



# Meeting the Needs of Manufacturers in Massachusetts

ERIC NAKAJIMA

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ONGOING EFFORTS TO PROMOTE ADVANCED MANUFACTURING IN MASSACHUSETTS HAVE EMPHASIZED IMPROVED COLLABORATION BETWEEN EDUCATIONAL AND WORKFORCE DEVELOPMENT INSTITUTIONS AND THE EMPOWERMENT OF EMPLOYER-DRIVEN REGIONAL PARTNERSHIPS.

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Massachusetts Governor Deval Patrick has described the state’s advanced manufacturing industry as experiencing “a quiet renaissance.”<sup>1</sup> To a generation of families across the state that lived through the wrenching and dramatic decline of traditional manufacturing in the U.S., that statement may seem surprising. But it is true. Since the year 2000, the state’s manufacturing output has grown even as the state has lost 150,000 manufacturing jobs. But since 2009, output has continued to grow and production employment has stabilized, reflecting the fact that increased productivity has not come at the expense of jobs in recent years.

Only a few years ago, manufacturing was viewed as a sunset industry in Massachusetts and across America. Today, over 7,000 Massachusetts manufacturers employing over 250,000 people<sup>2</sup> and manufacturing contributes 10.5 percent of GSP, ahead of health care and finance.<sup>3</sup> There is reason to believe that advanced manufacturing

will continue to be a critical part of the state’s economy in the years to come.

In 2011, Governor Patrick launched the Massachusetts Advanced Manufacturing Collaborative to help the state’s manufacturers, educators and policymakers build a 21st century manufacturing strategy attuned to the industry’s current needs and competitive conditions. The primary focus of the Advanced Manufacturing Collaborative is rebuilding the fragmented educational and workforce development system for training workers and correcting the misperception that the industry isn’t a source of satisfying careers.

As Andrew Weaver demonstrates in his article in this edition of *MassBenchmarks*, the loudest voices in manufacturing policy debates claim a major skills gap in the U.S. labor force that is confounded by close analysis of the data. Does that mean there is no problem? No. There are

two significant real challenges, both of which correspond nicely to Andrew Weaver's analysis.

First, historically, large manufacturing companies provided training and apprenticeships that served as a de facto regional system for preparing workers for a local labor market. Area technical colleges and vocational schools, as well as small manufacturers, followed the lead of the major employers. Across the U.S., that old training model is gone. In its place, colleges, schools and workforce investment boards are often disconnected from each other and from the needs of small and medium-sized manufacturers. In the current system, manufacturers legitimately experience a workforce crisis because there is no reliable and transparent means of meeting their hiring needs.

The second challenge for small and medium-sized manufacturers is the increasing demand from major multinational companies for improvements in cost, quality, and product innovation throughout their supply chains. The surest path for small companies to address quality and cost is through improving the skills of their workforce. In Massachusetts, a major impediment to meeting the incumbent worker training needs of companies is the small average firm size (over 90 percent of manufacturers employ fewer than 100 workers).<sup>4</sup> It is hard to organize training programs if demand presents itself in ones and twos and very small companies lack the time and resources to engage the local workforce system at all.

The Massachusetts Advanced Manufacturing Collaborative has listened to the state's manufacturers and learned from excellent regional employer-workforce partnerships in the state that have implemented novel solutions to rebuild the workforce training system and promote manufacturing careers. The Patrick Administration has worked with the legislature and a range of state agencies to align resources and programs to streamline support for regional manufacturing partnerships that implement a best-practices approach to education and incumbent worker training.

One model for the regional manufacturing partnerships is the Precision Manufacturing Regional Alliance Project (PMRAP) in Hampden County, Massachusetts. PMRAP was created in 2006 by the Western Massachusetts Chapter of the National Tooling & Machining Association and the Hampden County Regional Employment Board. From the beginning, the regional partnership received state support and advice from Mass Tech Collaborative, an innovation-based state economic development agency, and from Commonwealth Corporation, the state's workforce training agency. Both agencies had a ringside seat to follow PMRAP's evolution.

PMRAP organizes the region's educational and training system to effectively engage with local manufacturers to provide incumbent worker training and a pipeline of new workers. Employers validate the curriculum and equipment at the region's schools, raise funds for new equipment,

and provide regular feedback on their hiring needs. The region's seven vocational schools and two community colleges with UMass Amherst share facilities, instructors and curricula. They also share data on enrollment, completions and hiring. PMRAP was recognized as a national model for workforce coordination by MIT's Production in the Innovation Economy (PIE) report in 2013.<sup>5</sup>

In Worcester County, a partnership of statewide and regional organizations launched a parallel effort to engage employers, articulate training and educational needs, and align vocational schools and colleges around those needs. Principally sponsored by the Massachusetts Manufacturing Extension Partnership (MassMEP) with employers, the program — the Massachusetts Advancement Center Workforce Innovation Collaborative (MACWIC) — has developed industry-validated career pathways and curricula. MACWIC started with a partnership of MassMEP with Quinsigamond Community College, Worcester Technical High School and Worcester Polytechnic Institute. It has since expanded to partner with other vocational schools and community colleges in the region.

The Advanced Manufacturing Collaborative drew lessons from these regional manufacturing partnerships as well as independent research and analysis from state and national sources. In 2012, the Patrick Administration joined eight other states in a policy academy sponsored by the National Governors Association Center for Best Practices. The states studied with national manufacturing experts and officials from the National Institute of Standards and the Economic Development Administration. Locally, MIT launched its manufacturing initiative, PIE, and partnered with the Commonwealth to use the state as one of its research sites. And the Patrick Administration cosponsored research by Northeastern University Professor Barry Bluestone in 2007 and 2012 that provided a baseline for understanding industry trends.

In general, the body of research validated a few key findings. First, manufacturing in Massachusetts is very healthy, with growth in output and productivity, and for several years, steady employment.<sup>6</sup> Second, while there is not a great labor shortage, regions struggle to meet the existing needs of employers.<sup>7</sup> Third, with 20 percent of the manufacturing workforce reaching retirement age in the next ten years, a replacement worker challenge will significantly strain the existing system.<sup>8</sup>

Armed with this analysis, the Patrick Administration has launched a comprehensive strategy to respond to manufacturing's challenges. The Commonwealth's Housing and Economic Development Secretary Greg Bialecki established key principles for state support for manufacturing education and workforce development. The first principle is that manufacturers, small and large, must be engaged in the design and implementation of training programs to ensure they meet their needs. The second principle is that education and training organizations must

collaborate to share facilities and resources and provide a seamless pathway for workers to develop careers. The third principle, which follows the first two, is that partnerships that include the workforce system and employers must be organized at the regional level.

The emphasis on regional partnerships has two practical consequences for the Patrick Administration and the Advanced Manufacturing Collaborative. First, the state has to coordinate its policies and programs to effectively respond to regional needs that will increasingly cross bureaucratic silos. Governor Patrick addressed this concern by appointing Marybeth Campbell to a new position, Director of Education and Workforce Development, which jointly coordinates policy for the Secretaries of Education, Labor & Workforce Development, and Housing & Economic Development. Also, by design, the Advanced Manufacturing Collaborative includes the director of every state agency that touches manufacturing from a policy or funding perspective. The agencies meet regularly to share information, coordinate investments and develop new initiatives.


The second consequence is that the state's manufacturing strategy is only as effective as its regional partners. There are many great organizations in Massachusetts working with manufacturers but the development of regional partnerships has been ad hoc and uneven. To respond to this need, the Advanced Manufacturing Collaborative launched the Advanced Manufacturing Regional Partnership Academy (Academy) in 2013. Led by UMass Dartmouth Professor Michael Goodman and a team of experts across the UMass system, the Academy engaged the state's seven regional manufacturing partnerships in a peer learning environment supported by best-practice case studies, surveys and independent research. The Academy completed its first year in June 2014.

In 2014, the Patrick Administration, working with the Massachusetts State Legislature, greatly expanded the resources available to fully implement its advanced manufacturing strategy. Based on its experience with PMRAP and other regional partnerships, the Patrick Administration knows that regions need new capital equipment to modernize training centers, and funds to expand training for new and incumbent workers. Governor Patrick's FY 2015 Capital Spending Plan includes, for the first time, an allocation of \$10 million to invest in manufacturing training equipment at vocational schools and community colleges. The funds will be focused on shared facilities utilized by new or existing regional partnerships.

The state's economic development law, signed by Governor Patrick in August 2014, establishes a \$12.3 million workforce training fund, administered by Commonwealth Corporation, focused on expanding the pipeline of workers in high-demand sectors, including manufacturing. In addition, Commonwealth Corporation has adopted new rules for its \$23 million Workforce Training Fund, to better enable small and medium-sized

manufacturers to pool demand for incumbent worker training programs.

The state's new resources complement an existing major effort to change perceptions of advanced manufacturing and promote manufacturing careers. In 2012, MassDevelopment launched AMP it up!, which supports regional career campaigns through grants and multimedia promotional materials. AMP it up! supported 21 local campaigns in 2012 and 2013.<sup>9</sup> MassDevelopment also promotes manufacturing statewide, with support for events during National Manufacturing Day and the Advanced Manufacturing Collaborative's statewide manufacturing summit, held in 2013 and 2014.

As Governor Patrick notes, manufacturing is experiencing a quiet renaissance that follows a much louder and longer stretch of decline that challenged the nation's identity as a foundry for things as well as ideas. Today, Massachusetts has embarked on an effort to remake how government — state and local — can effectively match the needs of today's advanced manufacturing. That effort can only succeed with industry's partnership and it can only flourish with the creativity and commitment of us all. 

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*ERIC NAKAJIMA is Assistant Secretary for Innovation Policy in the Massachusetts Executive Office of Housing & Economic Development. He serves as co-chair of the Massachusetts Advanced Manufacturing Collaborative.*

#### Endnotes

- 1.) Remarks, delivered by Governor Patrick at the Massachusetts Advanced Manufacturing Summit, Worcester, Mass, April 29, 2014.
- 2.) Average monthly employment in Massachusetts in 2013 from Massachusetts Office of Labor and Workforce Development Employment and Wages series (ES-202).
- 3.) *The Massachusetts Economic Due Diligence Report, Fourth Quarter, FY 2014.* University of Massachusetts President's Office Donahue Institute.
- 4.) Page 52, Staying Power II: A Report Card on Manufacturing in Massachusetts 2012, prepared by the Dukakis Center for Urban and Regional Policy, Northeastern University, September 2012.
- 5.) Page 28, a Preview of the MIT Production in the Innovation Economy Report, Massachusetts Institute of Technology, February 22, 2013.
- 6.) Executive Summary, Staying Power II; and, pages 5 & 6, A Profile of Advanced Manufacturing in the Commonwealth: Key Industry and Occupational Trends, prepared by Professor Henry Renski and Ryan Wallace, UMass Amherst Center for Economic Development, July 2014.
- 7.) Precision Manufacturing Regional Alliance Project/2.0 (PMRAP 2.0) Workforce Development Report, Findings and Recommendations, Hampden County Regional Employment Board, April 2012. <http://www.wmntma.org/new-initiatives/pmrmap20/>.
- 8.) Executive Summary, A Profile of Advanced Manufacturing in the Commonwealth, Renski and Wallace.
- 9.) AMP it up! website, News and Events Section, downloaded August 8, 2014, <http://ampitupma.com>.