

## **Improving America's Technology Innovation**

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According to the Semiconductor Industry Association (SIA), the US technology industry needs to expand domestic sources of technically- trained talent or its position as a worldwide economic leader will be threatened. In response to this need, numerous organizations and companies across technology and manufacturing sectors have started to come together with the goal of improving America's science, technology, engineering and mathematics (STEM) education. It is hoped that these improvements will help increase the number of highly-trained professionals who pursue STEM careers.

In the past decade, organizations such as Tapping America's Potential (TAP) and the SIA "Choose to Compete" campaign have begun to help shed light internationally on America's science and technology industry challenges. These global challenges include the following:

- In China, nearly all high school students study calculus, compared to 13% in America
- South Korea graduates as many engineers as the US, but has one-sixth the total population
- US students ranked 21st in science literacy out of the 30 countries that participated in the 2006 Organization on Economic Cooperation and Development's International Student Assessment
- Over 50 percent of all engineering doctoral degrees awarded by US colleges are to foreign nationals
- Global demand for scientists and engineers is expected to increase four times faster than other professional occupation

One of the areas these organizations have identified as key to the advancement of STEM innovation in America is improved science and math education. While foreign competitors have spent years focused on grooming science and technology professionals for the future, the US has fallen behind. For example, although fourth graders in the US score well among developed nations, by 12<sup>th</sup> grade they fall near the bottom or dead last in mathematics and science. Without an intentional focus and value placed on STEM education in the US, students lack the interest and skills to pursue advanced technology careers. At the same time, current US immigration policies prevent long-term recruitment and retention of the world's best innovators, even those trained as students at US universities. This means that there are limited sources for new technology talent in the US.

In response, entities from the public and private sectors have contributed nearly \$2 Billion to US math and science scholarships and US worker training since 1999. For example, according to Compete America (2010), a coalition of corporations, educators, research institutions and trade associations dedicated to ensuring improved US innovation, in the past 10 years, the technology industry has sponsored over 40,000 scholarships for US students in math and science, 80,000 hands-on science programs for middle and high school students and 3,700 teachers, and ongoing training for more than 55,000 US technology workers and professionals. These efforts have extended beyond funding scholarships and have included efforts that help inspire parents, students and teachers in the US to become involved in cutting edge innovation.

While strong primary grade science and math programs are foundational for future careers in STEM fields, encouraging students beyond high school graduation is also important. One strategy technology companies are using to help attract and retain both primary and secondary students is to offer scholarships that help students gain access to quality STEM programs and activities. By investing in STEM students now, the US stands to not only improve its innovation base, but also generate rich environments that drive future interest, job creation and economic expansion worldwide.

US technology companies such as Intel, Boeing, Texas Instruments and Microsoft have helped pave the way for efforts that inspire young people to pursue science and technology careers. At the same time, smaller technology companies have stepped up and taken interest in US STEM students. For example, New Wave Components (NWC), an independent distributor of electronic components, has recently taken interest in young people interested in pursuing science and technology careers. Examples such as this demonstrate a rising awareness and understanding that our nation needs to do a better job preparing students to fill future technology jobs.

While the need to increase the supply of scientists, technologists, engineers and mathematicians is critical to the America's ability to remain a worldwide economic leader, the efforts led by technology companies demonstrate that the US technology industry recognizes that there is a problem and is ready to help. At this point in history, it is not a question of *if we should*, but *how* we can best get young people excited about technological innovation.

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