



# DIVERSITY TOOLKIT

## Webinar Series

### Best Practices in STEM

Nereida (Neddy) Perez

CEO & Founder, Creative D&I Solutions, LLC

The National Utilities Diversity Council conducts research to educate, develop best practices and guide efforts that will promote diversity in the utilities industry in the areas of governance, employment, procurement, language access/customer service, and philanthropy.



## How to Prepare for the Coming Talent Short Fall

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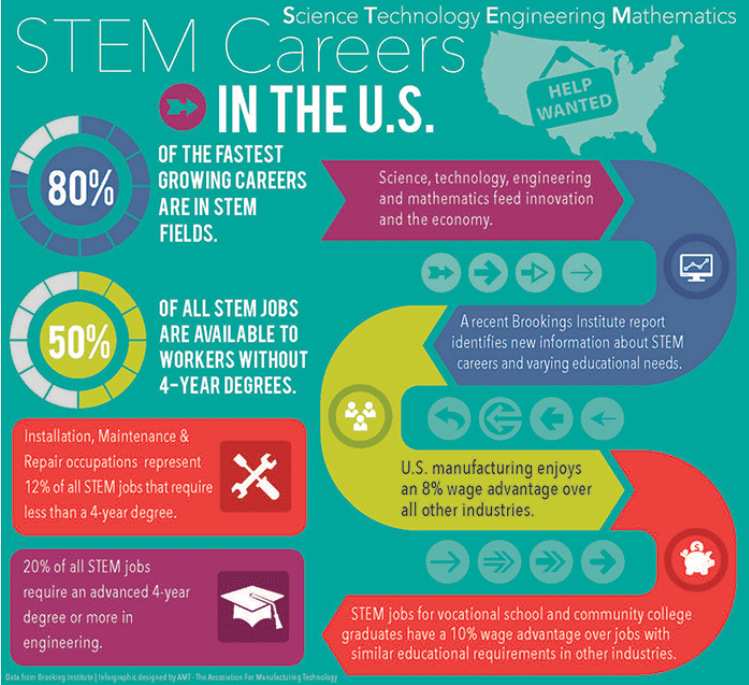
- **Nereida (Neddy) Perez**
- CEO & Founder, Creative D&I Solutions, LLC
- [www.linkedin.com/in/neddyperetz](https://www.linkedin.com/in/neddyperetz)
- Twitter Account: @neddyperez
- Website: [www.creativedisolutions.com](https://www.creativedisolutions.com)
- Phone: 832-216-8836

# Discussion Road Map/Objectives

- **True or False – Is there a STEM Talent Shortage?**
- **Questions you need to ask your CEO & Leadership Team**
- **7 Components to build a solid STEM Talent Strategy**
- **Top Five Companies to Benchmark Against**



# Is there really a STEM Shortage?

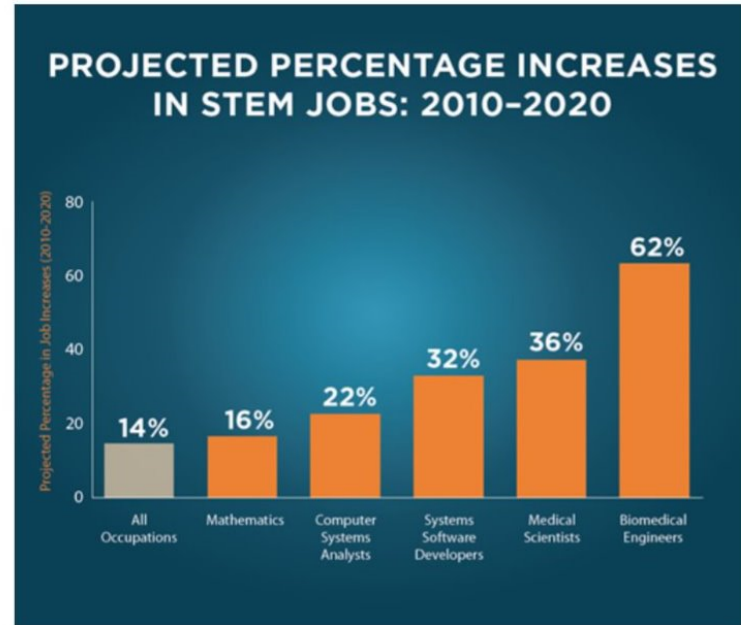


# Department of Labor Projected Growth

President Obama's Council of Advisors on Science and Technology, for instance, stated that over the next decade, [1 million additional STEM graduates](#) will be needed in the U.S.

In the U.K., the Royal Academy of Engineering reported last year that the nation will have to graduate [100 000 STEM majors every year until 2020](#) just to stay even with demand.

[Germany, meanwhile, is said to have a shortage of about 210 000 workers](#) in what's known there as the MINT disciplines—mathematics, computer science, natural sciences, and technology.



# Talent Gap is Across Industries

## Finances, Manufacturing, Medicine, Technology, Utilities

### THE 'S' IN STEM: SCIENCE

Experts agree that STEM jobs are essential to a growing economy and vital to our nation's competitiveness. STEM jobs are in demand and an engine for job growth, creating more downstream jobs which fuel the economy. Science occupations the "S" in STEM account for 15% of overall STEM employment. Scientists generally specialize in one of three occupational classifications: the physical or social science. From better medicines to pioneering the environment, today's scientists are conducting groundbreaking research, creating innovative products and making new discoveries that make the world a better place for all.

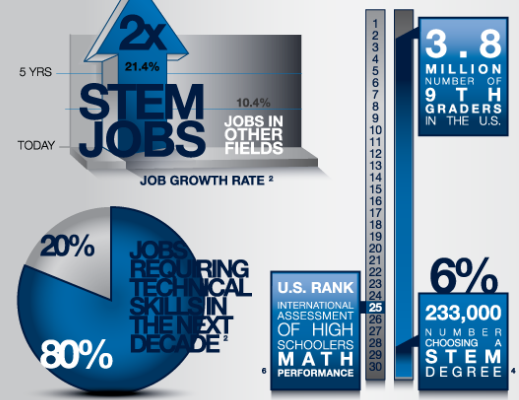
**JOB GROWTH**  
**↑15.2%**  
 Demand for science professionals is expected to add nearly 200,000 new jobs to the U.S. workforce.

JOB GROWTH THROUGH 2020	TOP TEN JOBS BY EMPLOYMENT	OPPORTUNITY MARKETS	SCIENCE DEMOGRAPHICS	THE SKILLS REQUIRED	AVERAGE WAGES (2011)
<p><b>+36.4%</b>                      Average annual job growth (2011-2020)</p> <p><b>+30.8%</b>                      Average annual job growth (2011-2020)</p>	<ol style="list-style-type: none"> <li>CHEMICAL ENGINEERS/SCHOOL PRINCIPALS</li> <li>MEDICAL SCIENTISTS, EXCEPT EPIDEMIOLOGISTS</li> <li>ENVIRONMENTAL SCIENTISTS, INCLUDING HEALTH</li> <li>CAREERS</li> <li>BIOLOGICAL TECHNOLOGISTS</li> <li>CHEMICAL TECHNOLOGISTS</li> <li>USE PHYSICAL AND SOCIAL SCIENCE IN ALL OTHERS</li> <li>NATIONAL SCIENCE MANAGERS</li> <li>URBAN AND REGIONAL PLANNERS</li> <li>COMPUTATIONAL SCIENTISTS, PROGRAMMERS AND GEOGRAPHERS</li> </ol>	<p>The top five metropolitan areas that have a strong concentration and a substantial volume of science jobs compared to total employment and are predicted to grow their science employment by more than 10% in the next five years:</p> <ul style="list-style-type: none"> <li>BOSTON</li> <li>PHILADELPHIA</li> <li>SAN FRANCISCO</li> <li>WASHINGTON</li> <li>INDIANAPOLIS</li> </ul> <p>Durham-Chapel Hill, NC and the Sacramento, CA metro area are also areas to watch.</p>	<p><b>55+</b></p> <p>31.6% of science workers are over the age of 50, compared with 22.2% of all workers suggesting a significant talent gap due to impending retirements.</p> <p><b>WOMEN MAKE UP 60% OF THE PHYSICAL AND LIFE SCIENCE WORKFORCE.</b></p> <p>Physical and Life Sciences                      Computer, Math and Engineering</p>	<p>Like most occupations, there is a wide variation in pay among science workers, but life, physical and social science workers are relatively well paid, with average annual wages of:</p> <p><b>\$67,470</b></p> <p>Management occupations such as National Science Managers have average annual wages of:</p> <p><b>\$128,230</b></p>	<p><b>KELLY.</b></p>

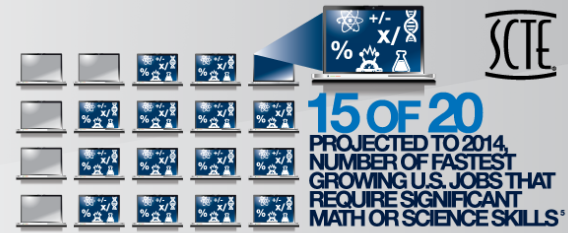
# STEM

SCIENCE, TECHNOLOGY, ENGINEERING AND MATH

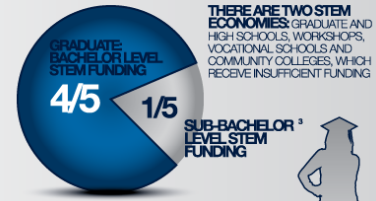
**CABLE TELECOMMUNICATIONS NEED STEM**



+ [www.scte.org/stem](http://www.scte.org/stem)



**\$4.3 BILLION ANNUALLY\*** FEDERAL GOVERNMENT SPENDING ON STEM EDUCATION AND TRAINING



**10%** NON-4-YR DEGREE STEM JOBS PAY MORE THAN THOSE WITH THE SAME EDUCATION LEVEL<sup>3</sup>

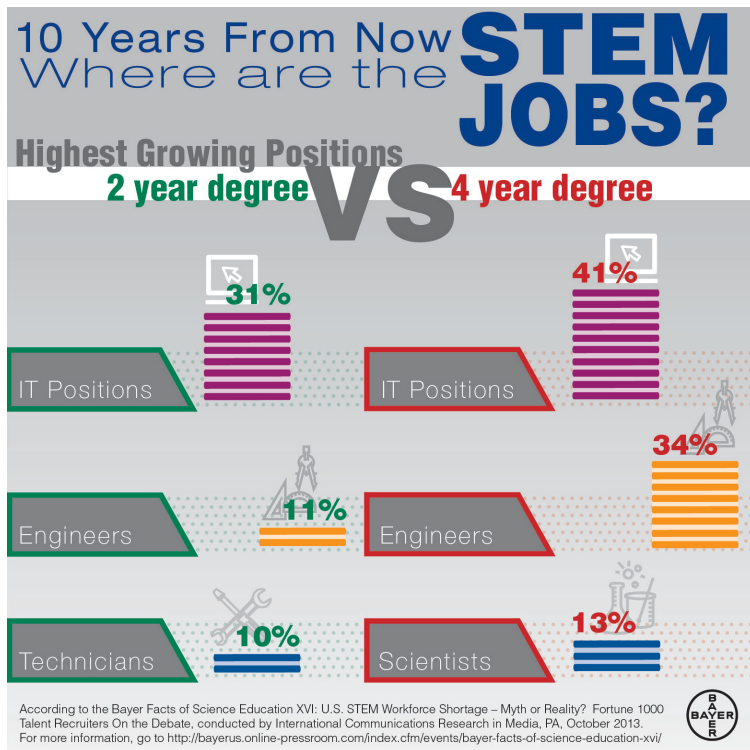
**16%** U.S. BACHELOR'S DEGREES IN BY 2020 THAT WILL FOCUS ON STEM RELATED FIELD<sup>4</sup>

**50%** STEM JOBS NOT<sup>3</sup> REQUIRING A 4-YR DEGREE: TECHNICAL TRAINING FUNDS ARE NEEDED

1. \*High-waged: Projections of job and education requirements through 2018; U.S. Bureau of Labor Statistics, 2010  
 2. U.S. Bureau of Statistics  
 3. \*Strong field: STEM areas Don't Require Bachelor's Degree; www.elsi.com; Brookings Institution Report, "The Hidden STEM Economy," 2013  
 4. National Center for Education Statistics  
 5. U.S. Department of Labor  
 6. \*NSA 2008 Science Competencies for Tomorrow's Work; OECD (Outstanding roles in United States); Organization for Economic Co-operation and Development

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# Greatest Need for Talent by Type of Education



# Is there really a STEM Shortage?

## Generational Impact

- **10.5K Boomers** retiring daily
  - The case of Mr. Howell
  - Lots of Knowledge – Phased Retirement
- **81 Million Millennials** entering workforce
  - Accenture in Fortune Magazine
  - Very Diverse
  - **Technologically sophisticated** every thing is web driven
    - Mobile application process ...Linkedin connected
    - WhatsUp interview
    - Onboarding starts a time of acceptance
  - Am **ready to walk** – Don't need to stay here
  - I have **marketable skills**
  - I don't have to worry about **borders**



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# But where are we really?



- **Billions** have been spent
- **Some increases** in females enrolling in STEM
- Millennials according to **2015 PEW Study** more likely to enroll in Social Services and Business programs
- Some countries **doing well** with STEM Grads
  - India, China, Singapore, Indonesia
- Countries **struggling** with STEM Graduates
  - UK, Paris, Belgium, Ireland

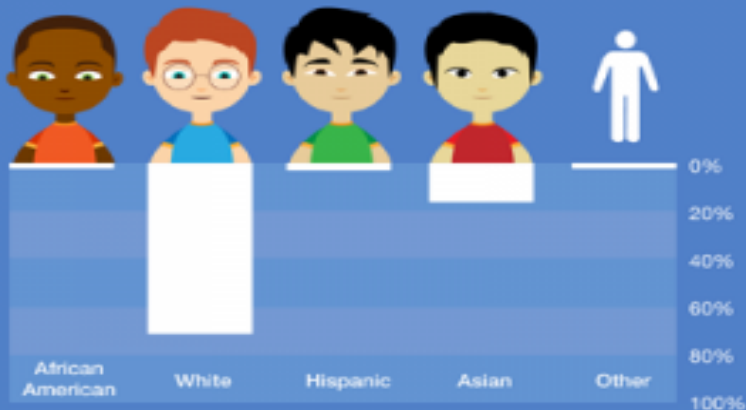


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# A Look at Minorities in STEM

(Science, Technology, Engineering, & Mathematics)

## Scientists and Engineers (2006)



One in five STEM workers is foreign-born. Of those, 63% of foreign-born STEM workers come from Asia.

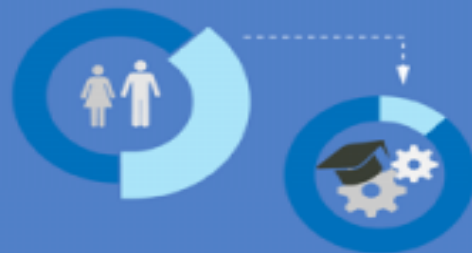


Half of all Asian workers with STEM degrees have STEM jobs, compared to 30% of Hispanics, African Americans and American Indians.

African Americans, American Indians, and Hispanics between 18-24 account for 34% of the population, but earn only 12% of all undergraduate degrees in engineering.



1 in 10 STEM professionals is a minority woman



## Audience Question: Where do you think the STEM shortfall is:

- A. In schools—if we can get more students to see the value in STEM education/skills, this will help us.
- B. In the hiring process: We have a limited pool of applicants with a STEM background.
- C. Keeping STEM workers in their jobs—I'm worried that the lack of emphasis on the value of STEM jobs is impacting whether employees stay in their jobs.

# Understand the Business Strategy Before Developing Your STEM Strategy



# CEO & Leadership Team Questions

- **Where is our business strategy taking us?**
  - What countries are we expanding too?
  - Which businesses/divisions are we looking to grow?
  - What is the level of financial investment being made on talent?
- **Specific Talent Needs**
  - What does our turnover rate look like by business/division
  - Which job skills are we going to need
  - What level are we looking at....
    - Early Talent Hires
    - Mid-Career professionals?
    - Seasoned Professionals?
    - Front-line?
  - Are there Affirmative Action gaps that we need to address



# How to Build a STEM Talent Strategy



# Seven STEPs to Building a STEM Talent Strategy

## Step 1: Understand the Business Strategy

- Where is the company planning to grow its operations?
- Where is there downsizing taking place?
- What business skills are going to be needed?

## Step 2: Get a read on company demographics

- What is the current state of gender demographics by business unit & specialty
- What percentage of the workforce will be retiring by business unit and specialty
- Are there Affirmative Action gaps that the company needs to address

## Step 3: Get a read on potential hiring needs

- Look over the last 3 to 5 years of hiring data what patterns do you see?
- Are there the top 3 to 4 businesses that generate the most volume of hiring needs?
- Look over the turnover data what positions have the greatest turn over?

## Step 4: Identify Potential Strategic Partnerships

- Pull together an advisory groups on your STEM hiring needs.
- People to include : HR Business Partners with greatest recruiting needs; Diversity Office Representative; Functional leader/senior leader; Representative from Early Talent; Representative from key employee resource groups; Representative from communications and community relations.

# Seven STEPs to Building a STEM Talent Strategy

## Step 5: Identify

### External Partners

- If you are looking for early talent go to second tier schools in your area
- Partner Regionally not just nationally
- Don't just go to conferences, have speakers from your company
- Focus on industry associations not just broad groups

## Step 6: Develop Practical Metrics

- Don't create stand alone metrics look for existing score cards to report results
- Set realistic target for female and minority talent goals
- Don't forget to set goals in terms of generational differences

## Step 7: Execute & Communicate

- Socialize plan once developed
- It is critical to keep your business functions informed of progress.
- Get in front of HR Business Partner and business leadership team meetings
- Build a strong communications plan to share internally and externally



## Audience Question:

**Who are you currently partnering with externally (nonprofits, professional associations, etc...)?**

Please type your answers in the chat box!

# Finding Financial Resources

- **Create a team to help build a plan and pull together financial resources**
  - Community Relations
  - Diversity Department
  - Engineering or IT or Supply Chain Representative/Senior Leader
  - Social Media Leader
  - Corporate Communications
- **Things to centralize**
  - Advertising, Social Media, & Branding Efforts
  - Scholarships
  - Employee Resource Groups
  - Setting Goals & Tracking of Metrics



# Examples of Best Practice Techniques

- **Early Talent Strategies:**

- Creations of scholarships linked to internships
- Targeting 2<sup>nd</sup> tier colleges for recruiting
- Investing in college program curriculum and co-branding certification or training programs

- **Front-line Operations Partnerships:**

- Creation of partnerships with community non-profits to develop specialized skills
- Partnership with 2 year college certificate programs (i.e. drafting, computer design)
- Creation of Apprenticeship Programs (i.e. manufacturing, HVAC)

- **Specialized Skills:**

- Partnering with Professional Associations (i.e. NSBE, WITI, etc.)
- Leverage the employee resource groups to host events on professional development

- **Middle Management:**

- Employee Referrals
- Targeted advertising and scraping on websites
- Hosting special events and receptions to solicit informally warm clients



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# What Question Shall We Ask Neddy?

- A. Neddy, please share an example of a unique partnership that increased STEM talent.
- B. Neddy, what was one barrier that you overcame to help increase STEM awareness?

# Best Practices & Companies to Benchmark Against

- **BASF** huge supporter of Female pipeline development joined forces with the National Manufacturing Institute.
- **GE** partnership with Quirky.com
- **Boeing** created a partnership to promote awareness about flight
- **Time Warner** built campaign called Connect a Million Minds
- **Intel** committed \$350 million to pipeline development
- **National Grid** provided seed money to create STEM Connector.org and scholarships to engineering students
- **Pink booth** at Society of Women Engineers



# Final Thoughts

- Know what your competitors are doing
- Look outside of your industry
- Create a plan that engages the influencers in you company.
- Have fewer metrics build them into the core business goals
- Don't forget people with disabilities and military veterans & their spouses
- Leverage social media - use your leaders to tell their stories



# Contact:



- **Nereida (Neddy) Perez**
- **Emails:**
  - [Neddyperetz@creativedisolutions.com](mailto:Neddyperetz@creativedisolutions.com)
  - [Neddyperetzconsulting@gmail.com](mailto:Neddyperetzconsulting@gmail.com)
- **Linkedin:** [www.linkedin.com/in/neddyperetz](http://www.linkedin.com/in/neddyperetz)
- **Phone:** 832-216-8836
- **Website:** [www.creativedisolutions.com](http://www.creativedisolutions.com)