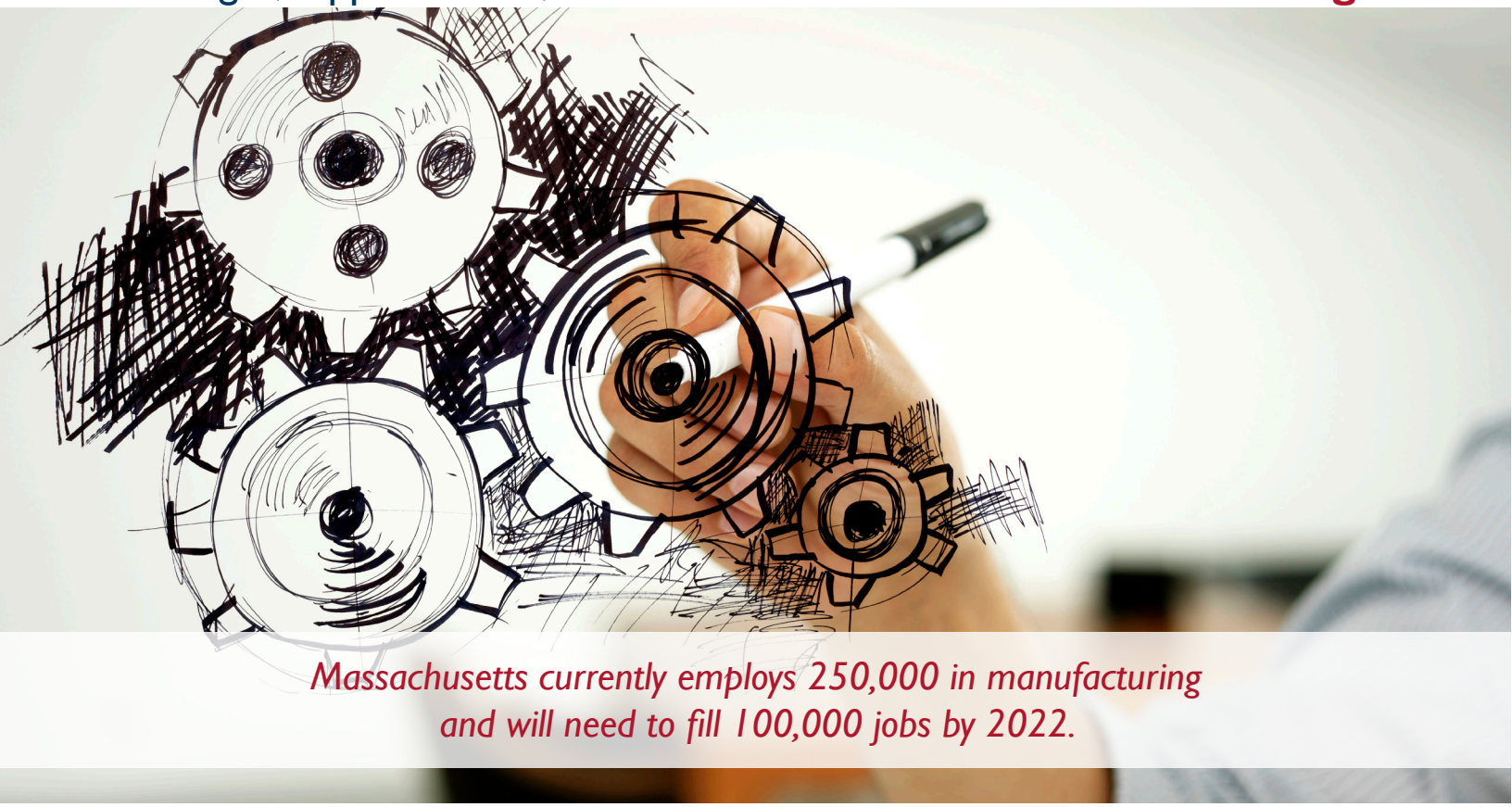
DISCUSSION DRAFT

Challenges, Opportunities, and Vision for **Advanced Manufacturing**



Massachusetts currently employs 250,000 in manufacturing and will need to fill 100,000 jobs by 2022.

Global Massachusetts 2024 is an initiative of Mass Insight Global Partnerships that convenes leaders from major business groups, industry, and higher education to build consensus for a comprehensive 10-year economic agenda that will position Massachusetts to win the competition for talent and innovation – the key to securing prosperity for all citizens.

Building on the success of the 2006-2008 Global Massachusetts initiative, this new effort will outline how the Commonwealth can grow in the next 10 years, where the opportunities lie, and how government can target limited resources to realize the opportunities.

By consulting leaders in key growth sectors, the broader infrastructure community, and international business and government representatives, Global Massachusetts 2024 is establishing a 10-year vision for the Commonwealth on how government and industry leaders can partner and structure talent and technology resources to grow. This report is a *discussion draft* focused on **advanced manufacturing** sector.

Global Massachusetts 2024
Winning the Competition for Talent and Innovation

A partnership
launched and supported by
Mass Insight
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The vision for 2024: Massachusetts captures a higher percentage of its in-state manufacturing potential by growing a job-ready workforce that can meet the needs of its top tech, defense, biotech and medical devices firms. As costs have risen across the globe, keeping manufacturing closer to R&D hubs grows in appeal. The Commonwealth has strong momentum as a manufacturer, growing well-paying, middle-skill jobs across the state, fed by programs in community colleges and advanced skills in high schools. Massachusetts' strategy to create an Advanced Manufacturing Institute paves the way for a federally-funded Advanced Manufacturing Partnership, which provides training and insight on new manufacturing trends.

The state of the sector today:

Manufacturing in Massachusetts is an unsung industry even though it employs nearly 250,000, or about one in 12 Bay State workers. In practice, manufacturing is not a sector, but instead a critical support for the state's other major sectors.

Traditional smokestack manufacturing has largely faded away, leaving high-value, technically sophisticated products in such industries as semi-conductors, telecommunications and medical devices. Massachusetts could make more products here, but the challenge is developing the pipeline of manufacturing talent to replace an aging workforce.

Some companies report they could double their business if there were enough skilled labor to fuel the expansion. Massachusetts' array of life sciences and tech firms holds great potential for growing the manufacturing base as the cost and risk of manufacturing abroad grows.

Global Massachusetts 2024

Winning the Competition for Talent and Innovation

Challenges:

The need for the next-generation manufacturing workforce is pressing. Massachusetts will need to fill 100,000 manufacturing jobs over 10 years as an aging workforce retires, according to a 2012 report by Barry Bluestone at Northeastern University.

Manufacturers face a perception problem with younger workers. These workers are unaware of the modern, high-tech realities of 21st century manufacturing.

The talent needs in manufacturing are not monolithic. They fall across a broad spectrum, from mechanical engineers to chemists to mold makers. Yet the technical skills for the lower-skilled jobs continue to increase, with many r entry-level manufacturing positions requiring an associate's degree.

Manufacturers have to "grow their own." Many manufacturers have deployed an assortment of initiatives to fill the pipeline, including the Massachusetts Advancement Center Workforce Innovation Collaborative (MACWIC) program, a private industry consortium with a mission to provide manufacturing training at vocational schools, community colleges and universities. Some major manufacturers, notably Nypro, "grown their own" by placing employees at local schools and colleges for training. Yet the demand for manufacturing talent continues to outstrip supply.

The talent shortage is particularly challenging for smaller manufacturers. The larger ones offer more pay, benefits, and growth potential. The smaller manufacturers lack the resources to "grow their own" workforce.

Massachusetts so far has failed to win federal support for an advanced manufacturing research center. In 2012, the consortium leading the effort lost out to Ohio.

Recommendations/Potential Initiatives:

Develop a strategy for a state-funded advanced manufacturing Research Center of Excellence. It could set the stage for future federal funding for an Advanced Manufacturing Partnership Institute. Previous Massachusetts efforts for AMP designation have come up short, yet the growing level of academic and private partnerships around enhancing the manufacturing landscape give the Commonwealth a better chance in future competition.

Commit additional support for the Advanced Manufacturing Collaborative. The state-funded center has provided useful support to manufacturers and holds promise to help promote connections between government and educational support for the industry.

Improve the image of manufacturing jobs with the next-generation workforce. Consider "advanced skills" as a replacement for the "voke ed" moniker as part of the rebranding. The Amp it Up program needs to be expanded and be sustainable year-round to promote the message that manufacturing offers viable career pathways for young students.

Sharpen and streamline the manufacturing curriculum at the commonwealth's vocational high schools and community colleges. There are too many curricula, and some are deficient in addressing modern-day skill requirements. Consider how to connect vocational schools to traditional high schools and graduate degrees.

Promote in-state options to Massachusetts companies currently manufacturing overseas. As the cost differential narrows for offshore manufacturing, the Commonwealth could streamline the permitting of manufacturing sites and provide some modest incentives to bring the manufacturing jobs back here.

Survey manufacturers to create greater transparency about future workforce needs. A clearer sense of skills needs across the spectrum of manufacturing labor will create a greater sense of urgency toward ramping up training of the next-generation manufacturing workforce.

Enhance transportation links between manufacturers and customers. The Port of Boston, for example, holds potential to export Massachusetts-made goods to customers abroad.

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