes funding for several new manufacturing programs including collaborative manufacturing research pilot grants, a manufacturing fellowship program, and a manufacturing research database. The report to accompany S. 3182, the FY2009 appropriations bill, calls for the establishment of a new Strategic Measurement Partnerships program “... to facilitate cost-shared collaborative research partnerships and alliances with institutions of higher education that are focused on developing next generation measurements and standards.”

## **Funding**

Initial appropriations for NIST manufacturing extension programs totaled \$12.5 million for FY1989 and FY1990. Further funding included \$11.9 million in FY1991, \$15.1 million in FY1992, and \$16.9 million in FY1993. In FY1994, the State Technology Extension Program was combined with the centers’ activity to create the Manufacturing Extension Partnership. Appropriations for the larger effort totaled \$30.3 million. Funding for FY1995 was \$90.6 million and included a new program, LINKS, to network federal, state, and local agencies, the private sector, and the manufacturing outreach institutions through communications and data systems. However, \$16.3 million of this amount was rescinded. MEP was provided with \$80 million for FY1996 and P.L. 104-208 provided \$95 million for FY1997 while temporarily removing the six-

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year time limit for federal support of the individual centers. For FY1998, \$113.5 million was appropriated while the following year MEP was funded at \$106.8 million, which reflected a decrease in the federal share of support as the centers matured. P.L. 105-309 ended the six-year restriction on federal funding if a positive evaluation through an independent review is received at least every two years. Federal financing is limited to no more than one-third of the annual operating and maintenance costs of the center. For FY2000, the Partnership was financed at \$104.2 million (after a mandated rescission) and \$105.1 million was appropriated for FY2001. In FY2002, MEP received \$106.5 million in funding.

The Administration's FY2003 request of \$12.9 million for the Partnership reflected the recommendation that centers in operation for more than six years no longer receive federal support. However, \$105.9 million was appropriated that year (after mandated rescissions). The following year, the President's FY2004 budget again included a significant reduction in support for the extension program and only \$38.7 million was appropriated (after mandated rescissions). Funding increased to \$107.5 million in FY2005 (after mandated rescissions). While the Administration's FY2006 and FY2007 budgets included substantial decreases in financing for MEP, Congress appropriated \$104.6 million (after mandated rescissions) in FY2006 and \$104.6 million in FY2007.

The President's FY2008 budget proposal included \$46.3 million for MEP, 56% below the FY2007 figure. The initial FY2008 appropriations bill that passed the House, H.R. 3093, would have increased funding 3.9% to \$108.8 million. The version of H.R. 3093 passed by the Senate would have provided \$110 million, a 5.1% increase over FY2007. The final FY2008 appropriations legislation, P.L. 110-161, funds the Partnership at \$89.6 million, 14.4% below the previous fiscal year.

The Administration's amended FY2009 budget request provides \$2 million to close out the federally funded portion of the Manufacturing Extension Partnership program. The FY2009 appropriations bill ordered reported from the House Committee on Appropriations would finance MEP at \$122 million, 36.2% above the current fiscal year, while S. 3182, as reported from the Senate Committee on Appropriations, increases support 22.8% to \$110 million.

## Evaluations of the Manufacturing Extension Partnership

In an August 1995 briefing paper, the General Accounting Office (GAO) explored how small and medium-sized firms were served by various manufacturing extension efforts, including the MEP program (*Manufacturing Extension Programs, Manufacturers' Views of Services*). Of the 551 responses (to 766 questionnaires distributed), approximately 73% found that their relationships with an extension activity had a positive effect on the company's business performance. Fifteen percent indicated that there was no effect at all. Among the impacts identified were improved use of technology (63%), better product quality (61%), and expanded productivity (56%). According to GAO, this suggested that manufacturing extension activities "had some success in achieving their primary goal of helping manufacturers improve their operations through the use of appropriate technologies and through increases in product quality and worker productivity." The study also found that companies which used internal funding to implement recommendations offered by extension programs were the most likely to find an overall positive impact. "Significantly, approximately 97 percent of [these respondents] ... said that they believed that this

investment had been worthwhile.” Those who utilized these organizations noted that practical experience in the field contributed to the success of staff activities, as did the affordability of the assistance. Companies that did not utilize the resources provided by the MEP tended to be those that were unaware of the program and the opportunities associated with it.

Further refining this information in a March 1996 report, *Manufacturing Extension Programs, Manufacturers' Views about Delivery and Impact of Services*, GAO also noted that company size and age were significant factors in business perceptions the extension program. Smaller (under \$1 million gross sales) and newer (established after 1985) firms “were most likely to report that their overall business performance was boosted by MEP assistance.” While there were no real differences in perception between extension services offered by NIST and those funded by other institutions, there was a difference in assessments of effectiveness based on whether or not payment was required. According to GAO, those firms that paid fees “were half as likely as those that paid no fees to credit the assistance for having an extremely positive impact, as opposed to a generally positive impact, on their business performance.”

According to NIST, MEP centers have responded to more than 310,000 requests for assistance since the program's inception.<sup>2</sup> Regular reporting is required of the centers, covering the number and type of projects undertaken. Centers also are mandated to collect information that may provide indicators of longer-term results, including changes in sales, financial investments, inventory reduction, savings in labor and materials, and jobs created or saved. The latest survey of clients using the centers during FY2005 found that the 4,726 companies responding indicated that 53,000 jobs were retained or created, \$6.3 billion in sales were increased or retained, and \$2.2 billion in new private sector investment was placed in plant modernization and training.<sup>3</sup>

The National Academy of Public Administration also studied the MEP program and found that while “on balance ... the MEP Program performs capably and effectively and that the core premise ... remains viable as it is fulfilling its mission by leveraging both public and private resources to assist the nation's small manufacturers,” there should be consideration of a “fundamental change in the mix of the types of services it provides as well as the structures for delivering them....”<sup>4</sup> As such, a Next Generation Strategic Plan has been developed by the Partnership to concentrate on not just the shop floor but on “the entire enterprise and its position in the marketplace.” In addition to individual manufacturing firms, MEP “must focus on industry/supply chain requirements as well as overall economic development trends.”<sup>5</sup>

## Issues and Concerns

The Manufacturing Extension Partnership has, at times, been included in the discussion surrounding termination of government programs that provide direct federal support for industry. Beginning in the 104<sup>th</sup> Congress, questions have been raised as to the appropriateness of

<sup>2</sup> *Making a Difference for America's Manufacturers*.

<sup>3</sup> Manufacturing Extension Partnership, *Delivering Measurable Returns to Its Clients, Fiscal Year 2005 Results*, available at [http://www.mep.nist.gov/documents/pdf/results/FY2005\\_MEP\\_DMR\\_final\\_3107.pdf](http://www.mep.nist.gov/documents/pdf/results/FY2005_MEP_DMR_final_3107.pdf).

<sup>4</sup> National Academy of Public Administration, *The Manufacturing Extension Partnership Program, Report 2, Alternative Business Models*, May 2004, available at <http://www.napawash.org/Pubs/NIST6-2-04.pdf>.

<sup>5</sup> Manufacturing Extension Partnership, *Next Generation Strategic Plan*, available at [http://www.mep.nist.gov/documents/pdf/about-mep/Next\\_Gen\\_MEP\\_Strategy.pdf](http://www.mep.nist.gov/documents/pdf/about-mep/Next_Gen_MEP_Strategy.pdf).

government funding for this program when the technologies are available in the marketplace. Instead of the government picking “winners and losers,” opponents argue, the marketplace should make decisions regarding firms worthy of investment. However, proponents of the program stress that no direct funding is available to companies through MEP and that assistance is technical, scientific, and/or managerial. The Centers facilitate the adoption of new technologies that foster competition and promote innovation.

Congress continues to explore the issue of manufacturing extension within the context of federal support for research and development. Until FY2004, despite some opposition to the Manufacturing Extension Partnership, there had been continued and generally increased funding for the program. The lower level of appropriations for FY1999 and FY2000 reflected a decrease in the federal portion of center financing as the programs surpass the original six-year funding limit, not declining congressional support for the activity. The ongoing involvement and financial backing of state and local organizations may indicate additional, widespread commitment to a program designed to expand private sector use of manufacturing technologies already funded by the government and developed by the agencies in response to their mission requirements. While the Administration’s budget proposals continued to call for substantial reductions in support for MEP, with the exception of FY2004, the Congress had appropriated full funding for the centers program. However, in FY2008 support fell 14.4% from the previous fiscal year. The Administration’s FY2009 budget request recommends terminating federal funding for the program, while the bill ordered reported from the House Committee on Appropriations and S. 3182 as reported from the Senate Committees on Appropriations contain large increases in MEP financing.

In the current Congress, the America COMPETES Act created and authorized financial support for a new program of partnerships between industry and other educational or research institutions to develop new manufacturing processes, techniques, or materials. In addition, a manufacturing fellowship program would be created with stipends available for post-doctoral work at NIST. These activities differ from the established MEP effort where no new manufacturing research is conducted as existing manufacturing technology is applied to the needs of small and medium-sized firms.

The issue of the statutory six-year limitation on government financing of individual centers was addressed by the Technology Administration Act of 1998 (P.L. 105-309). Yet, questions still remain, particularly in light of efforts by the Administration and past efforts by the House to reduce federal support for the centers. The original intent of the funding restriction was to encourage the centers to be self-supporting. That does not appear to be feasible at the current time. Does this mean the centers are not providing the help that companies are willing to pay for or are reimbursements too costly for the small firms the program is intended to assist? What increased role might state and local government play in supporting centers? And is it possible to attract more resources from industrial providers of new manufacturing technologies and techniques? These and other issues may be considered within the context of future government funding for the Manufacturing Extension Partnership and overall federal support for research and development.

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## **Author Contact Information**

Wendy H. Schacht  
Specialist in Science and Technology Policy  
wschacht@crs.loc.gov, 7-7066

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