

Mass Insight DRAFT WHITE PAPER

**The Massachusetts Research & Development Agenda
How Can Massachusetts Leverage Resources to Maximize Economic Benefit?
July 2007**

Opportunities gained:

June 25 - \$2 million Dept. of Energy grant for wind turbine testing facility. State will also invest \$20.5 million to building testing facility and adjacent research lab.

Opportunities missed:

June 25 - \$375 million DOE grant for three bioenergy research centers, awarded to California, Tennessee and Wisconsin.

Peer state review:

California – \$500 Million BP-Sponsored Biofuels Center with Berkley awarded in February. \$1.2 billion California Institutes for Science and Innovation at UCAL - created four institutes in 2001 with \$400 million in state funding. Leveraged federal and state funds.

Ohio - \$250 million Wright Mega Center for Innovation – Cleveland Clinic. \$60 million in state investment.

Florida – Scripps Research Institute Florida - \$310 million in state funding.

The call for the creation of a state economic strategy – one that builds on already strong sectors in Massachusetts – has grown louder in the technology community. **Massachusetts High Technology Council (MHTC) President Christopher Anderson** – in an opinion piece in Mass High Tech: The Journal of New England Technology and in subsequent communications with the Council’s diverse membership – has recommended building on **Governor Patrick’s** \$1 billion Life Sciences Initiative to create a strategy that benefits all sectors. MHTC, an active partner in the **Global Massachusetts 2015** initiative, joined Mass Insight in 2003 to call for increased state investment in research & development – an effort that led to the state’s first-ever investment in Research & Development in the 2003 Economic Stimulus Bill.

Here are some excerpts from Anderson’s op-ed:

Massachusetts needs a cohesive economic development strategy and lack of such a plan has held us back from our full economic potential. Here are four key steps that will strengthen the Governor’s life sciences initiative, create jobs and prolong economic success in Massachusetts.

- **Create policies that benefit the entire biopharmaceutical industry.** *While the investment in biotechnology and stem cell research is important, at least of equal value is pursuing a state agenda that protects the leading economic generators of the state, including large biotech and pharmaceutical employers. As a recent MHTC report revealed, the state’s pharmaceutical employers’ investments in small biotech companies far outpace that of venture capital firms.*
- **Create strategies that benefit all sectors.** *Biotech jobs are important, but represent a small part of the Commonwealth’s overall technology workforce. The state has strengths in IT, communications, medical devices, clean energy, defense and more. We are not a one-technology economy, and policy makers shouldn’t place all of the state’s economic development eggs in one basket.*
- **Support major R&D.** *Commit \$100 million in state funds to enable our public and private research institutions to collaborate with our technology firms to compete for large-scale competitive federal R&D awards. This low-risk, high-reward approach and post-award ROI warrants increased financial support from the Legislature.*
- *The last economic stimulus bill included only \$10 million for the matching grant fund of the **John Adams Innovation Institute**, which helps the state’s universities land federal research funds. We applaud that effort, but recognize that for Massachusetts to keep up with significant R&D investments of other states and nations, we must focus on bigger awards and a larger-scale center.*

2003 Battelle/Mass Insight Paper Outlined R&D Investment Strategy

The parameters pushed by MHTC echo the principles of a state investment strategy outlined by Mass Insight and **Battelle Memorial Institute** in 2003. In a white paper that was distributed to the Legislature, Mass Insight and Battelle – the authors of the **Science & Technology Road Map** – called for “state investments in public universities and university-industry partnerships.”

Global Mass 2015 is advocating for the creation of large-scale research **Global Challenge Centers**, public/private university/industry collaborations designed to create regional alliances and establish global partnerships. While the state, through the **John Adams Innovation Institute**, has started to become a player in federal research and development grant awards, other states – like California, Florida and Ohio – are investing at a much larger scale through a challenge center approach.

In his Life Sciences strategy, **Governor Deval Patrick** is calling for a larger scale R&D center in the spirit of a Global Challenge Center. Global Mass 2015 will work closely with the Administration and the Legislature to properly construct the large-scale center structure, similar to what the 2003 Battelle/Mass Insight white paper proposed:

- **Make the public university a research and development powerhouse with links to local industry, including funds to invest in strategically-important S&T infrastructure and to endow professorships in targeted areas of science.** This is the largest and most important direct state investment supporting regional economic development.
- **Use state investments to leverage federal and private funds to allow public and private university-industry collaborations to compete for talent and significant national research centers.** State efforts in supporting research partnership efforts are investments that offer tangible returns. One key return is leveraging federal and private funding, which enables states to further build its university research capacity. Another return is enabling industry to take greater advantage of a state's research resources in ways that help address company needs and problems while helping universities undertake research leading to knowledge generation. The recent announcement of a \$40 million engineering research center at UMASS Amherst, developed with the assistance of a \$5 million matching grant from the state, provides clear evidence of the workability of this approach.
- **Insure a competitive process is used for award of matching funds.** Matching fund programs are an important tool - and one that is needed for Massachusetts. Industry and universities are more likely to participate in and support a program that insures a peer review system similar to that used for federal funding awards.
- **Encourage and reward multi-disciplinary and multi-institutional collaboration.** Federal grant agencies are increasingly looking for proposals involving multiple universities. State government should do the same to produce strategic alliances that match core competencies and compete with similar large combinations in other states. Industry also increasingly seeks

multidisciplinary help from experts across a range of departments and colleges within and across universities.

Massachusetts should encourage such collaboration with financial rewards, perhaps with greater funding awards or reduced matching requirements for multi-institutional proposals involving more than one research organization.

- **Sustain programs over the long haul.** Building university-industry partnerships does not happen overnight and rarely as the result of a singular interaction. These programs require multiple recurring interactions among numerous parties in both industry and the research organizations if such programs are to build sustained partnerships. The Commonwealth needs to design structures and commitments to support these efforts on an ongoing basis if these programs are to have maximum impact.

With competitor states and nations investing more and more resources into collaborative R&D projects, Massachusetts cannot afford to wait to become a major, large-scale player. But Massachusetts' expansion in this area must be undertaken with careful planning and by learning from lessons of the past and present. The principles outlined above – some of which have already been incorporated into state policy planning - are a good start for developing the criteria for Massachusetts to create the next generation of Global Challenge Centers.