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From the Desk of Jack Healy

First National Survey of Next Generation Manufacturing: What Massachusetts Firms Must Do to Survive Global Competition

By Jack Healy, Director, MassMEP

The Massachusetts Manufacturing Extension Partnership ([Mass MEP](#)) has released the results of the first national survey of world-class manufacturers, hailing the findings as valuable to both state policymakers and Massachusetts companies.

Based on an in-depth national survey of more than 2,500 manufacturers, including firms in Massachusetts, the study identifies six crucial strategies necessary for world-class manufacturing success.

This report provides a gap analysis between where American manufacturers are today and what must be done to transform America's manufacturing base for success in the coming decade. The study itself is only the first step in MassMEP's efforts to assist local manufacturers. Although the national study is complete, Massachusetts manufacturers can take advantage of the evaluation instrument and work with MassMEP project managers to conduct an assessment of their company's strategic policies, investments, and performance. Every manufacturer in the state has the ability to utilize this valuable new resource.

The Keys to Next Generation Manufacturing Success

Massachusetts' economic recovery depends on the ability of its manufacturers to maintain profitability in the face of fierce competition. Manufacturing remains the state's largest industry in terms of gross state product, accounting for more than 13% of state GDP.

Next Generation Manufacturing (NGM) refers to a framework of strategies that will drive manufacturing growth in the 21st century. Developed by leading manufacturers, industry thought leaders, and the MEP centers, Next Generation Manufacturing reflects the best practices and performance strategies of world class companies. To remain competitive, manufacturers in Massachusetts and across the country need to achieve world-class performance in at least some of these key areas. The study identifies six essential strategies:

- **Customer-focused innovation:** Deliver new and better customer solutions at a faster pace than the competition.
- **Advanced talent management:** Secure a competitive performance advantage by having superior systems in place to recruit, hire, develop, and retain talent.
- **Systemic continuous improvement:** Record annual productivity and quality gains that exceed the competition through a company-wide commitment to continuous improvement.
- **Extended enterprise management:** Leverage

a flexible network of supply chains and partnerships to provide competitive advantages of speed, cost, and quality.

- **Sustainable product and process development:** Design and implement waste and energy-use reductions at a level that provides superior cost performance and recognizable customer value.
- **Global engagement:** Secure business advantages through people, partnerships, and systems capable of engaging global markets, talent, and resources.

The survey, administered to the initial 1,500 companies nationwide, employed 63 questions to drill down and measure each firm's progress, or lack of progress, in implementing strategies in these six essential areas.

Sobering Findings

- A serious gap exists between the strategies that Massachusetts and US manufacturers believe are critical to their future success and their actual progress in implementing those strategies. Currently, only a fraction of Massachusetts manufacturers are at or near world-class in any of the six NGM strategies.
- Small and midsize manufacturers are less likely than larger firms to be at or near world-class status in each of the NGM strategies. One-third of respondents nationwide with less than \$10 million in revenue were not at or near world-class in any strategy, compared to just 14% of manufacturers with more than \$100 million in revenue.
- Measurement systems are inadequately deployed. Even in one of the most fundamental and easiest-to-measure areas – process improvement – 46% of respondents across the country and 56% of respondents in Massachusetts had no measurement system or only ad hoc measurement systems.
- Effective partnerships with employees, suppliers, and regional support organizations are the exception rather than the norm. Nationwide, a majority of respondents (56%) engage less than half of their employees in improvement initiatives, falling far short of industry best practices that require company-wide participation. In Massachusetts the results were modestly better, but 40% of respondents still engage less than half of their employees.
- In Massachusetts and across the nation approximately 40% of companies fail to reach or approach world-class status in the ability of their supply chains to respond to unexpected customer demand for existing products. In part this is due to the failure of companies to implement supply-chain measurement systems. More than 63% of Massachusetts firms said that they have no measurement system or only ad hoc measurement systems in place to review the return from supply chain management and collaboration.
- Energy efficiency remains a weak link. Less than five percent of New England firms are at or near world-class status in terms of annual reduction of energy consumption per unit of product output.
- Only 28% of respondents nationwide and 38% of firms in Massachusetts believe global engagement is highly important, despite a near-term future in which markets, talent, competitors, and partner opportunities are growing faster outside the US than within its borders.

New England's Strength: Advanced Manufacturing

The survey data reveal a sobering picture of the challenges facing American manufacturers. But the report highlights an important distinction that characterizes New

England manufacturers in general and Massachusetts manufacturing sector in particular. New England possesses a robust advanced manufacturing cluster that distinguishes itself from manufacturers nationwide in some very notable ways.

- New England manufacturers devote more resources to new product development and R&D than their counterparts nationwide.
 - 23.8% of New England manufacturers invest more than 10% of sales in new product development versus 14.6% of firms nationwide.
 - 48.9% of New England manufacturers dedicate more than five percent of their workforce to new product development versus 34.6% of firms nationwide.
- New England manufacturers launch significantly more new products annually than their counterparts nationally (23.5% of New England manufacturers launch more than ten percent of their total SKUs annually versus 15.7% nationally.)
- New England manufacturers derive a significantly larger percentage of annual sales from new products than their counterparts nationally (33.7% of New England manufacturers derive at least one-quarter of their annual sales from products introduced in the last three years versus 24.8% of manufacturers nationally.)
- New England manufacturers derive significantly more value-added per employee than their counterparts nationwide, with 34.9% of New England respondents reporting that they receive more than \$125,000 per employee versus 28.0% nationwide achieving that level of value-added.

These findings confirm the results of another recent study on manufacturing conducted by Deloitte Consulting LLP for the New England Council, which found that New England enjoys a strong cluster of advanced manufacturers whose productivity improvements have been transformational. That report, [*Reexamining Advanced Manufacturing in a Networked World: Prospects for a Resurgence in New England*](#), noted that advanced manufacturing has reversed the decline associated with traditional manufacturing in New England by developing a talent-rich network of advanced manufacturers with skilled workforces capable of creating complex product solutions.

While New England manufacturers may out-perform their counterparts nationally in terms of developing new products and gaining a higher value-add from each employee. However the Next Generation Manufacturing study clearly shows how far many manufacturers still have to go to reach world-class status. In many strategic areas Massachusetts manufacturing firms are just as challenged as manufacturers nationwide and need to take major steps to improve their performance or else risk being left behind by the global competition.

For more information on how to establish appropriate benchmarks implement Next Generation Strategies, and measure the results, contact Glen Gertridge at (508) 831-7020 or e-mail gleng@massmep.org

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