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# Manufacturing Extension Partnership Program: An Overview

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## Summary

The Omnibus Trade and Competitiveness Act of 1988, P.L. 100-418, created 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), a laboratory of the Department of Commerce. Now known as the Manufacturing Extension Partnership (MEP), centers in all 50 states and Puerto Rico provide technical and managerial assistance to firms. Federal funding is matched by non-federal sources. As the program expanded, 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 6 years. Since that time, funding remained fairly constant. Despite the Administration's FY2003 budget, which proposes an 88% reduction in support such that manufacturing extension centers "...with more than six years experience operate without federal contribution," P.L. 108-7 provided FY2003 funding of $105.9 million (after the 0.65% across the board recision mandated by the legislation). The Administration's FY2004 budget request for $12.6 million again represented a significant decrease in support for MEP, as did H.R. 2799 as initially passed by the House. Subsequently, this bill was incorporated into H.R. 2673, the FY2004 Omnibus Appropriations Act, which became P.L. 108-199 when signed into law on January 23, 2004. According to the conference report, agreed to by the House on December 8, 2003 and by the Senate on January 22, 2004, MEP will receive $39.6 million, 63% below the amount provided for FY2003. This report will be updated as events warrant.

## 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

identify and adopt 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 less than 500 employees are about 2.5 times as innovative per employee as large firms. The 380,000 firms that fit this category represent over 98% of the nation's manufacturing enterprises, employ 12 million people, and supply more than 50% of the value added in U.S. manufacturing.[1]

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 adopt and adapt 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 6 years, a provision temporarily suspended by the FY1997 and FY1998 appropriations laws, 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 6 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 are 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 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). The Partnership includes an augmented array of centers, the NIST State Technology Extension Program which provides states with grants to develop the infrastructure necessary to transfer technology from the federal government to the private sector (also mandated by P.L. 100-418), and a program that electronically

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[1] U.S. Department of Commerce, *Guide to NIST, National Institute of Standards and Technology*, July 1998, 25.

ties the disparate parties together along with other federal, state, local, and academic technology transfer organizations. There are now centers in all 50 states and Puerto Rico. Since the program was created in 1989, awards have resulted in the creation of approximately 400 offices. NIST also took over support of the 36 extension centers originally funded by the Department of Defense through the Technology Reinvestment Project that 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 on-site assistance with new technologies. Managerial, financial, and marketing services are accessible. No 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. The smaller, dispersed centers may offer fewer services, but provide help in the adaptation of new technologies. 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. There are ties to organizations such as the National Governors' Association (NGA), the National Association of Manufacturers, and the National Alliance for Business.[2] In April 1995, a memorandum of understanding was implemented between the MEP and the NGA's Science and Technology Council of the States to facilitate joint input into the development of a national manufacturing extension network. The U.S. Innovation Partnership, a joint effort between the Department of Commerce and the NGA to promote cooperative R&D across all levels of government, has created a task force to develop mechanisms to expand the assistance capabilities of the MEP.

## 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. P.L. 104-134 provided MEP with $80 million for FY1996. The

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[2] U.S. Department of Commerce. *National Institute of Standards and Technology, Delivering Results, A Progress Report*, May 1995, p. 33.

following year, support increased to $95 million with the passage of P.L. 104-208. This law also temporarily removed the 6-year time limit for federal support of the individual centers. For FY1998, $113.5 million was appropriated by P.L. 105-119. In FY1999, P.L. 105- 277, funded MEP at $106.8 million, reflecting a decrease in the federal share of support as the centers matured. The Technology Administration Act of 1998, P.L. 105-309, ended the 6-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, P.L. 106-113 financed the Partnership at $104.2 million (after the mandated rescission), 2% below FY1999. A small increase to $105.1 million was appropriated for FY2001 by P.L. 106-553. In FY2002, P.L. 107-77 funded MEP at $106.5 million.

The Administration's FY2003 request of $12.9 million for the Partnership reflected the recommendation that centers in operation for more than 6 years no longer receive federal support. The 107th Congress failed to pass FY2003 financing for MEP; a series of Continuing Resolutions funded the program until the 108th Congress enacted P.L. 108-7 which appropriated $105.9 million (after a mandated 0.65% across the board recision).

For FY2004, the President's budget again included a significant reduction in support for the extension program. The proposed $12.6 million for MEP was to finance only those centers that have not reached 6 years of federal funding. H.R. 2799, as originally passed by the House, provided $39.6 million. This bill was subsequently incorporated into H.R. 2673, the FY2004 Omnibus Appropriations Act, which became P.L. 108-199 when signed into law on January 23, 2004. According to the conference report agreed to by the House on December 8, 2003 and the Senate on January 22, 2004, MEP will be funded at $39.6 million, 63% below FY2003 levels (not including a 0.59% across the board rescission contained in the bill). S. 1585, as reported from the Senate Committee on Appropriations, would have provided MEP with $106.6 million.

## Evaluations of the Manufacturing Extension Partnership

In an August 1995 published briefing, *Manufacturing Extension Programs, Manufacturers' Views of Services*, the General Accounting Office (GAO), explored how small and medium-sized firms were served by various manufacturing extension efforts, including the NIST Manufacturing Extension Program. 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 assisted more than 62,000 companies. Interviews of 1,451 program participants by the Census Bureau provided information that 2,552 jobs had been created or retained between July 1995 and June 1996 as a result of the program. There was an estimated $71 million increase in client value added associated with these jobs, which cost the MEP center $2,635 per effort. Clients were able to raise $55 million in venture capital.[3] In 1996, the Census Bureau surveyed 2,350 firms that had worked with the Partnership and reported $110 million in increased sales, savings of $16 million in inventory and $13 million in labor and materials. An additional $85 million was invested in plant modernization.[4]

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. NIST is developing new evaluation methodology and working directly with clients to access the results. A MEP National Advisory Board was created in September 1997 ". . .to define, measure, analyze, and report on center-specific and national program results, to assess and enhance the quality of program management, and to interpret and verify the MEP national mission.[5] An annual report is presented to the Secretary of Commerce. The Board has 9 members from the industrial and economic development communities.

## 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 104th Congress, questions have been raised as to

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[3] National Institute of Standards and Technology, "Manufacturing Extension Partnership," 8 August, 1997.

[4] *Guide to NIST*, 27.

[5] "Visiting Committee on Advanced Technology, Annual Report, 1995," in House Committee on Science, *Technology Administration/National Institute of Standards and Technology Fiscal Year 1997 Authorization Hearings*, 104th Congress, 2nd sess., 16 April, 1996, 154.

the appropriateness of government funding for this program. According to March 23, 1995 testimony by Dr. Edward Hudgins of the Cato Institute before the House Science Committee on the FY1996 NIST budget authorization, expenditures such as MEP ". . .are examples of unneeded corporate welfare, wasted in a market that already produces world-class technology."[6] Instead of the government picking "winners and losers," opponents argue, the marketplace should make decisions regarding firms worthy of investment.

Proponents of the program stress that no direct funding is available to companies through MEP and that assistance is technical, scientific, and/or managerial. In a statement by the Board of Directors of the Modernization Forum presented at the March 23, 1995 hearings noted above, the organization argued that "MEP centers respond to a broad range of current needs defined by a wide variety of small and medium-sized manufacturers in a given region" and do not pick winners among companies, technologies, or industries. Centers facilitate the widespread adoption of "... technologies and practices that the **marketplace** [emphasis in original] defines as enablers of competitiveness...."[7]

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 has 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 6-year funding limit, not declining congressional support for the activity. The on-going 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. However, this year, the Administration's budget proposal, the original FY2004 appropriations bill passed by the House, and the final FY2004 Omnibus legislation contain significant cuts in support for MEP.

The issue of the statutory 6-year limitation on government financing of individual centers was addressed by the Technology Administration Act of 1998. Yet, questions still remain, particularly in light of efforts by the Administration and 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? What might the U.S. Innovation Partnership provide in the way of assistance to the MEP? 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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[6] Committee on Science, *FY1996 TA/NIST Budget Authorization*, 104th Congress, 1st sess., 23 March, 1995, 170.

[7] Ibid., 209.