



Thursday, June 18, 2009

## Industry groups unite behind STEM initiative

By Jim Schakenbach, Special to Mass High Tech

A sobering report and call to action for educational reform was issued Thursday during a business leaders' breakfast at the Museum of Science in Boston. Titled "Tapping Massachusetts' Potential: The Massachusetts' Employer's STEM Agenda," the document outlines a growing crisis in Massachusetts — fewer students are earning degrees in science, technology, engineering, and math (STEM), contributing to a downward trend in the ability to meet the scientific and technological needs of both our region and the country.

A coalition of diverse business and technology sector organizations came together as part of the national Business Roundtable's "Tapping America's Potential (TAP) campaign, and issued a call-to-action in the form of the Massachusetts STEM agenda. It outlined two statewide goals: Doubling the number of STEM bachelor's degrees, and also the number of STEM teachers in grades 7 through 12 by 2020.

The document points out that thousands of STEM-related jobs in Massachusetts technology companies are going unfilled, forcing companies to hire out-of-state candidates and foreign employees or, in the worst case, relocating to other states or overseas where there are more qualified workforces.

"Massachusetts companies are saying 'we need to hire employees from somewhere and there's no pipeline here'," said JD Chesloff, deputy director of the Massachusetts Business Roundtable. "So the various associations in our coalition decided get together and speak as one voice on Beacon Hill to make sure everyone understands how critical the STEM situation is."

The report indicates that in the decade between 1995 and 2005, the percentage of U.S. high school students who expressed interest in engineering majors dropped by nearly 35 percent. U.S. high school students ranked 21st in science literacy out of 30 countries that participated in the 2006 Program on International Student Assessment by the Organization of Economic Co-operation and Development.

The picture in Massachusetts is a little brighter than the national average — in the 2007 Trends in International Mathematics and Sciences Study, Massachusetts fourth graders ranked second in the world in scientific achievement and tied for third in math, while eighth graders tied for first in science and ranked sixth in math. However, Massachusetts students are failing

to pursue STEM degrees. The number of Massachusetts college and university students studying in STEM fields has declined over the past 15 years while the numbers increased nationally.

According to Andre Mayer, senior vice president of communications and research for Associated Industries of Massachusetts, the state's largest non-profit business association, a key element of the STEM agenda is educational reform. "While there have been some improvements in education, we still have achievement gaps," said Mayer. "STEM teacher recruitment is part of the problem. Preparation, recruitment and continuing education of STEM teachers are still a challenge." Mayer said that the unprecedented collaboration between more than a dozen of the state's technology-oriented business organizations indicates how serious the problem is. "There is a sense of crisis," said Mayer. "Impetus for reform has slowed, so there's a political need now for a coalition."

One key supporter of the STEM agenda and the campaign to increase the number of college graduates with STEM degrees is EMC Corp., the Hopkinton-based information infrastructure products and services giant and early supporter of the national TAP campaign. EMC CEO, president and chairman Joseph Tucci chaired the Business Roundtable's Education Task Force in 2005, which led to the release of the first TAP report.

"We advocate upgrading K-12 math and science education to foster higher student achievement and through targeted social investment support programs that encourage student exploration of the STEM fields," said Chris Goode, EMC's vice president of global affairs. "EMC is committed to improving math and science education to help fill the science and engineering pipeline."

The coalition identified three broad categories of recommendations:

- Build public support for making improvement in STEM performance a statewide priority;
- Motivate Massachusetts students and adults, using a variety of incentives, to study and enter STEM careers and remain in the state after graduation, with a special effort geared to those in currently underrepresented groups
- Improve K-12 STEM teaching to foster student achievement and meet increased demand, including differentiated pay scales for mathematics and science teachers.

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### **Coalition members**

TAP team helping tap STEM potential in Mass.

Associated Industries of Massachusetts  
Defense Technology Initiative  
Greater Boston Chamber of Commerce  
Massachusetts Biotechnology Council  
Massachusetts Business Alliance for Education  
Massachusetts Business Roundtable

Massachusetts High Technology Council  
Massachusetts Network Communications Council  
Massachusetts Technology Leadership Council  
MassBioEd Foundation  
Mass MEDIC  
Mass Insight Education & Research Institute  
TechNet New England  
The Boston Foundation  
495/MetroWest  
Partnership