



**Testimony of The Business Council of New York State, Inc.  
before  
The Senate Standing Committee on Higher Education  
Public Hearing to address the declining number of Math, Science and  
Engineering Students earning college degrees in New York State and  
the growing competition from other states and countries**

**Monday, January 9, 2006  
VanBuren Hearing Room A  
Legislative Office Building  
Albany, New York**

Thank you for providing this opportunity to testify about the shortage of Math, Science and Engineering students in New York State –a major concern to The Business Council.

The Business Council has proposed an Innovation Agenda for 2006 which is intended to position New York State “for the growth and prosperity being unleashed by new technologies, new ideas and new opportunities in the global economy.” Those are the words of Linda Sanford, Chairman of The Business Council and Senior Vice President for Enterprise on Demand Transformation for the IBM Corporation.

Our board and our membership are committed to an agenda which focuses on some of the most significant challenges and opportunities facing business in New York State.

The challenge facing our business community in light of the state and nation’s declining number of math, science and engineering graduates cannot be overestimated. Our response must be focused and must be decisive. We have proposed specific actions which New York State should take this year. Some require action by the Governor and the Legislature. Others require action by the Regents. And still others require action by the business community working with educators and other community partners.

We all need to understand that the key competitive asset of New York’s economy today is our workforce – among the most highly educated and productive in a nation which is, itself, the world leader in this respect. But today this leadership is under challenge.

The Business Council pushed for and consistently supported higher standards for all students and will continue to do so. But we have to go even further. Our next steps are to focus on the pressing need for more of our young people to be highly skilled in math and science. We've made it a priority to push for funding math and science scholarships that cover the full cost of attending college.

In this competitive world, we have to face up to a stark fact: Based on current trends, it appears that by 2010, more than 90 percent of all scientists and engineers on the planet will be living and working in Asia. In order for the United States (and for New York State to be the leader among states in the innovation economy) we have to address that trend.

The Bureau of Labor Statistics projects that U.S. demand for science and engineering workers will grow at least three times as fast as the overall economy in the next 10 years – yet the number of U. S. engineering students has dropped 20 percent in the U.S. since 1985.

How dire is the need for science and engineering graduates? In a meeting recently with Lockheed Martin, we were told that the projections for the engineers needed by Lockheed Martin alone over the next seven years would equate to 1/6th of all American engineering graduates of U.S. colleges and universities.

While Lockheed Martin is the largest U.S. employer of engineers, that is just one company of the many thousands that will be seeking to hire engineers and scientists in the country. The competition will be fierce but the failure to have an adequate supply of highly trained employees is what could really determine the economic future of many companies in our state.

New York, once a leader in educating and employing scientists and engineers, is falling behind. This state is graduating fewer than 4,000 new engineers each year –about 1,000 fewer than if we matched the (inadequate) U.S. average. In fact, New York annually graduates about twice as many psychology majors as engineers.

New York State needs to make a NASA type commitment to getting more young people graduating from college with math, science and engineering degrees. If we are serious about making a sustained and significant man-on-the moon level of commitment we should consider teachers as the booster rocket which will allow us to achieve our

objective. An enhancement of the supply of qualified math and science teachers will have the greatest and the most immediate opportunity to significantly increase the supply of math, science and engineering graduates.

We need more and better science and math teachers at the middle and high school levels. In part because of stiff competition for new science and math graduates from the private sector, this is an area of chronic shortage in New York. Yet it is in these middle and high-school years that too many of our students get the idea that science isn't interesting or is "too hard." International comparisons show that U.S. students, including New Yorkers, are ahead of those in our peer nations through the fourth grade –but by the 12<sup>th</sup> grade, they are at or near the bottom in science and math. We need inspired and inspiring teachers to turn this around.

The Business Council therefore proposes a Teach for the Future initiative, drawn from a model developed by the National Academies of the Sciences, to produce 500 new, highly qualified science and math teachers every year. Under our plan, the state would fund 500 competitive scholarships each year, at up to \$20,000 per year for up to five years, for students who agree to earn a bachelor's of science degree in science or math, as well as the master's degree needed for full certification.

In return, the recipients would commit to teach science or math in New York public schools for a minimum of five years -- with an extra \$10,000 bonus for those who agree to teach in inner-city or rural school districts. We would like our Teach for the Future scholarships to be competitive. We want to attract the very best – they are the ones that will inspire the rest. We'd like to see all college expenses including room and board covered for attendance at any public or private university a student chooses. We want to pull in the very top candidates and enable them to go to the college of their choice by giving them a powerful incentive to get a math or science degree and teaching certificate.

As part of our efforts to reverse the declining number of students entering into science and math based fields, we also propose a 50 percent tax credit for individual or corporate contributions to scholarships in math, science and engineering given to New York students attending New York colleges.

And we want to work with the Board of Regents, Labor Department and legislature to providing more career information to students to enhance their knowledge about the opportunities that await them in these and other technology fields.

Furthermore we are encouraging other companies that have the wherewithal to do so to follow IBM's lead in creating a transition to teaching program which provides financial and other support to help employees choose teaching math or science as a second career.

We believe New York State can be a leader in the growth and prosperity being unleashed by new technologies. We have a long history of innovation from the development of the Erie Canal to the industrial age to fiber optics and chip manufacturing. We need to enhance, nurture, and use the power of innovation to get New York State Ahead of the Curve.

We are encouraged by Governor Pataki's call to "make New York the nation's leader in preparing our students for careers in math, science and engineering." We welcome the specific proposals he has placed on the table.

We are encouraged by the hearing of the Senate Higher Education committee and the ideas advanced by the leadership of our private and public educational systems. There is shared sense of urgency and there are already many areas of common agreement. Let's harness the synergies which exist and rally action around our best ideas to make 2006 a defining moment for New York State.