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# The Manufacturing Extension Partnership Program

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## Summary

The Hollings Manufacturing Extension Partnership (MEP) program is a national network of centers established by the Omnibus Trade and Competitiveness Act (P.L. 100-418). MEP centers provide custom services to small and medium-sized manufacturers (SMMs) to improve production processes, upgrade technological capabilities, and facilitate product innovation. Operating under the auspices of the National Institute of Standards and Technology (NIST), the MEP system includes centers in all 50 states and Puerto Rico.

The MEP program received \$130.0 million in appropriations in FY2015, and the President has requested \$141.0 million for FY2016. NIST provides funding to support center operations, with matching funds provided by nonfederal sources (e.g., state governments, private companies, fees for services). Initially established with a goal of transferring technology developed in federal laboratories to SMMs, MEP shifted its focus in the early 1990s to responding to needs identified by SMMs, including off-the-shelf technologies and business advice. As MEP evolved, its focus shifted to reducing manufacturing costs through lean production, quality, and other programs targeting plant efficiencies and to increasing profitability through growth. Current MEP efforts focus on innovation strategies, commercialization, lean production, process improvements, workforce training, supply chain optimization, and exporting.

In 2014, MEP began a system-wide revamp intended to align center funding levels more closely with the national distribution of manufacturing activity; allow a federal cost-share of up to 50% for the first three years of each center's new cooperative agreement; and result in a single center in each state and Puerto Rico. Other objectives include aligning center activities to the NIST MEP strategic plan; aligning center activities with state and local strategies; providing opportunities for new partnering arrangements; and restructuring and reinvigorating the boards of local centers.

The MEP program has, at times, been included in discussions surrounding termination of federal programs that provide direct support for industry. Proponents assert that SMMs play a central role in the U.S. economy and that the MEP system provides information and assistance not otherwise available to SMMs. Some opponents have asserted that such services are available from other sources and that MEP inappropriately shifts a portion of the costs of these services to taxpayers.

Continued federal support for MEP centers remains a point of contention. As conceived, the centers were intended to become self-supporting after six years. The original legislation provided for a 50% federal cost-share for the first three years of operation, followed by declining levels of federal support for the final three years. Federal funding after a center's sixth year of operation was prohibited. In 1998, Congress eliminated the prohibition on federal funding after year six. Invoking the intent of the original legislation, the George W. Bush Administration proposed in its FY2009 budget to eliminate federal funding for MEP and to provide for "the orderly change of MEP centers to a self-supporting basis." Congress has continued to appropriate funding for MEP.

A related issue is the level of the federal cost-share for the centers. Currently, centers may receive a 50% federal cost-share in their first three years of operation, a 40% cost-share in year four, and a one-third cost-share in their fifth and subsequent years. Some MEP advocates would like the federal government to provide up to 50% of center costs, regardless of how many years a center has been in operation, to allow centers to reach SMMs they might not otherwise be able to serve. The ongoing system-wide competition of the centers will essentially reset the clock, allowing centers to receive a 50% cost-share for the first three years of their new cooperative agreements.

As Congress makes appropriation decisions, it may continue to discuss support for MEP in the context of the federal government's role in facilitating technological advancement and bolstering innovation and competitiveness.

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## Overview

The Hollings Manufacturing Extension Partnership (MEP), a program of the National Institute of Standards and Technology (NIST),<sup>1</sup> is a national network of centers that provide custom services to small and medium-sized manufacturers (SMMs)<sup>2</sup> to improve production processes, upgrade technological capabilities, and facilitate product innovation.

The MEP mission is “to enhance the productivity and technological performance of U.S. manufacturing.” The MEP program executes this mission through “state and regional centers [that] facilitate and accelerate the transfer of manufacturing technology in partnership with industry, universities and educational institutions, state governments, and NIST and other federal research laboratories and agencies.”<sup>3</sup> Funding for the MEP centers is provided on a cost-shared basis between the federal government and nonfederal sources, including state and local governments and fees charged to SMMs for center services.<sup>4</sup>

The MEP program received \$130.0 million in appropriations in FY2015, and President Obama has requested \$141.0 million for FY2016. The MEP has a staff of 71 at NIST,<sup>5</sup> and the centers have approximately 1,300 field staff with technical and business expertise. MEP is currently engaged in a system-wide four-round competition that will award one center to each state and Puerto Rico; currently some states have more than one MEP center. To date, two rounds of the competition have been completed, resulting in awards to centers in 20 states. Two additional rounds are planned for FY2016.

NIST served more than 30,000 SMMs in FY2014. In a survey of clients, NIST found that companies reported \$2.5 billion in new sales, \$4.2 billion in retained sales, \$1.1 billion in cost savings, \$2.7 billion in new client investment, the creation of 17,833 jobs, and the retention of 46,069 jobs in FY2014.<sup>6</sup> Fifty-eight percent of MEP clients receiving in-depth technical assistance reported increases in sales, reduction in costs, or new investments resulting from the services received.<sup>7</sup>

## Background

In the mid-1980s, congressional debates on trade focused attention on the critical role of technological advance in the competitiveness of individual firms and long-term national economic growth and productivity. Reflecting these ideas, the Omnibus Trade and Competitiveness Act (P.L. 100-418) established a public-private program, now known as the Hollings Manufacturing Extension Partnership, to assist U.S.-based SMMs in identifying and adopting new technologies. The focus on SMMs derived from their perceived contribution to job creation, innovation, and manufacturing. Research at that time indicated that SMMs produce 2.5

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<sup>1</sup> NIST is an agency of the U.S. Department of Commerce.

<sup>2</sup> NIST defines SMMs as manufacturers with 500 or fewer employees.

<sup>3</sup> NIST website, Manufacturing Extension Partnership Strategic Plan, <http://www.nist.gov/mep/about/strategic-plan.cfm>.

<sup>4</sup> National Institute of Standards and Technology, *FY2016 Congressional Budget Justification*, p. NIST-228, [http://www.osec.doc.gov/bmi/budget/FY16CJ/NIST-NTIS\\_FY\\_2016\\_CJ\\_Final\\_508\\_Compliant.pdf](http://www.osec.doc.gov/bmi/budget/FY16CJ/NIST-NTIS_FY_2016_CJ_Final_508_Compliant.pdf).

<sup>5</sup> NIST had 71 FTE in FY2014.

<sup>6</sup> National Institute of Standards and Technology, *FY2016 Congressional Budget Justification*, p. NIST-229, [http://www.osec.doc.gov/bmi/budget/FY16CJ/NIST-NTIS\\_FY\\_2016\\_CJ\\_Final\\_508\\_Compliant.pdf](http://www.osec.doc.gov/bmi/budget/FY16CJ/NIST-NTIS_FY_2016_CJ_Final_508_Compliant.pdf).

<sup>7</sup> *Ibid.*, p. NIST-35.

times more innovations per employee than large firms.<sup>8</sup> Program advocates noted the efforts of other nations to provide technical and business assistance to their manufacturing communities through the establishment of manufacturing extension centers (see text box, “MEP-Like Programs of Other Countries”).

In 2012, there were 253,000 SMMs in the United States. These firms accounted for nearly 99% of the nation’s manufacturing enterprises and employed approximately 5.1 million people in 2012, approximately 45% of total U.S. manufacturing employment.<sup>9</sup>

The improved use of technology by SMMs is seen by policymakers and business analysts 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 company finances, insufficient information, equipment shortages, and undervaluation of the benefits of technology. A key purpose of the MEP program is to address these issues through outreach and the application of expertise, technologies, and knowledge.

#### MEP-Like Programs of Other Countries

Several other countries also have national networks of centers that provide technical and business support to small and medium-sized manufacturers. For example:

- Japan’s Kohsetsushi network received \$2.140 billion in 2012 and has 182 centers and 6,000 technical staff.
- Germany’s Fraunhofer Institutes received \$595 million in 2012 and has 60 centers and 15,000 technical staff.
- Canada’s Industrial Research Assistance Program (IRAP) received \$258 million in government funding and has more than 100 centers and more than 200 technical staff.

Like the MEP, the Fraunhofer Institutes and at least some of the Kohsetsushi centers charge clients fees for their services; IRAP does not charge clients.

**Source:** U.S. Government Accountability Office, *Global Manufacturing: Foreign Government Programs Differ in Some Key Respects From Those in the United States*, GAO-13-265, July 2013.

NIST requires regular reporting by the centers, including the number and types of projects undertaken. Centers also are mandated to collect information from client companies 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. According to NIST, from MEP’s inception through FY2014, the program has worked with nearly 80,000 manufacturers, leading to \$88 billion in sales and \$14 billion in cost savings, and has helped create more than 729,000 jobs.<sup>10</sup>

According to NIST, for every dollar of federal investment, the MEP generates nearly \$21 in new client investment and \$19 in new sales growth for SMMs. NIST also asserts that MEP creates or retains one manufacturing job for every \$1,978 in federal investment.<sup>11</sup>

<sup>8</sup> John Bulloch, “Accommodating the Future,” *Journal of Small Business and Entrepreneurship*, vol. 5, no. 2 (Fall 1987), p. 8.

<sup>9</sup> Department of Commerce, Census Bureau, Statistics of U.S. Businesses Main, Table, [http://www2.census.gov/econ/susb/data/2012/us\\_state\\_naicssector\\_small\\_emplsize\\_2012.xls](http://www2.census.gov/econ/susb/data/2012/us_state_naicssector_small_emplsize_2012.xls).

<sup>10</sup> National Institute of Standards and Technology, *2014 Economic Impact Survey: Making an Impact on U.S. Manufacturing*, 2015, p. 2, <http://www.nist.gov/mep/about/upload/MEP-ECONOMIC-IMPACTS-FY2014.pdf>.

<sup>11</sup> *Ibid.*, p. NIST-22.

## Evolution of the Program

The MEP program was originally established in 1988 as the “Regional Centers for the Transfer of Manufacturing Technology.”<sup>12</sup> Over time, the program was referred to by a number of different names, including the Manufacturing Technology Centers program and the Manufacturing Extension Partnership program. The America COMPETES Reauthorization of 2010 codified the name of the program as the “Hollings Manufacturing Extension Partnership” and the centers as the “Hollings Manufacturing Extension Centers.”<sup>13</sup>

From its inception through the mid-1990s, the MEP’s principal emphasis was on

establishing the national network—making sure there was a center within reach of all the nation’s manufacturers and linking those centers to one another so they could learn from and teach each other about how best to work with manufacturers.<sup>14</sup>

The first three centers were established in 1989. Four more were added in 1991 and 1992. In 1994, the number of MEP centers expanded substantially when NIST took over support of extension centers originally funded by the Department of Defense’s Technology Reinvestment Project. This brought the number of centers to 44. NIST awarded additional centers in 1995-1996, increasing the total to 70 centers.<sup>15</sup> Subsequent consolidation of centers in New York and Ohio brought the number of centers down to 60, including centers in each state and Puerto Rico.

While the focus on helping SMMs has remained constant, the methods and tools used by MEP have evolved since its creation. An intent of the legislation that created the manufacturing extension effort was to provide cutting-edge technology developed by NIST and other federal laboratories to SMMs. Royalties and licensing fees paid to the centers by the SMMs for the use of these technologies were expected to make the centers self-sufficient after the initial six years of operation. Advanced, federally funded technology, however, did not prove to be what most SMMs needed. Rather, their needs proved to be much more basic, including off-the-shelf technologies and business advice on topics such as management information technology, financial management systems, and business processes. A 1991 assessment of the program by the General Accounting Office (GAO, now the Government Accountability Office) concluded that

While legislation establishing the Manufacturing Technology Centers Program emphasized the transfer of advanced technologies being developed at federal laboratories, the centers have found that their clients primarily need proven technologies. **Thus, a key mandate of this program is not realistically aligned with the basic needs of most small manufacturers** [emphasis added]... [A]ccording to officials from professional and trade associations representing small manufacturers and the results of key studies on U.S. manufacturing competitiveness, such advanced, laboratory-based technologies are not practical for most small manufacturers because these technologies generally are expensive, untested, and too complex.<sup>16</sup>

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<sup>12</sup> P.L. 100-418.

<sup>13</sup> P.L. 111-358.

<sup>14</sup> Dave Cranmer, *Reflections—Part 2*, Manufacturing Innovation blog, <http://nistmep.blogs.govdelivery.com/reflections-part-2/>.

<sup>15</sup> Dave Cranmer, *Reflections—Part 1*, Manufacturing Innovation blog, <http://nistmep.blogs.govdelivery.com/25-year-reflections/>.

<sup>16</sup> General Accounting Office, *Technology Transfer, Federal Efforts to Enhance the Competitiveness of Small Manufacturers*, GAO/RCED-92-30, November 1991, p. 3.

In recognition of this situation, the program was reoriented to offer more basic technologies that helped SMMs to improve their productivity and competitive position. By the mid-1990s, MEP was providing “a wide range of business services, including helping companies (1) solve individual manufacturing problems, (2) obtain training for their workers, (3) create marketing plans, and (4) upgrade their equipment and computers.”<sup>17</sup> As articulated in the NIST Manufacturing Innovation blog,

The initial services were focused on solving immediate and short-term problems—point solutions. The philosophy was an engineering one: ‘You have a problem. We can fix it.’<sup>18</sup>

Over time, the MEP’s focus moved from point solutions to more strategic, integrated services. In 2010, the “overarching strategy” for the MEP program was to reduce manufacturing costs through “lean, quality, and other programs targeting plant efficiencies” and to increase profitability “through business growth services resulting in new sales, new markets, and new products.”<sup>19</sup>

Current MEP efforts focus on innovation strategies, commercialization, lean production, process improvements, workforce training, supply chain optimization, and exporting. One of the key areas of the MEP strategy is technology acceleration.<sup>20</sup> MEP defines technology acceleration as

integrating technology into the products, processes, services and business models of manufacturers to solve manufacturing problems or pursue opportunities and facilitate competitiveness and enhance manufacturing growth. Technology Acceleration spans the innovation continuum and can include aspects of technology transfer, technology transition, technology diffusion, technology deployment and manufacturing implementation.<sup>21</sup>

Technology acceleration encompasses MEP efforts to assist SMMs in the improvement of existing products, the development of new products, and the development and improvement of manufacturing processes. MEP assists SMMs in this regard through a variety of approaches including technology scouting and transfer; supplier scouting; business-to-business network pilots; lean product development; technology-driven market intelligence; access to capital; cooperative research and development activities with NIST laboratories; and use of other federal programs such as the Small Business Innovation Research (SBIR) program,<sup>22</sup> the Advanced Manufacturing Technology (AmTech) Consortia program, and the National Network for Manufacturing Innovation (NNMI).<sup>23</sup>

While continuing to offer its services to all SMMs, MEP is emphasizing targeted outreach toward growth-oriented SMMs and small entrepreneurial startups.<sup>24</sup>

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<sup>17</sup> General Accounting Office, *Manufacturing Extension Program, Manufacturers’ Views About Delivery and Impact of Services*, GAO/GGD-96-75, March 1996, 2.

<sup>18</sup> Dave Cranmer, *Reflections—Part 2*, Manufacturing Innovation blog, <http://nistmep.blogs.govdelivery.com/reflections-part-2/>.

<sup>19</sup> Slides provided by Roger D. Kilmer, Director, Hollings Manufacturing Extension Partnership, NIST, May 19, 2010.

<sup>20</sup> Personal communication with MEP staff, October 8, 2015.

<sup>21</sup> National Institute of Standards and Technology, presentation, “Advisory Board Committee on Technology Acceleration (ABCTA) Report to the MEP Advisory Board,” September 24, 2014.

<sup>22</sup> For more information on the SBIR program, see CRS Report R43695, *Small Business Innovation Research and Small Business Technology Transfer Programs*, by John F. Sargent Jr.

<sup>23</sup> For more information on the NNMI, see CRS Report R43857, *The Network for Manufacturing Innovation*, by John F. Sargent Jr.

<sup>24</sup> Personal communication with MEP staff, October 8, 2015.

## Mission

The statutory objective of the MEP centers is to enhance productivity and technological performance in U.S. manufacturing through the following:

- the transfer of manufacturing technology and techniques developed at [NIST] to Centers and, through them, to manufacturing companies throughout the United States;
- the participation of individuals from industry, universities, State governments, other Federal agencies, and, when appropriate, [NIST] in cooperative technology transfer activities;
- efforts to make new manufacturing technology and processes usable by U.S.-based small- and medium-sized companies;
- the active dissemination of scientific, engineering, technical, and management information about manufacturing to industrial firms, including small- and medium-sized manufacturing companies;
- the utilization, when appropriate, of the expertise and capability that exists in Federal laboratories other than [NIST]; and
- providing to community colleges information about the job skills needed in small- and medium-sized manufacturing businesses in the regions they serve.<sup>25</sup>

No direct financial support is available for companies through the centers. The program offers only technical and managerial assistance, and the cost of that assistance is generally reimbursable on a sliding scale.<sup>26</sup>

## MEP Organization and Structure

The MEP program includes an MEP program office located at NIST (NIST MEP), an MEP Advisory Board, and the MEP centers.

### NIST MEP

The NIST MEP program office is led by a director and has six components:

- **Center Operations** is responsible for providing financial and programmatic oversight for federal funding awarded to support the MEP mission; providing cooperative agreement and operational assistance and guidance to MEP centers; and supporting the MEP system of centers in partnership with NIST MEP's Regional Managers for Strategic Transitions and NIST Grants Management Division.
- **Partnerships and Program Development** is responsible for developing and maintaining partnerships and creating and launching programs to improve the

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<sup>25</sup> 15 USC 278k(a).

<sup>26</sup> According to NIST, the reimbursement structure for services varies among MEP centers. NIST MEP provides centers with flexibility in programmatic approaches and financial models, while requiring adherence to strict compliance with accounting systems, board governance, and reporting. NIST MEP does not provide MEP centers with guidance on charging clients. Source: email communication between NIST and CRS on November 22, 2015.

- services offered by MEP centers. Partnerships and Program Development helps identify and develop new opportunities with and for centers to help their clients, and helps identify, develop, and maintain partnerships of national significance.
- **Manufacturing Policy and Research** conducts performance evaluations for the MEP center system and facilitates reporting of MEP performance data.
  - **System Operations Office** helps MEP centers identify opportunities for serving manufacturers with a focus on profitable growth. The team works with MEP center, state, and industry leaders to support the development of partnerships focused on local manufacturing ecosystems.
  - **Communications** is responsible for messaging and outreach efforts focused on highlighting MEP accomplishments and positioning the program as a resource for manufacturers. Communications works with the local MEP centers on branding and marketing efforts, coordinates the efforts of the MEP Advisory Board, shares program information with the general public, and responds to inquiries from other stakeholders.
  - **Administration and Finance** is responsible for providing internal and external customer service; overall management of administrative functions, budget/finance, human resources, center reviews, information technology (IT) support and security; and property management necessary for effective and efficient operations throughout the MEP program. Administration and Finance provides advice and support to the MEP director and MEP staff to ensure proper understanding and oversight of administrative, IT, and financial issues.<sup>27</sup>

In FY2014, NIST MEP was authorized 81 full-time equivalent (FTE) employees and had 71.<sup>28</sup> In FY2015, NIST received appropriations to support 80 FTE, and its authorized level remained at 81. The NIST FY2016 budget justification requests funding for 80 FTE and authorization of 81.<sup>29</sup>

## MEP Advisory Board

Congress established an MEP Advisory Board to provide the NIST Director with advice on MEP programs, plans, and policies; assessments of the soundness of MEP plans and strategies; and assessments of current performance against MEP program plans.<sup>30</sup> By statute, the MEP Advisory Board is to consist of 10 members broadly representative of stakeholders appointed by the NIST Director. The board is to include at least two members employed by or on an advisory board for a center, and at least five members from U.S. small businesses in the manufacturing sector. Federal employees may not serve as advisory board members. Members serve staggered terms of three years. A member may serve two consecutive terms. One year from the end of the second term, a member may be re-appointed to the board.

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<sup>27</sup> Email communication between NIST and CRS, October 30, 2015.

<sup>28</sup> In OMB Circular A-11 (*Preparation, Submission, and Execution of the Budget*), the Office of Management and Budget defines full-time equivalent (FTE) employment as “the basic measure of the levels of employment used in the budget. It is the total number of hours worked (or to be worked) divided by the number of compensable hours applicable to each fiscal year.”

Source: [https://www.whitehouse.gov/sites/default/files/omb/assets/a11\\_current\\_year/a11\\_2015.pdf](https://www.whitehouse.gov/sites/default/files/omb/assets/a11_current_year/a11_2015.pdf).

<sup>29</sup> National Institute of Standards and Technology, *FY2016 Congressional Budget Justification*, p. NIST-227, [http://www.osec.doc.gov/bmi/budget/FY16CJ/NIST-NTIS\\_FY\\_2016\\_CJ\\_Final\\_508\\_Compliant.pdf](http://www.osec.doc.gov/bmi/budget/FY16CJ/NIST-NTIS_FY_2016_CJ_Final_508_Compliant.pdf).

<sup>30</sup> 15 USC 278k(e).

The MEP Advisory Board is to act solely in an advisory capacity in accordance with the Federal Advisory Committee Act.<sup>31</sup> The board is required to meet at least twice a year and to report annually to Congress, through the Secretary of Commerce, on the status of the MEP program and programmatic planning. Copies of the MEP Advisory Board annual reports are available online at <http://www.nist.gov/mep/about/advisory-board-reports.cfm>.

## MEP Centers

The MEP program is administered by NIST through partnerships with centers in all 50 states and Puerto Rico, including approximately 400 service locations<sup>32</sup> and nearly 1,300 field staff with technical and business expertise.<sup>33</sup> MEP seeks to have a center or other service location not more than two hours away from any potential client. A complete list of current MEP centers is provided in **Appendix A**.

Each center is operated by a state government, university, or other nonprofit organization. Center staff are employees of the center and its partners, not the federal government.

## Center Selection

The following sections provide an overview of the criteria used by NIST MEP in awarding centers and the ongoing system-wide center competition.

### Criteria

MEP centers are selected in response to open and competitive solicitations issued by NIST. Federal statute requires that center selections be based on merit using, at a minimum, the following criteria:

- the merits of the application, particularly those portions of the application regarding technology transfer, training and education, and adaptation of manufacturing technologies to the needs of particular industrial sectors;
- the quality of service to be provided;
- geographical diversity and extent of service area; and
- the percentage of funding and amount of in-kind commitment from other sources.<sup>34</sup>

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<sup>31</sup> The Advisory Board is exempted from the provisions of Section 14 of the Federal Advisory Committee Act, which addresses questions related to termination, renewal, and continuation of advisory committees.

<sup>32</sup> According to NIST, “The definition of a service location is broad in that it encompasses locations for which an MEP practitioner can operate out of in order to provide support for the manufacturing community. Service locations range from one-person offices to fully staffed regional offices with all service locations intended to provide adequate coverage for manufacturers. This includes partner locations that can be used to provide services to the manufacturers across the states.” Source: Email communication between NIST and CRS, November 22, 2015.

<sup>33</sup> National Institute of Standards and Technology, *FY2016 Congressional Budget Justification*, p. NIST-227, [http://www.osec.doc.gov/bmi/budget/FY16CJ/NIST-NTIS\\_FY\\_2016\\_CJ\\_Final\\_508\\_Compliant.pdf](http://www.osec.doc.gov/bmi/budget/FY16CJ/NIST-NTIS_FY_2016_CJ_Final_508_Compliant.pdf).

<sup>34</sup> 15 U.S.C. 278k(c)(4).

## System-Wide Center Competition

Following the first MEP center awards in 1989, the number of centers grew to 70, including at least one center in each state and Puerto Rico, and two or more centers in a few states. Later consolidation reduced the number to 60.

In 2013, Congress directed the Government Accountability Office to examine the basis for NIST's cooperative agreement award spending on the centers.<sup>35</sup> In March 2014, the GAO concluded that federal funding for MEP centers was imbalanced based on the number and industrial composition of manufacturers to be served and the cost of serving SMMs in different parts of the country.<sup>36</sup> GAO noted that NIST MEP funding through cooperative agreement awards to centers initially took into account factors such as the number of SMMs in the service area; the characteristics of the SMMs, including business size, industry types, product mix, and technology requirements; and the cost of providing services to those firms. However, GAO concluded that since these awards were made over 15 years, the allocation of funds in 2013 didn't appropriately account for these factors. Accordingly, GAO concluded that

NIST's cooperative agreement award spending may not allow centers to provide the same level of services to target manufacturing firms, according to their needs.<sup>37</sup>

GAO recommended that

[NIST's] spending on cooperative agreement awards be revised to account for variations across service areas in demand for program services and in MEP centers' costs of providing services.<sup>38</sup>

In its response letter, NIST agreed with GAO's conclusion and recommendation, and identified avenues it was exploring to take into account such variations. NIST estimated that if additional funding were provided to underfunded centers, the number of SMMs served in those service areas would increase by up to 20% over three years. GAO noted that such increases in funding for underfunded centers could result in decreases for other centers and noted the option of phasing in changes gradually to minimize disruption to centers and the SMMs they serve. NIST expressed concerns that some centers may not be able to access the additional federal funds due to difficulties in meeting the 2-to-1 nonfederal match required under current funding requirements.<sup>39</sup>

The GAO report, together with recommendations of the MEP Advisory Board and other factors, contributed to NIST's decision to develop a strategy for executing a system-wide center competition via four multi-state competitions beginning in 2014 and concluding in 2017. According to NIST, the system-wide competition will result in center funding levels more closely reflecting the national distribution of manufacturing activity; allow a federal cost-share of up to 50% for the first three years of each center's new cooperative agreement; and result in a single

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<sup>35</sup> Explanatory Statement, Consolidated and Further Continuing Appropriations Act, 2013.

<sup>36</sup> GAO referred to the imbalance as being inconsistent with the "beneficiary equity standard." According to GAO, "This standard—which is commonly used in social science research to design and evaluate funding formulas—calls for funds to be distributed in a way that takes these variations into account so that centers can provide the same level of services to each target manufacturing firm, according to its needs." Source: US Government Accountability Office, *Most Federal Spending Directly Supports Work with Manufacturers, but Distribution Could Be Improved*, GAO-14-317, p. 15.

<sup>37</sup> U.S. Government Accountability Office, *Most Federal Spending Directly Supports Work with Manufacturers, but Distribution Could Be Improved*, GAO-14-317, March 2014, p. 15.

<sup>38</sup> Ibid, "GAO Highlights."

<sup>39</sup> Ibid, p. 20.

center in each state and Puerto Rico. Other objectives include aligning center activities to the NIST MEP strategic plan; aligning center activities with state and local strategies; providing opportunities for new partnering arrangements; and restructuring and reinvigorating local center boards.<sup>40</sup>

For most states, centers will be awarded in one of the four rounds of competitions. A few states with centers that were competed in recent years will not take part in the system-wide center competition; however, the terms of their cooperative agreements will be updated to align with those of the other centers.

The first round of center competitions included the 10 states that were deemed most underfunded in terms of dollars per manufacturing establishment.<sup>41</sup> Awardees from the first competition were announced in February 2015. The second round was announced in September 2015. In total, NIST has awarded 20 centers under these competitions, with one center award pending.<sup>42</sup>

According to NIST,

Proposals were reviewed by government and independent experts and evaluated against a number of criteria, including demonstration of a thorough understanding of market needs and how proposed service offerings would meet those needs. The reviewers also looked at the proposed business models, performance measurements and metrics, partnership potential, staff qualifications and program management, as well as financial and non-federal cost-share plans.<sup>43</sup>

Through the first two rounds of the system-wide competition few states had more than one applicant. In round one, only 2 of the 10 states had more than one applicant. In round two, only 3 of the 11 states had more than one applicant; no applications were received for the Ohio competition.<sup>44</sup> Each of the 19 center awardees selected to date in the first two rounds have been incumbent MEP centers. Despite few states having more than one applicant and all selections being incumbent centers, NIST notes:

Given the complex nature of this program, many competing applicants seek to partner with other organizations to strengthen their proposals. The challenge of a full and open competitive process required the centers to substantially enhance programs, partnerships, and funding sources, fulfilling the goal of getting the most out of MEP's investment by providing it to those organizations best qualified to deliver services to small- and medium-sized manufacturers.<sup>45</sup>

In addition, NIST has noted that despite the limited competition for the centers, the number of partners involved with the centers that have been awarded increased by 32%. NIST asserts that it is applying lessons learned from the first two rounds to improve the competition process in future

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<sup>40</sup> Telephone conversation between NIST MEP and CRS, October 23, 2015.

<sup>41</sup> NIST, press release, "NIST Awards \$26 Million to Support Manufacturing in 10 States," February 24, 2015, <http://www.nist.gov/mep/awards-support-manufacturing.cfm>.

<sup>42</sup> In the first round of the re-competition, NIST awarded new cooperative agreements to centers in Colorado, Connecticut, Indiana, Michigan, New Hampshire, North Carolina, Oregon, Tennessee, Texas, and Virginia. In the second round, NIST awarded new cooperative agreements to centers in Alaska, Idaho, Illinois, Minnesota, New Jersey, New York, Oklahoma, Washington, West Virginia, and Wisconsin. NIST anticipates the awarding of the Utah center, competed in the second round, in early FY2016.

<sup>43</sup> Email communication between NIST and CRS, October 23, 2015.

<sup>44</sup> Meeting between NIST MEP and CRS, October 8, 2015.

<sup>45</sup> Email communication between NIST MEP and CRS, October 23, 2015.

rounds.<sup>46</sup> In particular, NIST MEP is continuing outreach efforts—including working with stakeholders through their newsletters and websites—to increase awareness of the opportunity.<sup>47</sup>

NIST expects to begin the third round of competition in January 2016 and the fourth round in July 2016.<sup>48</sup> NIST anticipates completing the process by 2017, subject to availability of funds.<sup>49</sup> NIST seeks to accomplish this transition without disrupting ongoing local service to SMMs or degrading the performance of the national MEP system.

## Review Prior to Continued Center Funding

Center awards are made as cooperative agreements with an initial performance period of five years. NIST may extend an award for an additional five years following an overall assessment of the center, including “programmatic, policy, financial, administrative, and responsibility assessments.”<sup>50</sup> According to NIST, when an application for a multi-year award is approved, funding is usually provided for only the first year of the project; for subsequent years, recipients are required to submit detailed budgets and budget narratives prior to the award of any continued funding. The amount of funds awarded after the first year is provided on a noncompetitive basis and may be adjusted upward or downward. Center funding after the first year is contingent upon satisfactory performance, continued relevance to the mission and priorities of the program, and the availability of funds. Continuation of an award to extend the period of performance or to increase or decrease funding is at the sole discretion of NIST.<sup>51</sup>

## Center Cost-Share and Term of Eligibility

The following sections provide an overview of center cost share requirements and term of eligibility, as well as allocation of MEP center funding, including the current status, a discussion of the historical background and ongoing issues, and the effect of the system-wide competition on center cost share.

### Current Status

Funding for the MEP centers is provided on a cost-share basis by the federal government and nonfederal sources. NIST may provide no more than one-half of center costs during the first three years of an award, no more than two-fifths in the fourth year, and no more than one-third in year five and beyond. (See **Table 1.**) While centers may take on a wide range of activities, for purposes of these calculations, center costs include those incurred in connection with activities

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<sup>46</sup> Meeting between NIST MEP and CRS, October 8, 2015.

<sup>47</sup> Email communication between NIST MEP and CRS, October 23, 2015.

<sup>48</sup> NIST anticipates that the third round will include center competition for Alabama, Arkansas, California, Georgia, Louisiana, Massachusetts, Missouri, Montana, Pennsylvania, Puerto Rico, and Vermont, and the fourth round will include center competitions for Delaware, Hawaii, Iowa, Kansas, Maine, Mississippi, New Mexico, Nevada, North Dakota, South Carolina, and Wyoming. Source: NIST, “NIST Announces 2016 Plans for Manufacturing Center Competitions,” press release, May 15, 2015, <http://www.nist.gov/mep/2016-mep-comp-plans.cfm>.

<sup>49</sup> National Institute of Standards and Technology, *FY2016 Congressional Budget Justification*, p. NIST-7, [http://www.osec.doc.gov/bmi/budget/FY16CJ/NIST-NTIS\\_FY\\_2016\\_CJ\\_Final\\_508\\_Compliant.pdf](http://www.osec.doc.gov/bmi/budget/FY16CJ/NIST-NTIS_FY_2016_CJ_Final_508_Compliant.pdf).

<sup>50</sup> National Institute of Standards and Technology, “Award Competitions for Hollings Manufacturing Extension Partnership (MEP),” 79 *Federal Register* 44746-44752, August 1, 2014, <https://federalregister.gov/a/2014-18264>.

<sup>51</sup> Email communication between NIST and CRS, slide presentation, October 30, 2015.

undertaken to improve the management, productivity, and technological performance of SMMs.<sup>52</sup> There is currently no limit to the number of years a center may receive federal funding.

**Table I. MEP Center Federal and Nonfederal Cost-Share**

Award Year	Maximum NIST Cost-Share	Minimum Nonfederal Cost-Share
Years 1-3	1/2	1/2
Year 4	2/5	3/5
Year 5 and beyond	1/3	2/3

**Source:** NIST, “Award Competitions for Hollings Manufacturing Extension Partnership (MEP),” 79 *Federal Register* 44746-44752, August 1, 2014, <https://federalregister.gov/a/2014-18264>.

As discussed above, the ongoing system-wide competition is intended to better align center funding levels with the number of SMMs and the cost of providing services to these firms in each center’s service area. In this regard, NIST MEP has set federal funding levels for each state center. These amounts are the maximum available for the federal cost-share, and a center must meet the required nonfederal cost-share to be eligible to receive full funding. The federal share of funding for MEP centers made in the two rounds awarded in 2015 ranged from \$500,000 to \$6.7 million per year. (**Appendix B** provides annual funding awarded centers in each state from the first two rounds of competition.)

## Historical Background and Ongoing Issues

The following sections provide information on centers’ term of eligibility for funding, cost-sharing requirements, and the effect of the ongoing system-wide competition on cost-sharing.

### Term of Eligibility for Funding

The legislation that established the MEP program initially prohibited centers from receiving federal financing beyond their sixth year of operation.<sup>53</sup> However, federal support beyond the sixth year later became considered necessary in lieu of increasing service charges paid by SMMs. While analysts considered service charges to the SMMs to be important to the effectiveness of the MEP program,<sup>54</sup> some also expressed concerns that an increase in charges commensurate with making the centers self-supporting might make the services too expensive for many SMMs. This perspective was articulated in a 1998 NIST-sponsored study,

<sup>52</sup> 15 U.S.C. 278k(c)(3)(B). Also, according to NIST, “MEP Centers are not limited to working with SMMs, as the program is authorized to provide services to all manufacturers. Some MEP Centers work with non-manufacturers from time to time or as a separate business line through other partnership arrangements. Those costs cannot be used for reimbursement or matching on our award. [Centers] also cannot count any Federal funding they receive from other sources, including any funding sent through the state.” Source: Email communication from NIST to CRS, November 23, 2015.

<sup>53</sup> 15 U.S.C. 278k(c)(5), subsequently amended by P.L. 105-309.

<sup>54</sup> In a 1995 study, the U.S. General Accounting Office found that firms that used internal funding to implement recommendations offered by extension programs were the most likely to find an overall positive impact on their manufacturing position Source: U.S. General Accounting Office, *Manufacturing Extension Programs, Manufactures’ Views of Service*, GAO/GGD-95-216BR, August 1995.

Analysis indicates that to offset lost public revenue centers would need to take on much larger projects at much higher billing rates and focus on repeat business. As a result, many small manufacturers would not be able to afford these services. Given this conclusion, the best way to ensure high-caliber nationwide assistance to smaller manufacturers is to commit to a stable amount of renewable federal funding for those centers which receive successful evaluations.<sup>55</sup>

The prohibition on funding after the sixth year was temporarily suspended by provisions in the FY1997 and FY1998 appropriations acts,<sup>56</sup> then eliminated by the Technology Administration Act of 1998 (Section 2, P.L. 105-309). Under the provisions of the act, centers were eligible to receive federal funding of up to one-third of center costs after their sixth year of operation, subject to positive, independent evaluations to be conducted at least every two years.

## Cost-Sharing

The financial support system created for MEP by Congress in the original legislation was based on matching financing between the federal government and state, local, and/or private nonprofit entities. The Senate Committee on Commerce, Science, and Transportation report to accompany the Technology Competitiveness Act of 1987 (S. 907, 100<sup>th</sup> Congress) directed that “the percentage of funding offered by particular applicants be considered in deciding which applications be selected.”<sup>57</sup> Cost-sharing strengthens the ties between the organizations involved in the cooperative arrangement and as such, the committee stated that “special attention will be given to innovative ways in which Federal laboratories, State agencies, and business and professional groups can work together.”<sup>58</sup> The matching provisions were seen as a means to ensure that the centers reflect the actual needs of the manufacturing companies in the area they serve.

Following the economic downturn of 2007-2009, there were calls for Congress to raise the federal cost-share to 50%. At that time, some commentators argued that during the difficult economic situation, state and local financial support for the program may be curtailed. At the same time, client fees for service decreased 13.4% between FY2008 and FY2009, the first significant decline since FY1996.<sup>59</sup> Advocates of increasing the federal share noted that such action would not release state and local partners of their responsibility to support the centers, but would permit continued outreach to small manufacturers without pricing the services out of reach. Opponents of this approach argued that the one-third federal contribution was sufficient and that the successful operation of the program was dependent on the financial participation of state and local government as well as the companies utilizing the centers.

The America COMPETES Reauthorization Act of 2010 (P.L. 111-358) mandated that the GAO explore and report on the cost-share provisions of the MEP program. In response, GAO issued a report on April 4, 2011, that noted:

We were unable to provide recommendations on how best to structure the cost-share requirement to provide for the long-term sustainability of the program because we could

<sup>55</sup> E.S. Oldsman, G.M. Ugiansky, and R. Jamin, *Review of Mission and Operations of Regional Centers*, National Institute of Standards and Technology, February 1, 1998, available at [http://www.nist.gov/cgi-bin/view\\_pub.cgi?pub\\_id=200288&division=260](http://www.nist.gov/cgi-bin/view_pub.cgi?pub_id=200288&division=260).

<sup>56</sup> P.L. 104-208 and P.L. 105-277, respectively.

<sup>57</sup> S.Rept. 100-80, p. 15.

<sup>58</sup> *Ibid.*, p. 17.

<sup>59</sup> Slides provided by Roger D. Kilmer, Director, Hollings Manufacturing Extension Partnership, NIST, May 19, 2010.

not identify criteria or a basis for determining the optimal cost-share structure for this program. Instead, we have identified a number of factors that could be taken into account in considering modifications to the current cost-share structure. Among other things, past GAO work has found that cost-share structures should promote equity by assigning costs to those who both use and benefit from the services. As it applies to the MEP program, manufacturers, state and local governments, and the nation may all benefit from the program to varying degrees, requiring an evaluation of the relative benefits and aligning cost-shares to reflect who receives the benefits.<sup>60</sup>

In this regard, GAO noted that NIST’s study of the cost-share provision of the MEP program

recommended that the cost-share requirements should be consistent with those of other economic development programs—which it noted, in Commerce, had 1:1 or lower cost-sharing—and should provide flexibility to alter the cost-share requirement in response to economic conditions.<sup>61</sup>

However, GAO also noted that the Congressional Budget Office (CBO) had identified the MEP program for potential elimination from discretionary spending, stating that the program’s enhancement of U.S. productivity is questionable. According to CBO, the legislative agency “regularly issues a compendium of budget options to help inform federal lawmakers about the implications of possible policy choices.”<sup>62</sup> Elimination of MEP was one more than 100 options CBO proposed in 2011 for changes to federal spending and revenues.

In 2014, two bills were introduced with provisions that would have allowed federal support for MEP centers of up to 50% of annual costs incurred, without regard to how long the cooperative agreement has been in effect.<sup>63</sup> The NIST Reauthorization Act of 2014 (H.R. 5035, 113<sup>th</sup> Congress) passed the House but did not advance in the Senate. The America COMPETES Reauthorization Act of 2014 (S. 2757, 113<sup>th</sup> Congress) was introduced in the Senate but did not advance out of Committee.

Also in 2014, the MEP Advisory Board recommended that MEP readjust the cost-share structure in order to optimize the federal investment and provide for the long-term sustainability of the program. Specifically, the board recommended requiring to a 1:1 match (50% federal cost share) and allowing the nonfederal cost-share to include in-kind contributions of up to one-half of the center’s portion of the cost-share.<sup>64</sup>

In 2015, the Senate Committee on Appropriations expressed concerns about the federal cost-share structure (as it existed prior to the recent system-wide competition) and directed NIST to provide a report to the committee and to the Senate Committee on Commerce, Science, and Transportation “detailing quantifiable metrics on total MEP center funding, including a breakdown of the type of contribution source across centers that have transitioned from the 50

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<sup>60</sup> Government Accountability Office, *Factors for Evaluating the Cost Share of Manufacturing Extension Partnership Program to Assist Small and Medium-Sized Manufacturers*, GAO-11-437R, April 4, 2011, p. 4, <http://www.gao.gov/assets/100/97395.pdf>.

<sup>61</sup> *Ibid.*, p. 4.

<sup>62</sup> CBO, *Reducing the Deficit: Spending and Revenue Options*, March 10, 2011, <https://www.cbo.gov/sites/default/files/112th-congress-2011-2012/reports/03-10-reducingthedeficit.pdf>. This issue is discussed in more detail later in the report. See “Congressional Budget Office,” pp. 17-18.

<sup>63</sup> Both H.R. 5035 (113<sup>th</sup> Congress) and S. 2757 (113<sup>th</sup> Congress) defined “costs incurred” as costs incurred in connection with the activities undertaken to improve the competitiveness, management, productivity, and technological performance of small and medium-sized manufacturing companies.

<sup>64</sup> MEP Advisory Board, *2014 Annual Report*, <http://www.nist.gov/mep/about/upload/Advisory-Board-Annual-Report-2014.pdf>.

percent Federal, 50 percent non-Federal cost-share to a lower cost-share held by the Federal Government.”<sup>65</sup>

### Effect of System-wide Competition on Cost-Share

Since most MEP centers were in or past the fifth year of their cooperative agreements prior to the start of the current system-wide competition,<sup>66</sup> the federal cost-share was generally limited to one-third of center costs. The ongoing system-wide center competition essentially resets the clock on these centers, raising the maximum federal cost-share to one-half for the first three years that the new center agreements are in place, even if a center was funded under a previous agreement. NIST argues that the increased share of federal funding will allow centers to serve SMMs that they otherwise couldn't afford to serve.

## Other MEP-Related Activities

The MEP program has provided additional funding opportunities for a number of activities that support the program's overarching mission. Some of these activities were supported solely by NIST, while others were supported by multiple federal agencies. Recent activities of this type include business-to-business networks, Make it in America Challenge, Advanced Manufacturing Jobs and Innovation Accelerator Challenge, and Manufacturing Technology Acceleration Centers.

### Business-to-Business Networks

In December 2014, NIST MEP awarded \$2.5 million to 10 MEP centers for the establishment of pilot projects to develop, deploy, and maintain business-to-business (B2B) networks.<sup>67</sup> These networks are intended to help match buyers and sellers of technologies or products and services in support of SMMs. The two-year projects are designed to be scalable and interoperable to help determine whether they could be expanded into a national network or a series of regional ones.<sup>68</sup>

### Make it in America Challenge

In December 2013, NIST MEP awarded grants to 10 winners in nine states as part of the multi-agency Make it in America (MiiA) Challenge, an Obama administration initiative to accelerate job creation and encourage business investment in the United States. Eight awards were to MEP centers. Two were to affiliates of the Ohio MEP center. Each received \$125,000 per year for three years.<sup>69</sup>

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<sup>65</sup> S.Rept. 114-66.

<sup>66</sup> Only the centers in Arizona, Florida, Kentucky, Maryland, Nebraska, Rhode Island, and South Dakota were not in or past the fifth year of their cooperative agreements prior to the start of the system-wide competition. Source: Email communication between NIST and CRS, November 5, 2015.

<sup>67</sup> Funding for the B2B awards was provided via reprogramming of \$2.5 million in FY2014 appropriations from the NIST Technology Innovation Program. Source: Letter from Ellen Herbst, Chief Financial Officer and Assistant Secretary for Administration, Department of Commerce, to Senator Barbara Mikulski, Chairwoman, Senate Committee on Appropriations, March 7, 2014.

<sup>68</sup> National Institute of Standards and Technology, *FY2016 Congressional Budget Justification*, pp. NIST-229-NIST-230, [http://www.osec.doc.gov/bmi/budget/FY16CJ/NIST-NTIS\\_FY\\_2016\\_CJ\\_Final\\_508\\_Compliant.pdf](http://www.osec.doc.gov/bmi/budget/FY16CJ/NIST-NTIS_FY_2016_CJ_Final_508_Compliant.pdf); NIST, press release, “NIST Awards \$2.5 Million in Grants to MEP Centers for Pilot Business-to-Business Networks,” December 2, 2014, <http://www.nist.gov/mep/mep-120214.cfm>.

<sup>69</sup> The award recipients were: Maine MEP; Michigan Manufacturing Technology Center; InnovateMEP Mississippi; (continued...)

According to NIST, the program supports the efforts of U.S. companies to keep, expand, or re-shore manufacturing operations and jobs in the United States, and to encourage foreign companies to build facilities in the United States and make products domestically. The MEP's MiiA Challenge grants are intended to support greater connectivity in regional supply chains and to assist SMMs.

## **Advanced Manufacturing Jobs and Innovation Accelerator Challenge**

NIST MEP centers are participating in the Advanced Manufacturing Jobs and Innovation Accelerator Challenge (AMJIAC), a multi-agency effort seeking to strengthen U.S. manufacturing.<sup>70</sup> A 2012 solicitation led to 10 three-year awards totaling \$20 million.

According to NIST:

These grants support the creation and strengthening of regional partnerships capable of accelerating innovation and growing a region's capacity for advanced manufacturing. This funding has been used for activities such as worker training programs or connecting manufacturers to resources like national labs or universities. Ultimately, these grants present regions with an opportunity not only to expand their current activities, but also to fundamentally transform the way that the region supports its manufacturers.<sup>71</sup>

The role of the MEP center participation varies in the awards. In some cases, an MEP center has the primary management role. In other cases, an MEP center is engaged in a partnership with another organization to lead different project elements. In still other cases, an MEP center is part of a broad-based partnership with different organizations leading one or two project elements.

## **Manufacturing Technology Acceleration Centers**

In July 2013, NIST announced a new pilot program under MEP, the Manufacturing Technology Acceleration Centers (M-TACs). M-TACs are designed

to explore different approaches to providing manufacturers with the technology transition and commercialization assistance they need to compete successfully and grow their market share within manufacturing supply chains.<sup>72</sup>

As of February 2015, there were five M-TAC pilots, each led by one of the MEP centers. The M-TAC pilots will operate through the end of calendar year 2015.

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(...continued)

Missouri Enterprise; Ohio MEP (State of Ohio, Ohio Development Services Agency; two awards, including the Appalachian Partnership for Economic Growth and the Manufacturing Advocacy and Growth Network); Oregon MEP; Northeastern Pennsylvania Industrial Resource Center; South Carolina MEP; and Impact Washington. Source: Email communication between NIST and CRS, November 5, 2015.

<sup>70</sup> Participating agencies include the NIST, the Department of Commerce's Economic Development Administration, the Department of Energy, the Department of Labor's Employment and Training Administration, the Small Business Administration, and the National Science Foundation.

<sup>71</sup> NIST, *The Advanced Manufacturing Jobs and Innovation Accelerator Challenge (AMJIAC): Mid-Project Review*, May 2014, <http://www.nist.gov/mep/upload/AMJIAC-Report-final0520.pdf>.

<sup>72</sup> NIST, *Manufacturing Technology Acceleration Center (M-TAC) Pilot Project: Report on Initial Progress and Learning*, February 2015, p. 5, [http://www.nist.gov/mep/services/supplychain/upload/MTAC\\_Report-print.pdf](http://www.nist.gov/mep/services/supplychain/upload/MTAC_Report-print.pdf).

## Additional Grants

In October 2010, NIST announced \$9.1 million in cooperative agreements for 22 projects “designed to enhance the productivity, technological performance and global competitiveness of U.S. manufacturers.”<sup>73</sup> The funding was provided by MEP on a competitive basis to nonprofit organizations to work with the MEP centers and address one or more of these areas identified by NIST as critical to U.S. manufacturing:

- responding to evolving supply chains;
- accelerating the adoption of new technology to build business growth;
- implementing environmentally sustainable processes;
- establishing and enabling strong workforces for the future; and
- encouraging cultures of continuous improvement.<sup>74</sup>

According to NIST, “The funding will help encourage the creation and adoption of improved technologies and provide resources to develop new products that respond to changing market needs.” In this regard, the awards differed from other MEP center activities which do not support research activities.

## MEP Strategic Plan

In 2014, NIST MEP began the process of developing a new strategic plan and produced a draft in November 2014.<sup>75</sup> Among other things, the plan identified the strategic goals and objectives. The four goals of the plan are: enhance the economic competitiveness of U.S. manufacturers; serve as a voice to and voice for manufacturers; support national, state, and regional, manufacturing ecosystems and partnerships; and develop MEP’s capabilities as a learning organization and high performance system. More information can be found at <http://www.nist.gov/mep/about/strategic-plan.cfm>.

## Annual Report to Congress

NIST is required to annually produce and submit to Congress a three-year programmatic planning document, concurrent with the President’s annual budget request. This report is to include an assessment of the NIST Director’s governance of the MEP program. The latest version of the plan, *NIST Three-Year Programmatic Plan: 2016-2018*, can be accessed at [http://www.nist.gov/director/prog-ofc/upload/3\\_year\\_plan\\_final\\_16\\_pages.pdf](http://www.nist.gov/director/prog-ofc/upload/3_year_plan_final_16_pages.pdf).

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<sup>73</sup> NIST, “NIST Manufacturing Extension Partnership Awards \$9.1 Million for 22 Projects to Enhance U.S. Manufacturers’ Global Competitiveness,” press release, October 5, 2010, [http://www.nist.gov/mep/mep\\_100510.cfm](http://www.nist.gov/mep/mep_100510.cfm).

<sup>74</sup> Ibid.

<sup>75</sup> NIST, *System Strategic Plan, Draft 11/07/14, November 7, 2014*, <http://www.nist.gov/mep/upload/STRATEGIC-plan-booklet-summary.pdf>.

## External Reviews and Recommendations

A number of organizations have reviewed and commented on the program's management and effectiveness, and some have offered recommendations for improving the program. The following sections discuss some of the findings and recommendations of these organizations.<sup>76</sup>

### MEP Advisory Board

In its FY2014 annual report, the MEP Advisory Board reviewed NIST's efforts to respond to the board's earlier recommendations. The board recommended the establishment of a personnel exchange plan involving staff from the NIST MEP and the MEP centers. Such an exchange program, the board asserted, could help educate newer MEP staff members and provide a better understanding of daily center activities. In addition, the exchange plan could be used to train future center leaders, help in the development of national working groups, and provide an in-depth understanding of NIST processes and organization. A pilot program involving one NIST MEP staff member was undertaken in 2014.<sup>77</sup>

The board also recommended the establishment of a Center Advisory Group to provide advice to NIST MEP on matters such as center reporting burdens; center flexibility; program impacts, outputs, and outcomes; and program integrity. NIST MEP subsequently established a Center Advisory Group composed of two center directors from each of the six MEP regions. The group has focused on short-term improvements, new approaches to reporting and evaluations, expanding the definition of manufacturing, changes to MEP's evaluation system, project coding, reduction in reporting burdens, data sharing between centers within MEP's information system, and measurement of innovation projects.<sup>78</sup>

A third board recommendation was to codify, align, and integrate program evaluation with contract management. NIST MEP has reviewed existing contracts and developed processes for approving them. In addition, NIST MEP integrated a performance evaluation mechanism into the system.

### Government Accountability Office

The Government Accountability Office has reviewed aspects of the MEP program on several occasions since the early 1990s.

In a March 2014 report, the GAO reported on its investigation into the extent to which the MEP program achieves administrative efficiencies. GAO found that 81.4% of MEP funding supported center awards with the balance devoted to contracts, staff, agency-wide overhead charges, and other items, some of which NIST considered direct support and some of which NIST considered administrative spending. In total, NIST estimated that more than 88.5% of federal MEP program spending in FY2013 was for direct support, and the remainder supported MEP administration.<sup>79</sup>

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<sup>76</sup> Other comments and recommendations by these organizations are included elsewhere in this report.

<sup>77</sup> MEP Advisory Board, *2014 Annual Report*, <http://www.nist.gov/mep/about/upload/Advisory-Board-Annual-Report-2014.pdf>.

<sup>78</sup> MEP Advisory Board, *2014 Annual Report*, <http://www.nist.gov/mep/about/upload/Advisory-Board-Annual-Report-2014.pdf>.

<sup>79</sup> Government Accountability Office, *Most Federal Spending Directly Supports Work with Manufacturers, but Distribution Could Be Improved*, GAO-14-317, March 2014.

In 2010 Congress directed the GAO to report on the cost-share structure of the MEP program and provide recommendations for how best to structure the cost-share requirement to provide for the long-term sustainability of the program.<sup>80</sup> GAO concluded that it was unable to provide such recommendations as it could not identify criteria or a basis for determining the optimal cost-share structure for this program.<sup>81</sup> However, GAO cited a number of factors that could be taken into account in modifying the existing cost-share structure including promoting equity by assigning costs to those who both use and benefit from the services. In this regard, GAO identified potential beneficiaries as manufacturers, state and local governments, and the nation and recommended an evaluation of the relative benefits and aligning cost-shares to reflect who receives the benefits.<sup>82</sup> (See “Cost-Sharing” for a further discussion of GAO’s findings.)

In an August 1995 briefing paper, the GAO explored how small and medium-sized firms were served by various manufacturing extension efforts, including the MEP program.<sup>83</sup> GAO received 551 responses to 766 questionnaires distributed. Approximately 73% of responding firms stated 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, GAO also noted that company size and age were significant factors in business perceptions of 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.”<sup>84</sup> 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.”

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<sup>80</sup> America COMPETES Reauthorization Act (P.L. 111-358).

<sup>81</sup> Government Accountability Office, *Factors for Evaluating the Cost Share of Manufacturing Extension Partnership Program to Assist Small and Medium-Sized Manufacturers*, GAO-11-437R, April 4, 2011, p. 4, <http://www.gao.gov/assets/100/97395.pdf>.

<sup>82</sup> Government Accountability Office, *Factors for Evaluating the Cost Share of Manufacturing Extension Partnership Program to Assist Small and Medium-Sized Manufacturers*, GAO-11-437R, April 4, 2011, p. 4, <http://www.gao.gov/assets/100/97395.pdf>.

<sup>83</sup> U.S. Government Accountability Office, *Manufacturing Extension Programs, Manufacturers’ Views of Services*, GGD-95-216BR, August 7, 1995, <http://gao.gov/products/GGD-95-216BR>.

<sup>84</sup> Government Accountability Office, *Manufacturing Extension Programs, Manufacturers’ Views about Delivery and Impact of Services*, GGD-96-75, March 14, 1996, p. 3, <http://gao.gov/products/GGD-96-75>.

## Congressional Budget Office

As discussed earlier, the CBO regularly issues a compendium of budget options to help inform federal lawmakers about the implications of possible policy choices. In 2009 and 2011, one of the options CBO proposed was elimination of the MEP program.

In its 2009 narrative, CBO asserted that proponents of elimination question the appropriateness and necessity of the type of technical assistance offered by MEP, stating that “many university professors of business, science, and engineering consult with private industry, and other ties between universities and business promote knowledge transfer,” that many centers in the MEP system existed before the establishment of the MEP program, and that surveys indicated that about half of MEP’s clients reported that the same services were available to them through other channels but at a higher price. Supporters of the MEP program, according to CBO, point to the importance of SMMs to the economy in terms of output and employment, and in providing supplies and intermediate goods for large companies. Proponents also argue that many SMMs “face barriers that can prevent them from obtaining the sort of information” that MEP provides.<sup>85</sup>

CBO also asserted that

The program’s enhancement of U.S. productivity also is questionable. It can be argued that federal spending for [MEP] allows some inefficient companies to remain in business, tying up capital, labor, and other resources that could be used more productively elsewhere.<sup>86</sup>

## National Academy of Public Administration

The National Academy of Public Administration also studied the MEP program and in a 2004 report stated 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>87</sup> As such, a Next Generation Strategic Plan was developed by the MEP in 2006 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, NIST concluded that MEP “must focus on industry/supply chain requirements as well as overall economic development trends.”<sup>88</sup> Current MEP efforts include a focus on helping companies to participate in supply chains (e.g., by helping them become compliant with quality standards) and on supply chain optimization.

## Appropriations and Related Issues

The following sections provide information on the status of FY2016 appropriations for MEP and a longer term perspective on MEP budget requests and appropriations from FY2003-FY2016.

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<sup>85</sup> Congressional Budget Office, *Budget Options: Volume 2*, 370-372, p. 88, August 2009, <https://www.cbo.gov/sites/default/files/111th-congress-2009-2010/reports/08-06-budgetoptions.pdf>.

<sup>86</sup> Ibid.

<sup>87</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>88</sup> Manufacturing Extension Partnership, *Next Generation Strategic Plan*, 2006, [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).

## FY2016 Appropriations Status

NIST has requested \$141.0 million for FY2016, \$11 million above the FY2015 enacted level of \$130.0 million. NIST asserts that the additional funding “is necessary in order to optimize the impact of the federal investment on U.S. manufacturing” under the system-wide competition.<sup>89</sup> In June 2015, the House voted to appropriate \$130.0 million for MEP in FY2016.<sup>90</sup> The Senate Committee on Appropriations subsequently recommended \$130.0 million for MEP in FY2016 and stated its support for “MEP’s focus on strengthening the existing network of MEP centers and providing additional support to centers based on the documented performance of the center’s activities and the manufacturing capacity of the area served by the center.”<sup>91</sup>

## Appropriations and Requests FY2003-FY2016

The MEP program has at times enjoyed presidential and congressional support; at other times, it has been targeted for reductions or elimination. These changes are visible in the history of presidential budget requests and congressional actions on MEP appropriations. **Figure 1** illustrates funding levels for the NIST MEP program, both requested and enacted appropriations, for FY2003-FY2015; **Table 2** provides the requested and enacted appropriations amounts.

While President George W. Bush’s annual budget requests generally called for substantial reductions in support for MEP, Congress appropriated generally steady funding except for FY2004 and FY2008. In FY2004, MEP funding was cut to \$38.6 million, down 62.6% from its FY2003 level of \$105.9 million. However, Congress restored MEP funding in FY2005, appropriating somewhat more than it had in FY2003.

In FY2008, MEP funding was cut to \$89.6 million, down 14.4% from its FY2007 level of \$104.7 million. For FY2009, President Bush’s final budget proposed to end federal funding for MEP, requesting \$4 million to allow for “the orderly change of MEP centers to a self-supporting basis.”<sup>92</sup> Congress opted instead to provide \$110.0 million for MEP, an increase of 22.8% above the FY2008 enacted level.

Under President Obama, MEP budget requests have equaled or exceeded actual appropriations. In FY2010, President Obama requested and received \$124.7 million for MEP. Since then, the president’s annual budget requests have proposed higher funding for MEP than has been enacted.

Between FY2005 and FY2015, MEP enacted appropriations have generally kept pace with inflation, growing at a compound annual growth rate (CAGR) of approximately 1.9% per year.<sup>93</sup>

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<sup>89</sup> Email communication between NIST MEP and CRS, October 23, 2015.

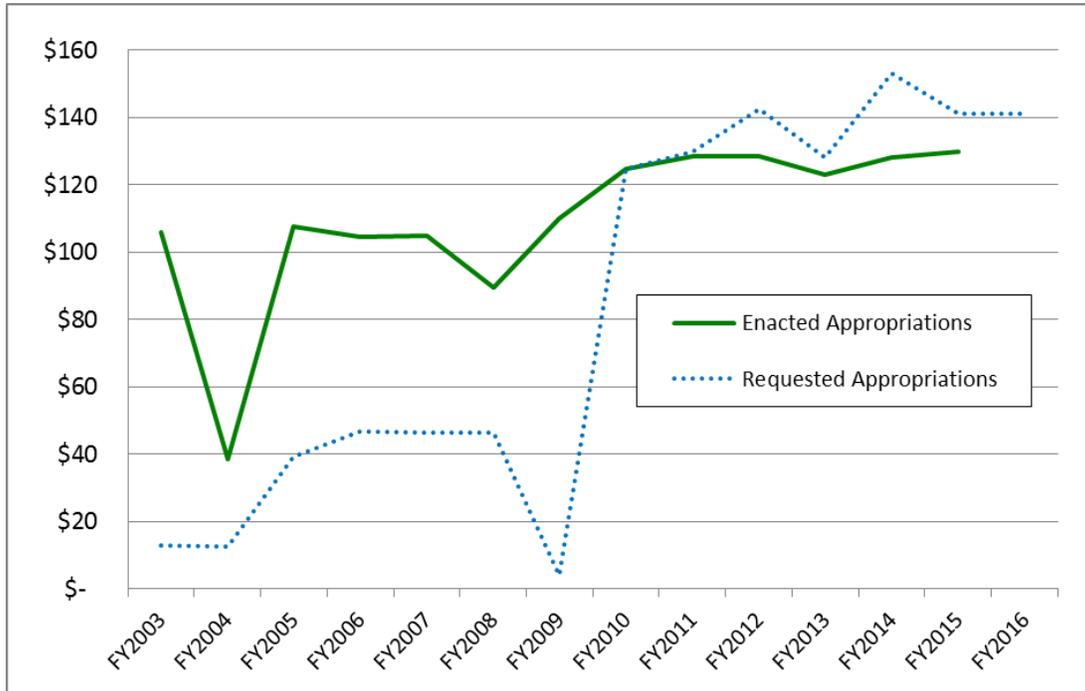
<sup>90</sup> Commerce, Justice, Science, and Related Agencies Appropriations Act, 2016 (H.R. 2578).

<sup>91</sup> S.Rept. 114-66.

<sup>92</sup> NIST, *Fiscal Year 2009 Budget Submission to Congress*, <http://www.osec.doc.gov/bmi/budget/09CBI/NISTand%20NTIS%20FY2009%20Congressional%20Justification.pdf>.

<sup>93</sup> The GDP (Chained) Price Index, a measure used by the Office of Management and Budget to adjust for inflation in research and development, grew at 1.8% CAGR during this period.

**Figure 1. Manufacturing Extension Partnership Program Funding**  
 Requested Appropriations, FY2003-2016; Enacted Appropriations, FY2003-FY2015  
 (in millions of current dollars)



Source: Department of Commerce and NIST budget documents, FY2003-FY2016; P.L. 113-235.

**Table 2. Requested and Enacted Appropriations for the MEP Program**  
 (FY2003-FY2015, in millions of current dollars)

Fiscal Year	Request	Enacted
2003 <sup>a</sup>	\$ 12.9	\$ 105.9
2004 <sup>b</sup>	12.6	38.6
2005 <sup>c</sup>	39.2	107.5
2006 <sup>d</sup>	46.8	104.6
2007	46.3	104.7
2008	46.3	89.6
2009	4.0	110.0
2010	124.7	124.7
2011 <sup>e</sup>	129.7	128.4
2012	142.6	128.4
2013 <sup>f</sup>	128.0	123.0
2014	153.1	128.0
2015	141.0	130.0
2016	141.0	-

**Source:** Department of Commerce and NIST budget documents, FY2003-FY2016; P.L. 113-235.

**Notes:**

- a. Enacted levels reflect an across-the-board rescission enacted in P.L. 108-7.
- b. Enacted levels reflect across-the-board rescissions enacted in the FY2004 Consolidated Appropriations Act, P.L. 108-199, and NIST's share of the Department of Commerce's unobligated balances rescission.
- c. Enacted levels reflect across-the-board rescissions enacted in P.L. 108-447, FY2005 Consolidated Appropriations Act (\$9.5 million). Does not reflect unobligated balances rescission of \$3.9 million.
- d. Enacted levels reflect across-the-board rescissions enacted in P.L. 109-108, FY2006 Science, State, Justice, and Commerce Appropriations Act and in P.L. 109-148, FY2006 Defense Appropriations Act.
- e. Enacted levels include 0.2% across-the-board rescission.
- f. Enacted levels reflect the 1.877% rescission, 0.2% rescission, and the 5% sequester applied to 2013 annualized CR level.

## Use of MEP Appropriations for Center Awards

In response to direction from Congress,<sup>94</sup> GAO investigated the extent to which the MEP program achieves administrative efficiencies. In its March 2014 report, GAO found that of the \$608 million spent on the MEP program from FY2009 to FY2013, about \$495 million (81.4%) went to center awards. The balance was spent on contracts, staff, agency-wide overhead charges, and other items, some of which NIST considered direct support and some of which NIST considered administrative spending. According to GAO, NIST estimated that more than 88.5% of federal MEP program spending in FY2013 was for direct support, and the remainder (11.5%) was for administration.<sup>95</sup>

## Appropriate Role of the Federal Government

Continuing financial support for the MEP program is part of a larger ongoing debate among federal policymakers about the appropriate role of the federal government in providing assistance to U.S. industry. The MEP program has, at times, been included in discussions surrounding termination of federal programs that provide direct support for industry. Proponents assert that SMMs play a central role in the U.S. economy and that the MEP system provides information and assistance not otherwise available to SMMs. Some opponents have asserted that such services are available from other sources and that MEP inappropriately shifts a portion of the costs of these services to taxpayers. Proponents of the program stress that no direct funding is available to companies.

In addition, some have questioned whether federal support for the MEP centers should continue to be provided indefinitely. As originally expressed in statute, MEP centers were to receive no federal funding after their fifth year of operation, instead deriving necessary revenues from state and local governments as well as from the companies utilizing the center's services. In 1998, Congress lifted the prohibition on funding after the fifth year and allowed NIST MEP to provide up to one-third of center costs after their sixth year of operation indefinitely. More recently, some have argued for increasing the federal cost-share to one-half of center costs. The system-wide competition currently underway effectively accomplishes this, providing up to one-half of a center's costs for the first three years of the new awards. The debate over whether the federal

<sup>94</sup> Explanatory Statement, Consolidated and Further Continuing Appropriations Act, 2013, *Congressional Record*, March 11, 2013, p. 1301.

<sup>95</sup> Government Accountability Office, *Most Federal Spending Directly Supports Work with Manufacturers, but Distribution Could Be Improved*, GAO-14-317, March 2014.

government should continue to provide financial support to the centers indefinitely and, if so, at what level, may be revisited as the centers' federal funding decreases once again to two-fifths of the center costs in the fourth year of the new awards, and one-third in the fifth year.

These and other issues may be debated as Congress continues to make appropriation decisions relating to manufacturing extension as it pertains to the role of the federal government in facilitating research and technological advancement.

# Appendix A. Hollings Manufacturing Extension Partnership Centers

**Table A-1. Hollings Manufacturing Extension Partnership Centers**

State	Center Name, Address, and Website
Alabama	Alabama Technology Network 135 South Union Street, Suite 441, Montgomery, AL 36104 <a href="http://www.atn.org/">http://www.atn.org/</a>
Alaska	Southwest Alaska Municipal Conference 3300 Arctic Boulevard, #203, Anchorage, AK 99503 <a href="http://www.swamc.org">http://www.swamc.org</a>
Arizona	Arizona Commerce Authority 333 N. Central Avenue, Suite 1900, Phoenix, AZ85004 <a href="http://www.azcommerce.com/revaz">http://www.azcommerce.com/revaz</a>
Arkansas	Arkansas Manufacturing Solutions 900 West Capitol Avenue, Suite 320, Little Rock, AR 72201 <a href="http://www.mfgsolutions.org">http://www.mfgsolutions.org</a>
California	California Manufacturing Technology Consulting 690 Knox Street, Suite 200, Torrance, CA 90502. <a href="http://www.cmtc.com/">http://www.cmtc.com/</a>  Corporation for Manufacturing Excellence (Manex) 2010 Crow Canyon Place, Suite 320, San Ramon, CA 94583 <a href="http://www.manexconsulting.com">http://www.manexconsulting.com</a>
Colorado	Manufacturer's Edge Manufacturer's Edge C/O REO, 5505 Airport Boulevard, Boulder, CO 80301 <a href="http://www.manufacturersedge.com">http://www.manufacturersedge.com</a>
Connecticut	Connecticut State Technology Extension Program 1090 Elm Street, Suite 202, Rocky Hill, 06067 <a href="http://www.connstep.org/">http://www.connstep.org/</a>
Delaware	Delaware Technical and Community College 400 Stanton-Christiana Road, Suite A-158, Newark, DE 19713 <a href="http://www.demep.org/">http://www.demep.org/</a>
Florida	FloridaMakes 800 N. Magnolia Avenue, Suite 1850, Orlando, 32803 <a href="http://www.floridamakes.com">http://www.floridamakes.com</a>
Georgia	Georgia Manufacturing Extension Partnership Georgia Tech, 75 Fifth Street, NW Suite 300, Atlanta, GA 30308 <a href="http://gamep.org/">http://gamep.org/</a>
Hawaii	INNOVATE Hawaii 2800 Woodlawn Drive, Suite 100, Honolulu, HI 96822 <a href="http://www.innovatehawaii.org">http://www.innovatehawaii.org</a>

<b>State</b>	<b>Center Name, Address, and Website</b>
Idaho:	Idaho TechHelp Boise State University, 1910 University Drive, Boise, 83725 <a href="http://www.techhelp.org">http://www.techhelp.org</a>
Illinois	Illinois Manufacturing Excellence Center – Chicagoland 1651 Wilkening Road, Schaumburg, IL 60173 <a href="http://www.imec.org">http://www.imec.org</a> Illinois Manufacturing Excellence Center – Downstate 428 Jobst Hall, 1501 W. Bradley Avenue, Bradley University, Peoria, 61625 <a href="http://www.imec.org">http://www.imec.org</a>
Indiana	Indiana MEP Purdue Technical Assistance Program 8628 E. 116 <sup>th</sup> Street, Suite 200, Fishers, IN 46038 <a href="http://www.mep.purdue.edu">http://www.mep.purdue.edu</a>
Iowa	Iowa Center for Industrial Research and Service Iowa State University, Extension 4-H Building, Ames, IA 50011. <a href="http://www.ciras.iastate.edu">http://www.ciras.iastate.edu</a>
Kansas	Mid-America Manufacturing Technology Center 10550 Barkley Street, Suite 116, Overland Park, KS 66212 <a href="http://www.mamtc.com">http://www.mamtc.com</a>
Kentucky	Advantage Kentucky Alliance 2413 Nashville Road, B8, Suite 310, WKU Center for Research and Development, Bowling Green, KY 42101. <a href="http://www.advantageky.org">http://www.advantageky.org</a>
Louisiana	Manufacturing Extension Partnership of Louisiana P.O. Box 53445, Lafayette, LA 70505 <a href="http://www.mepol.org">http://www.mepol.org</a>
Maine	Maine Manufacturing Extension Partnership 87 Winthrop Street, Augusta, ME 04330 <a href="http://www.mainemep.org/">http://www.mainemep.org/</a>
Maryland	Maryland MEP 8894 Stanford Boulevard, Suite 304, Columbia, MD 21045 <a href="http://www.mdmeep.org">http://www.mdmeep.org</a>
Massachusetts	Massachusetts Manufacturing Extension Partnership 100 Grove Street, Suite 108, Worcester, MA 01605 <a href="http://www.massmep.org/">http://www.massmep.org/</a>
Michigan	Michigan Manufacturing Technology Center 47911 Halyard, Plymouth, MI 48170 <a href="http://www.mmtc.org/">http://www.mmtc.org/</a>
Minnesota	Enterprise Minnesota 310 4 <sup>th</sup> Avenue S., Suite 7050, Minneapolis, MN 55415 <a href="http://www.enterpriseminnesota.org">http://www.enterpriseminnesota.org</a>
Mississippi	InnovateMEP Mississippi 134 Marketridge Drive, Ridgeland, MS 39157 <a href="http://www.innovatemep.ms">http://www.innovatemep.ms</a>

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<b>State</b>	<b>Center Name, Address, and Website</b>
Missouri	Missouri Enterprise 900 Innovation Drive, Suite 300, Rolla, MO 65401 <a href="http://www.missourienterprise.org">http://www.missourienterprise.org</a>
Montana	Montana Manufacturing Extension Center PO Box 174255, Montana State University, 2310 University Way Building 2, Suite 1, Bozeman, MT 59717. <a href="http://www.mtmanufacturingcenter.com">http://www.mtmanufacturingcenter.com</a>
Nebraska	Nebraska Manufacturing Extension Partnership 210 L. W. Chase Hall, Lincoln, NE 68583 <a href="http://nemep.unl.edu">http://nemep.unl.edu</a>
Nevada	Nevada Industry Excellence UNR Mail Stop 406, Reno, NV 89557 <a href="http://www.nevadaie.com">http://www.nevadaie.com</a>
New Hampshire	New Hampshire Manufacturing Extension Partnership 172 Pembroke Road, Concord, NH 03301 <a href="http://www.nhmep.org/">http://www.nhmep.org/</a>
New Jersey	New Jersey Manufacturing Extension Program 2 Ridgetale Avenue, Suite 305, Cedar Knolls, NJ 07927 <a href="http://www.njmep.org">http://www.njmep.org</a>
New Mexico	New Mexico Manufacturing Extension Partnership 4501 Indian School Road, NE, Suite 202, Albuquerque, NM 87110 <a href="http://www.newmexicomep.org">http://www.newmexicomep.org</a>
New York	New York Manufacturing Extension Partnership 625 Broadway, ESD, Division of Science, Technology & Innovation (NYSTAR), Albany, NY 12245 <a href="http://www.esd.ny.gov/">http://www.esd.ny.gov/</a>
North Carolina	North Carolina Manufacturing Extension Partnership 1005 Capability Drive, Research II Building., Suite 200, Raleigh, NC 27695 <a href="http://www.ncmep.org">http://www.ncmep.org</a>
North Dakota	North Dakota Manufacturing Extension Partnership 1929 North Washington Street, Suite M , Bismarck, ND 58501 <a href="http://www.impactdakota.com">http://www.impactdakota.com</a>
Ohio	Ohio Manufacturing Extension Partnership 77 South High Street, Columbus, OH 43215 <a href="http://www.development.ohio.gov">http://www.development.ohio.gov</a>
Oklahoma	Oklahoma Manufacturing Alliance 525 South Main Street, Suite 210, Tulsa, OK 74103 <a href="http://www.okalliance.com/">http://www.okalliance.com/</a>
Oregon	Oregon Manufacturing Extension Partnership 7650 SW Beveland Street, Suite 170, Portland, OR 97223 <a href="http://www.omep.org">http://www.omep.org</a>

<b>State</b>	<b>Center Name, Address, and Website</b>
Pennsylvania	Catalyst Connection 2000 Technology Drive, Pittsburgh, PA 15219 <a href="http://www.catalystconnection.org">http://www.catalystconnection.org</a>
	Delaware Valley Industrial Resource Center 2905 Southampton Road, Philadelphia, PA 19154 <a href="http://www.dvirc.org">http://www.dvirc.org</a>
	Innovative Manufacturers Center (IMC) One College Avenue, DIF 32, Williamsport, PA 17701 <a href="http://www.imcpa.com">http://www.imcpa.com</a>
	MANTEC 600 North Hartley Street, Suite 100, York, PA 17404. <a href="http://www.mantec.org">http://www.mantec.org</a>
	Manufacturers Resource Center 961 Marcon Boulevard, Suite 200, Allentown, PA 18109 <a href="http://www.mrcpa.org">http://www.mrcpa.org</a>
	Northeastern Pennsylvania Industrial Resource Center 75 Young Street, Hanover Industrial Estates, Hanover Township, PA 18706 <a href="http://www.nepirc.com">http://www.nepirc.com</a>
	Northwest Pennsylvania Industrial Resource Center 5340 Fryling Road, Suite 202, Erie, PA 16510 <a href="http://www.nwirc.org">http://www.nwirc.org</a>
Puerto Rico	Puerto Rico Manufacturing Extension Inc. Ponce de Leon Avenue, Mercantil Plaza Building, Suite 819, Hato Rey, PR 00918 <a href="http://www.primexpr.org">http://www.primexpr.org</a>
Rhode Island	University of Rhode Island Research Foundation 75 Lower College Road, Suite 001, Kingston, RI 02881 <a href="http://www.polarismep.org">http://www.polarismep.org</a>
South Carolina	South Carolina Manufacturing Extension Partnership 250 Berryhill Road, Suite 512, Columbia, SC 29210 <a href="http://www.scmep.org">http://www.scmep.org</a>
South Dakota	South Dakota Manufacturing and Technology Solutions 2329 N. Career Avenue, Suite 106, Sioux Falls, SD 57107 <a href="http://www.sdmanufacturing.com">http://www.sdmanufacturing.com</a>
Tennessee	Tennessee Manufacturing Extension Partnership 193 Polk Avenue, Ste. C, Univ. of Tennessee Center for Industrial Services, Nashville, TN 37210 <a href="http://www.cis.tennessee.edu/">http://www.cis.tennessee.edu/</a>
Texas	TMAC 9390 Research Boulevard, Suite II-300, Austin, TX 78759 <a href="http://www.tmac.org/">http://www.tmac.org/</a>
Utah	Utah Manufacturing Extension Partnership 815 West 1250 South, MS 212, Orem, UT 84058 <a href="http://www.mep.org/">http://www.mep.org/</a>

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<b>State</b>	<b>Center Name, Address, and Website</b>
Vermont	Vermont Manufacturing Extension Center P.O. Box 12, 1540 VT Rt. 66, Suite 103, Randolph, VT 05060 <a href="http://www.vmec.org/">http://www.vmec.org/</a>
Virginia	Genedge Alliance 32 Bridge Street, Suite 200, Martinsville, VA 24112 <a href="http://www.genedge.org">http://www.genedge.org</a>
Washington	Impact Washington 8227 44 <sup>th</sup> Avenue West, Suite D, Mukilteo, WA 98275 <a href="http://www.impactwashington.org">http://www.impactwashington.org</a>
West Virginia	West Virginia Manufacturing Extension Partnership 886 Chestnut Ridge Road, 2 <sup>nd</sup> Floor, Morgantown, WV 26506 <a href="http://www.wmep.com">http://www.wmep.com</a>
Wisconsin	UW Stout Manufacturing Outreach Center 278 Jarvis Hall, 410 10 <sup>th</sup> Ave E, Menomonie, WI 54751 <a href="http://www.uwstout.edu/moc">http://www.uwstout.edu/moc</a>  Wisconsin Manufacturing Extension Partnership 2601 Crossroads Drive, Suite 145, Madison, WI 53718 <a href="http://www.wmep.org">http://www.wmep.org</a>
Wyoming	Manufacturing-Works Department 3362, 1000 East University Avenue, Laramie, WY 82071 <a href="http://www.manufacturing-works.com/">http://www.manufacturing-works.com/</a>

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**Source:** Information provided by NIST to CRS via email, October 20, 2015.

## Appendix B. Center Funding for Rounds One and Two of the System-Wide Competition

**Table B-1. First-Year Center Funding Awarded in Round One**  
(by state, in current dollars)

State	First Year NIST Funding
Colorado	\$ 1,668,359
Connecticut	1,476,247
Indiana	2,758,688
Michigan	4,299,175
New Hampshire	628,176
North Carolina	3,036,183
Oregon	1,792,029
Tennessee	1,976,348
Texas	6,700,881
Virginia	1,722,571

**Source:** NIST, “NIST Awards \$26 Million to Support Manufacturing in 10 States,” press release, February 24, 2015, <http://www.nist.gov/mep/awards-support-manufacturing.cfm>.

**Table B-2. First-Year Center Funding Awarded in Round Two**  
(by state, in current dollars)

State	First Year NIST Funding
Alaska	\$ 500,000
Idaho	640,236
Illinois	5,029,910
Minnesota	2,653,649
New Jersey	2,814,432
New York	5,985,194
Oklahoma	1,309,080
Washington	2,534,872
West Virginia	500,000
Wisconsin	3,250,792

**Source:** NIST, “New Funding Brings New Opportunities for Manufacturers in Nine States,” press release, September 21, 2015, <http://www.nist.gov/mep/new-funding-brings-new-opportunities-for-manufacturers-in-nine-states.cfm>; NIST, “New Funding Awarded to Support Wisconsin Manufacturers,” press release, November 13, 2015, <http://www.nist.gov/mep/new-funding-awarded-to-support-wisconsin-manufacturers.cfm>.

**Notes:** NIST anticipates the awarding of the Utah center, competed in the second round, in early FY2016. No applications were received for the Ohio center which was also part of the second round competition.

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