
3

The Importance of Manufacturing Extension: A State Perspective

Susan Rhoades

Susan Rhoades is Executive Assistant to the Director of the Delaware Economic Development Office in Dover, Delaware.

Abstract

The importance of manufacturing extension programs to the states, who are both sponsors and customers of these programs, centers around the economic impact that states expect will be derived for client manufacturing firms and their local economies. States are driven by the need to preserve and enhance their manufacturing base as a vital, wealth-creating sector of their economies. They recognize that the cycle of rapid and constant change in both the use of technology and business systems which is being generated by the global economy impacts their small and medium-sized companies disproportionately, and they look to manufacturing extension programs to assist these companies through the transition, thus enabling them to survive and thrive in global competition.

The Importance of Manufacturing Extension to States

The state of manufacturing continues to affect the American economy profoundly at both the state and national levels. Defining the importance of relatively recent manufacturing extension programs to the states, who are both sponsors and customers of extension centers, must focus principally on the critical role that manufacturing continues to play in most states' economies. Manufacturing continues to provide significant wealth creation, the retention and creation of high paying jobs, and direct and indirect contributions to the overall standard of living in our economies.

The importance of manufacturing extension to the states is also intricately linked to the changes in the national and international economy which have taken place over the last several decades. Global

competition has brought new challenges to firms as they struggle to survive, compete, and thrive in larger, more complex markets. Similarly, the changing global context provides a dynamic backdrop for states, regions and countries as they strive to develop and implement policies that will help provide a balanced foundation for current and future economic growth -- growth that can create or sustain a high standard of living for their citizens.

As manufacturing firms have worked to adapt to this new environment, states have felt the economic pain when these firms have not succeeded as evidenced by company closures, shrinking workforces, lost tax revenue, and spin-off effects on other sectors of the economy. This transition to a global economy has been particularly hard on the small and medium-sized manufacturing firms which often have less time, expertise and resources to make the changes which may be necessary to remain competitive.

The role of manufacturing extension from a state's perspective, then, has been primarily to assist companies within its borders to make the transition to the new economy by implementing the modern manufacturing technologies and business techniques necessary for global competition. These programs are important to the states because their work serves to preserve and enhance a vital element of each state's economic base.

The Importance of Manufacturing Extension in Delaware

During the 1980s, when many other states were reacting to downsizing in their manufacturing industries, Delaware's economy was shielded from the impact of these structural changes by phenomenal growth in our financial services industry. This protective effect can be seen in the

following numbers. In 1980, manufacturing accounted for 34% of Delaware's Gross State Product (GSP) and 27% of all employment, while the financial services industry represented 14% of GSP and just 5% of all jobs. In the beginning of the 1990s, however, Delaware was hit hard by recession and massive downsizing in the state's chemical and automotive industries, the dominant players in our manufacturing base. By 1995, while the financial services sector had more than doubled its share of employment, our manufacturing sector had shrunk by nearly 10,000 workers.

Despite these significant changes in the size and scope of manufacturing in Delaware, manufacturing remains a vital part of our state economy. It still generates nearly a quarter of the state's wealth, employs 17% of all Delawareans in the workforce at high wages, and produces important indirect effects on our economy.

The impetus to act and develop an aggressive state economic development strategy focused on manufacturing came in December 1992 when General Motors announced plans to close its Wilmington assembly plant, eliminating over 3,000 high-paying manufacturing jobs. While it was clear that some job loss in the manufacturing sector would continue as large companies such as DuPont continued to downsize and were in fact changing fundamentally into slimmer, more focused corporations, the General Motors' announcement posed an immediate threat to the health of the state's economy.

Ironically, Delaware's traditional dependence on large firms had become an increasing liability. We had to move quickly to preserve and enhance our manufacturing base and had to focus on increasing the number and quality of smaller firms if we were even remotely to make up for the job losses we were experiencing from larger companies. A statewide task force was convened by Governor Tom Carper to address this challenge and develop strategies for action. The strategies would be part of

the state's overall "grow our own" economic development strategy, which was being developed to facilitate the growth of existing businesses and stimulate the creation of new ones. This guiding policy framework was developed in light of the fact that the majority of new jobs created in any economy come from the expansion of existing businesses and the start-up of new ones. It also provided a balance to the state's more traditional recruitment-oriented economic development efforts and recognized the importance of developing a solid foundation for economic growth within the state.

As part of the task force's activity, focus groups were held with small and medium-sized manufacturing firms across the state to determine their needs and obstacles to competitiveness. Besides a number of regulatory and business climate issues that were identified, it became apparent that a new technical support infrastructure could provide valuable assistance to local companies. Unlike many other states who reacted to downsizing in their manufacturing industries during the 1980s by upgrading their commitments to science and technology, manufacturing modernization, and workforce development, Delaware had not developed a similar infrastructure for manufacturing and technology-oriented businesses -- at the time, there was no compelling need to do so. Both the private sector and key educational and business support institutions cautioned that the addition of a new technical assistance resource for manufacturers should be additive, and not duplicative, to existing resources in the state, and that it should be led and managed by the private sector.

The result of these efforts was the creation of a new manufacturing extension center called the Delaware Manufacturing Alliance in 1993. The state matched a grant from the federal government through the Technology Reinvestment Project (TRP) to fund the new center. Over the last few years, the Alliance has made good progress in reaching out to Delaware's 700 small and

medium-sized manufacturers and assisting them in a variety of ways. From the state's perspective, we consider the Alliance a vital part of our state economic development strategy. We play an active role in its governance and oversight both as a board member and key sponsor so that we are assured its work is contributing to the preservation and enhancement of Delaware's manufacturing base.

What Do We Expect from Evaluation in General?

The process of evaluating programs performed by any organization, whether it is private, public or non-profit, aims to answer some fundamental questions, namely: Do the results of the program meet its objectives? And, are customers satisfied?

When public funds are used to administer a program, the expectations for evaluation are even greater given the need to document the efficient and effective use of taxpayer funds as well as the program's need to compete with numerous other demands for public resources. These expectations also tend to be more fuzzy and vague, and therefore more difficult to meet, because the diverse stakeholders of publicly supported programs often hold multiple and different expectations. Another challenge in evaluating publicly funded programs is that sponsors may expect an evaluation process to deliver results from which they can draw broader policy implications than perhaps can be justified.

What Do States Expect from the Evaluation of Manufacturing Extension Programs?

The ambiguity and multiplicity of expectations for publicly funded programs is

exemplified by the case of manufacturing extension programs. The basic expectations that our state holds for evaluating these programs focus on a few fundamental questions, such as: Will this manufacturing extension center help save, maintain, rejuvenate, and/or grow our manufacturing base? Will this program help improve and sustain our state economy? These state government expectations are principally economic development and economic impact-oriented.

National competitiveness issues -- while important -- do not always seem directly relevant to the states. For example, manufacturing companies that operate within our borders increasingly have no corporate boundaries in the global economy. While we are interested in how manufacturing plants in our state (and their parent companies, if applicable) are performing broadly, we are most concerned about how their business performance affects our local economy. State government sponsors expect to receive economic development returns to their state economy -- if certain results from a manufacturing extension program in a state also benefit the United States' relative position in a particular industry, all the better.

The need to jump-start our manufacturing base, retain existing companies, and provide an environment for new manufacturing growth was the context in which we created a manufacturing extension center in Delaware nearly three years ago. While the practice of manufacturing extension is still relatively new to Delaware, the concept is long familiar to a state in which agriculture has always been an important industry. Although the analogy between manufacturing extension and agricultural extension has been much used and, perhaps to some, abused over the last decade, the comparison does provide a useful framework in terms of states' expectations for these programs. Namely, while states understand that the nature of manufacturing is changing fundamentally,

there is still an important role this sector can and will play in generating wealth, if not large-scale employment, for our economies. Therefore, investments in helping manufacturers meet their technological and business challenges through a network of "extension agents" is just as important today as the agricultural extension system's assistance to small-scale farmers adapting to changes in their industry has been over the course of this century.

It is also important to note when discussing "state" expectations of manufacturing extension programs that "states" represent multiple constituencies, such as the state economic development agency, state legislators, the Governor's office, business support groups, educational institutions, manufacturing companies, environmental interest groups, other interest groups, the taxpayers at large, etc. As a first cut at the kinds of more detailed questions these stakeholders might ask regarding evaluation of extension programs, consider the following:

- What services is the center providing to manufacturing companies?
- Who are its customers? How many are small firms?
- What are the results of the services in terms of economic and other impacts on that company?
- Is the company more competitive -- by what measure?
- Is the company more productive?
- Did client companies retain jobs, create new jobs, and/or eliminate jobs due to services provided?
- Did it increase capital investment in the state due to services provided?

- What are the aggregate economic impacts on the state economy?
- Do company customers value the center's services and pay for certain services?
- Will the program require long-term state financial support? Is there a plan for self-sufficiency?
- Do economic impacts from the program exceed the investment the state has made? What is the return on investment?
- Are the services adding value, being complementary and not duplicative with other resources already available (and represented by their own stakeholders)?
- How does the extension center complement and not compete with private consultants?
- How well is the center contributing to, and coordinated within, the state's overall economic development strategy and business climate?
- How does the organization evaluate itself and strive to be a high performance organization, customer-focused, learning organization?

In Delaware, we have produced relatively simple evaluations to date of our manufacturing extension program. The Delaware Manufacturing Alliance requests quantitative and qualitative feedback from its customers and had begun to report "economic impact" data to our state agency on a monthly basis once they started generating company-specific data from significant projects. When NIST began its telephone evaluation survey, however, that evaluation included all that our system had been tracking with regard to economic impact, and more. It also offered the

opportunity to have evaluations done in a more systemic fashion outside the organization with higher response rates. With this new tool in hand, we have decided to rely primarily on evaluation information related to economic impact from that source.

As a small state, we appreciate the support provided by NIST to gather this important evaluation data. While the importance of evaluation for manufacturing extension programs may now be largely accepted, the development and implementation of an effective evaluation strategy can still be difficult, time consuming and costly -- particularly for smaller centers such as ours. We are hopeful that NIST's new survey tool will provide a better foundation for understanding what impact our manufacturing extension center, and other manufacturing extension centers, are having on the companies they assist as well as on the state and national economies in which they operate.

Beyond the scope of the NIST evaluation, there is an important need within manufacturing extension centers for evaluation of their internal operations from an organizational development perspective. This is an important element of evaluation that may receive less priority from state and federal sponsors than the economic impact analysis. However, organizational analysis and continuous improvement are vital to achieving the results which all MEP stakeholders seek. Centers must practice themselves what they counsel to their manufacturing clients and take a long-term view of their organizational success, define what success means and how they will get there, and continuously improve their policies and practices to succeed in their market. Although state and federal policymakers are primarily concerned with the economic impacts on client firms and the economy, we are equally concerned that public funds are well spent and that extension organizations are well managed so that they can attain the results all stakeholders seek. It might be helpful to know what are the best practices in

this type of evaluation across different MEP centers and perhaps for NIST to facilitate common evaluation tools in this area, too.

Using Evaluation to Build a Broader Constituency for 21st Century Manufacturing

Developing a good track record of program results through evaluation is very important in justifying continued public funding of manufacturing extension programs. Proven results from MEP programs can also help make the case for similar economic development policies in the future which are designed to encourage and facilitate specific firm behavior that enhances the current economic climate and future economic potential of a state, region or country. Good evaluation techniques developed for the MEP on economic impact and organizational effectiveness will help develop the broad-based constituencies needed for future technology policymaking at both the state and national levels.