

NIST Manufacturing Extension Partnership

The NIST Manufacturing Extension Partnership (MEP) is a nationwide network of locally managed centers offering technology assistance and the latest business practices to help smaller manufacturers improve their competitiveness. The MEP was created in 1988 as a new extramural responsibility assigned to NIST by the Omnibus Trade and Competiveness Act—the same Act that changed NBS into NIST. At the heart of MEP is a network of more than 400 manufacturing extension centers and field offices located throughout the country. The program became operational in 1989, and today's network delivers services to manufacturers in all 50 states and Puerto Rico. The 1999 report to Congress, *The NIST Manufacturing Extension Partnership, A Network for Success* [1], summarizes the progress in the first decade of MEP.

More than 385,000 small and mid-sized manufacturers make vital contributions to the economy. About 98 % of the nation's manufacturers are small to medium-sized, defined as having fewer than 500 employees. They supply more than 50 % of the added value in U.S. manufacturing and employ nearly 12 million people. That accounts for 65 % of all U.S. manufacturing workers with high-skilled, high-wage jobs, paying an average 58 % more than the average retail earnings.

As large manufacturers depend more on suppliers for parts and services, the performance and capabilities of smaller manufacturers become even more critical. Yet, according to a National Research Council report, "Many of these small firms . . . are operating far below their potential. Their use of modern manufacturing equipment, methodologies and management practices is inadequate to ensure that American manufacturers will be globally competitive." Limited budgets, lack of in-house expertise, and lack of access to the newest technologies are but a few of the significant barriers faced by smaller manufacturers—barriers that MEP helps firms overcome.

MEP centers are local resources serving their local markets. Linked together through the National Institute of Standards and Technology's Manufacturing Extension Partnership, they are part of a national network of manufacturing and business experts. They exist as the result of a partnership among the federal government, state and local governments, and industry to help local manufacturers. They are created through a competitive,

merit-based process where funding is contingent upon successful annual reviews of each center. MEP centers are supported by contributions from public and private organizations that match federal funding.

While part of a national network, MEP centers are independent, non-profit organizations. They offer products and services that meet the specific needs of the region's local manufacturers. Each center works directly with area firms to provide expertise and services tailored to their most critical needs, ranging from process improvements and worker training to business practices and applications of information technology. Solutions are offered through a combination of direct assistance from center staff and work with outside consultants. MEP centers are staffed by knowledgeable manufacturing engineers and business specialists who typically have years of practical experience gained from working on the manufacturing floor and/or managing plant operations. MEP center staff also know the local business community and the available local resources, and they can access national resources through the MEP network. As a result, centers help small firms to overcome barriers in locating and obtaining private-sector resources.

MEP centers work with companies that are willing to invest time, money, and/or human resources to improve their business. Typical MEP clients include manufacturers who:

- Have been unable to locate the proper resources or technologies they need.
- Want expert, impartial advice in helping them evaluate alternative solutions.
- Need help solving a specific problem, such as determining the cause of product defects, modifying plant layout to improve workflow, or establishing employee training.
- Want assistance in reversing negative business situations—such as sales decreases, loss of market share, or cost increases.
- Want to implement new technologies or processes that will help establish them as market leaders.
- Seek to improve their ongoing business operations for peak performance.

Through these centers, MEP provides small and mid-sized manufacturers with access to a wealth of tools, techniques, and other resources from over 2,500 public and private affiliations. Initiatives with the U.S. Departments of Labor and Agriculture, EPA, Small Business Administration, National Association of State Development Agencies, the Kauffman Center for Entrepreneurial Leadership, and hundreds of universities and community colleges are but a few examples of how MEP leverages public and private resources to make a comprehensive range of technical services and assistance available to small manufacturers.

The report to Congress [1] includes a section on evaluation, which is a key element of all MEP programs and activities. Results are used to assess the effectiveness of services and their impact on the performance of client firms and to help guide planning at both the center and national levels. By measuring short- and long-term impacts, MEP can also assess economic returns on the federal investment in manufacturing extension services.

Results of ongoing surveys confirm that MEP services—delivered to more than 84,000 small and mid-sized manufacturers since 1989—are yielding sizable benefits. For example, a sample of 4,554 client companies reported that, as a direct result of MEP assistance during 1998, they:

- Created or retained a total of 7,186 jobs
- Increased revenues by \$294 million
- Invested a total of \$291 million in modernization
- Realized a cost savings of \$29 million in materials and labor
- Reduced inventories by \$20 million.

Other independent studies have also yielded solid evidence of performance and economic benefits. An analysis by the U.S. General Accounting Office found that a substantial majority of firms using extension services, including those provided by the MEP, credited this assistance with helping them to improve productivity, product quality, customer satisfaction, profits, and other critical facets of their operations.

Since the program's inception in 1989, MEP has recognized the value and impact small manufactures have on our everyday lives. Whether through national initiatives such as the Y2K Conversion 2000 Jumpstart kit—distributed to more than 320,000 manufacturers throughout the country—or through local contact, MEP is providing hands-on help to America's small manufacturers. One significant way that MEP does this is

through education on lean manufacturing. As a result of a partnership between MEP's centers and Productivity, Inc., the smaller manufacturers have access to "lean manufacturing" training previously available only to large companies. Originating in Japan in the 1970's, lean manufacturing is a concept that eliminates manufacturing activities or actions that add no real value to the product or service. Field manufacturing specialists at NIST MEP centers around the country receive training in lean manufacturing through the partnership.

Several success stories that show the impact that the MEP centers have had on American manufacturers across the country through various products and/or services are included in the report [1]. A typical example is the case of Contine Corp., located in Erie, Pennsylvania, which employs 28 people in its 15,000-square-foot facility and offers a full range of job shop services to manufacturers of electromechanical devices. The company added plastic injection molding capabilities after purchasing Bayside Precision Inc. in 1990, which further enhanced its ability to serve the market. Contine was concerned about its Y2K preparedness for internal and external systems. The company recognized that it might need to replace or upgrade software and/or hardware, but it neither had a plan nor did it know where to start. For assistance, Contine contacted the Northwest Pennsylvania Industrial Resource Center (NWIRC), a NIST MEP network affiliate.

NWIRC's information technology field engineer met with Contine systems staff and proposed that the company undergo a Y2K awareness briefing. After the briefing, Contine asked NWIRC to initiate a full Y2K readiness project and to assume the role of project director for the company's Y2K team. NWIRC installed MEP's Y2K project tool and trained the team how to use it. Throughout the next 3 months, the Center met regularly with the team to evaluate progress and establish new landmarks. The results of the identification and testing of Contine's systems indicated that the company needed to spend approximately \$50,000 to replace its existing network server and "jobshop" software applications. After NWIRC talked with various outside consultants and evaluated the inner-workings of their information systems, it determined that the company also should upgrade five of its workstations to improve productivity.

Within 2 months, Contine purchased, installed, and tested the new equipment and software while the team continued to conduct on-going Y2K readiness testing. The new technology allowed Contine to enhance its capabilities and increase its efficiency for Y2K and for years to come. In addition, as a result of the company's

efforts to assure its Y2K readiness, it was able to prevent disruption of the flow of products to customers, which in turn protected the employees from short- and long-term layoffs.

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Bibliography

- [1] *A Report to Congress- The NIST Manufacturing Extension Partnership, A Network for Success*, Manufacturing Extension Partnership, National Institute of Standards and Technology, Gaithersburg, MD, July 1999.