

# STEM & America's Future

In recent years, many employers have recognized that there is a lack of qualified employees for STEM-related jobs (science, technology, engineering and math). This systemic problem has arisen, in part, because the supply of U.S. students can't keep pace with growing demand, and because of outdated U.S. immigration policies that restrict the ability of foreign students and entrepreneurs to remain in the U.S. For the U.S. to prosper in the coming decades, we must deal with the underlying issues in our education system and harness the talent of foreign students who study and wish to remain in the U.S. Undertaking reforms in these areas will maintain the country's position at the forefront of innovation.

## Why we need STEM students

- In the past decade STEM job growth was three times more than that of non-STEM job growth. STEM job growth is expected to be higher than any other occupation over the next ten years, growing by 17.0 percent from 2008-2018, with non-STEM occupation growth at 9.8 percent.  
Langdon, David, George McKittrick, David Beede, Beethika Khan, and Mark Doms. STEM: Good Jobs Now and for the Future. US Department of Commerce. July 14, 2011.
- All of the 30 fastest-growing occupations in the next decade will require at least some background in STEM.  
"Why STEM?" Change the Equation, 2011.
- Universities award twice as many business and social science undergrad degrees than STEM degrees, University graduates in STEM fields are growing at an anemic 0.8 percent each year.  
"Why STEM?" Change the Equation, 2011.
- High-skilled immigrants pay an average of \$22,500 in state and federal taxes per year.  
Zavodny, Madeleine. Immigration and American Jobs. December 2011.

## Foreign STEM graduates are job-makers not job-takers

- Every additional 100 foreign-born STEM graduates create another 262 jobs for U.S. natives.  
Zavodny, Madeleine. Immigration and American Jobs. December 2011.
- From 1995 to 2005, over half of Silicon Valley companies were founded by an immigrant.  
Wadhwa, Vivek, Anna Lee Saxenian, Richard Freeman, Gary Gereffi, Alex Salkever. America's Loss is the World's Gain. Kauffman Foundation. March 2009.
- Foreign-born workers are responsible for a quarter of global patents filed in the U.S.  
Lehrer, Jonah. Why America Needs Immigrants, The Wall Street Journal. May 14, 2011.
- Highly-skilled immigrants are 30 percent more likely to open a new business than U.S.-born Americans.  
Fairlie, Robert W. Estimating the Contribution of Immigrant Business Owners to the U.S. Economy. The U.S. Small Business Administration. November 2008.
- Over the next five years over 100,000 immigrants (estimated) will leave the United States and return to India and China. This brain drain represents America's loss and enables our competitors to compete more effectively against us.  
Lohr, Steve. The Real High-Tech Immigrant Problem: They're Leaving. The New York Times. March 2, 2009.
- STEM graduates are job multipliers. Technology companies hire on average five to seven additional workers for every high-skilled immigrant hired.  
NFAP Policy Brief. National Foundation for American Policy. March 2008.



## Other countries and STEM

- 15.5 percent of U.S. degrees are STEM-related. In Japan the proportion is 64 percent and in China it is 52.1 percent.  
Kuenzi, Jeffrey J. Science, Technology, Engineering, and Mathematics (STEM) Education: Background, Federal Policy, and Legislative Action. Congressional Research Service. March 21, 2008.
- Singapore has introduced several initiatives to attract foreign talent, including creating government agencies like Contact Singapore and The Singapore Talent Recruitment (STAR) Committee to entice skilled foreign-born workers.  
Rivkin, Employment Pass Eligibility Certificate (EPEC) - Singapore License to Job Hunt, October 2009.
- Canada has the Federal Skilled Worker Class Visa, which provides a substantial number of work permits to highly-skilled immigrants for certain occupations.  
Applying as a skilled worker. Citizenship and Immigration Canada, 2011.
- The UK has a Tier 1 visa program, for highly skilled individuals who can contribute to growth and productivity.  
Tier 1: Post-Study Work. UK Border Agency, 2011.
- The U.S. placed 27th in a 2010 survey of developed countries that studied the proportion of college students with degrees in science and engineering.  
National Academy of Sciences, National Academy of Engineering, and Institute of Medicine, Rising Above the Gathering Storm, Revisited: Rapidly Approaching Category 5, 2010.

## What the business community is doing for STEM Education in the U.S.

- H-1B visa fees paid by employers provided funding for almost \$2.4 billion of training and scholarships from 2000 to 2011.  
NFAP Policy Brief. National Foundation for American Policy. March 2011.
- Through mandatory visa fees, it is estimated that U.S. employers have funded 58,000 science and math scholarships in the last ten years.  
Education & Workforce Principles. Compete America, 2011.
- H-1B fees paid by employers have also been used to fund programs designed to foster early interest in math and science.  
NFAP Policy Brief. National Foundation for American Policy. March 2011.
- The business community spends tens of millions of dollars each year funding numerous workforce develop programs such as Advanced Placement Training and Incentive Program (APTIP), Engineering is Elementary, FIRST, K-8 Math Progressions, The Science Career Ladder, UTeach and the National Academy Foundation. All these programs aim to improve the pipeline of STEM workers in the U.S.  
Featured Programs. Change the Equation, 2011.

