Promoting Diversity in STEM
Executive Summary

Tackling the issue of diversity in STEM fields requires changing well-engrained workplace cultures. It can be an immense task, but progress in diversity leads to a more equitable talent pool and better outcomes for companies and organizations. The path to success includes listening, measuring efforts, partnering with organizations that promote STEM diversity, publicizing role models, and creating mentor, internship, and training programs that include a diverse community.

Promoting Diversity in STEM

Women, Blacks, and Hispanics are underrepresented in the Science, Technology, and Mathematics fields, collectively known as STEM [1]. According to the most recent federal data, only 7% of the people who earn STEM degrees are Black, and just 12% are Hispanic.

While women are well represented in some areas, including health-care-related STEM occupations, they are underrepresented in other fields. For example, only 13% of engineers are women [2]. This disconnect is reducing the STEM talent pool at a time when the overall need for workers with these expertises is growing.

And, while racial and gender equity is a virtuous goal in and of itself, diversity also reduces the potential for racial and gender biases in decision-making at all levels and often leads to better results. A McKinsey and Company study found that companies with high gender diversity on their executive teams are 25% more likely to have above-average profits [3].

It can positively impact not just companies focused primarily on STEM applications but all organizations, as well as the military.

“This compilation of identities contributes to the new and innovative ideas that are vitally important to our success as an Air Force. Collaboration and communication across our workforce is only enriched by the sharing of ideas and experiences by Airmen of various backgrounds; this will inform change.” – Lt. Gen. Anthony Cotton, Deputy Commander, Air Force Global Strike Command [4]

Diversity can make your organization more attractive to a workforce that is more likely than ever to seek out employers that prioritize representation. In a recent survey, 80% of adults said they want to work for organizations that value diversity, equity, and inclusion. A third said their companies are doing “a lot” of work in this area. [5]

At a time when companies are struggling to find qualified candidates for skilled positions, jobs in STEM fields are expected to grow twice as fast as those in non-STEM areas. Millions of STEM jobs are expected to go unfilled soon, according to the U.S. Bureau of Labor Statistics.

Sources:
Perception

Due to stereotypes and media representations, some people may perceive careers in STEM to be nerdy. Others have very few opportunities to see themselves in STEM at all. Men are twice as likely to be depicted in STEM roles in TV and movies [6]. It is even rarer to see Blacks and Hispanics in these roles. This lack of representation in media can prevent diverse candidates from even considering careers in STEM.

Reputations are built on trust, and when multiple organizations within an industry do business in ways that result in condemnation from the public, it can impact the trust that potential employees have for the entire industry. Recently, several high-tech firms have been involved in discrimination and sexual harassment lawsuits. Google recently settled a class-action lawsuit claiming gender discrimination for $118 million. Tesla is being sued for racial discrimination. Amazon is facing several discrimination and harassment cases. When potential employees see patterns of hostile work environments within an industry, they can be reluctant to pursue a career in that field.

Workplace inclusion

Changing the workplace culture means treating each employee with respect and valuing contributions and opinions often shaped by diverse backgrounds. It is a very difficult challenge in that it means overcoming any underlying racism and sexism. It means changing the workplace culture.

Some companies are making progress. Johnson & Johnson is one company often cited for being at the forefront of diversity. They have set up employee resource groups, mentoring programs and ‘Diversity University,’ a website that helps employees understand the benefits of working collaboratively.

The tech company Dropbox is often cited for making diversity strides. Among other efforts, they hold a series of workshops at historically black colleges and universities. This has significantly increased the diversity of internship applicants.

The Air Force Research Laboratory offers paid internships to a diverse group high school and college students, as well as high school teachers.

CULTURAL EXCLUSION

While a workplace culture can seem healthy to the majority, women and minorities might be unsupported, overlooked, and not included as teammates. [7].

In a Pistoia Alliance survey, 47% of women saw workplace culture as the most significant barrier to embarking on a STEM career. [8].

In a Pew Research study, Black adults ranked engineering and science as among the careers least welcoming to Blacks. [9].
MAKING IMPROVEMENTS

Companies, the government, and the military have listed STEM diversity as a goal. The Department of Defense breaks down the goal into three sections:

Defense Dept. Diversity Approach

01
Measure the effectiveness of current DoD STEM education and workforce development programs, activities, and outreach to underserved and underrepresented groups.

02
Expand the outreach of DoD STEM education and workforce development programs and activities to underserved and underrepresented communities by considering the barriers these populations face.

03
By identifying specific best practices and strategic partnerships, sustain and increase underserved and under-represented communities’ engagement in STEM activities.

Foundations are also getting involved. Just recently, the National Science Foundation (NSF) announced a $8.6 million partnership with Bill and Melinda Gates Foundation, Schmidt Futures and the Walton Family Foundation to fund research initiatives to improve STEM education in the U.S., particularly for underserved and underrepresented K-12 students.

The $280 billion CHIPS and Science Act signed by President Biden Aug. 9 includes new initiatives to support Historically Black Colleges and Universities as well as other academic institutions that provide opportunities to underserved students and communities.

“When we look at the data, we find that there are whole categories of people who aren’t in the STEM workforce and that aren’t necessarily choosing STEM education, and those groups are pretty well known — they are women and girls, people with disabilities, underrepresented minorities ... There are people from rural areas and people from inner-city urban areas that aren’t choosing STEM,” said NSF’s Senior Advisor for Partnerships Jolene Jesse.[10] “We need to understand how to tap into this talent pool that hasn’t been recognized, hasn’t been used and hasn’t been attracted to STEM careers.

Measure Results

Start by getting a baseline not only a diversity headcount but also conduct a survey to get a better understanding of perceptions within the organization. If you are in a limited market or have the funding to do so, an outside survey would also be ideal. The same or very similar survey should be done at regular intervals, perhaps every six months, so you can measure the results. Analysis of the surveys will lead to adjustments that improve success.

Be Part of the Community

LOCAL EFFORTS

- The Audubon Canyon Ranch in Stinson Beach, CA, conducts a Conservation Science Intensive program for high school girls.
- Pathways To Science maintains a database at https://www.pathwaysoscience.org/ of more than 1,000 local programs.
- Compton College in California has a STEM club that puts ideas learned in STEM-related classes into practical use.

Create partnerships with organizations that support STEM diversity by sponsoring them, speaking at events, and seeking other outreach opportunities. This can be a two-way learning experience as you can learn what changes you can make that will likely resonate with their membership.

There are local groups, groups related to universities and colleges, and national groups.

National groups include the National Society of Black Engineers with more than 500 chapters, the Society for Advancement of Chicanos/Hispanics and Native Americans in Science with 150 branches, and the Society of Women Engineers.

These partnerships will drive new candidates for STEM positions and show your commitment to diversity.

Publicize Role Models

Promote role models aimed at busting stereotypes through social media, local events, mentoring programs, internal publications, and more. The portrayals no longer need to focus on the ground-breaking pioneers. Instead, it should show interesting and critical tasks being carried out by diverse groups. A feature on a development engineer working on top-secret aircraft, for example, could spark interest.

Internships/Mentoring

Offer internships to diverse groups. Set up a mentoring system. The goal of internships and mentoring is to break down feelings of isolation. Mentors and mentees in larger organizations and the military do not need to be in the exact location. Instead, they could be linked by technology and be able to exchange advice on handling workplace situations in a non-threatening relationship.

Training Programs

You can offer training and scholarships to potential candidates and members of your organization with the potential to transition to a STEM role. This would give less-experienced workers an opportunity to advance. The search for potential talent should not be limited to people already in STEM departments but should include anyone within the organization. This could be in-house learning for larger operations or tuition assistance for smaller firms.
Human Resources

HR is at the forefront of the battle to change the workplace environment. Diversity should be a consideration in recruiting, hiring, and promotion processes. While considerable training around inclusivity is available, STEM departments lacking diversity can be a challenge. Any complaints need to be handled with great care.

CONCLUSION

Creating diversity in STEM careers is an extremely difficult challenge that will take more than increasing education and opportunities. It cannot be resolved without taking on ingrained stereotypes and changing the dynamics in the workplace. Only then will a larger pool of people see STEM as a fulfilling and rewarding career path.

“We are still at the tip of the iceberg as far as knowing how to make change. To make real change, we must change people’s hearts,” said Alphonso Thomas, Director of the Air Force Sustainment Center. “That’s not something you can legislate. You can’t tell people what to feel. Changing hearts is going to be tough.” [11].

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Red Carrot believes that there is always a better way. We solve our clients’ biggest Strategic Communications, Customer Experience, Management Consulting, and Human Capital challenges.

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Contact Information

Danielle Gosthe  
Managing Director  
(305) 504-8769  
danielle@theredcarrot.com

DUNS: 031689583  
Certifications: 8(a), EDWOSB, DOT DBE  
GSA MAS GS-00F-181GA  
theredcarrot.com