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Why the United States needs a more diverse scientific workforce

The United States is a powerhouse of innovation. The country has long invested in its science, technology, engineering and math sectors. And these investments have paid off: in the 20th century, the U.S. became the world's wealthiest nation and its leader in technology.

But the world has grown more competitive in the 21st century. The U.S. now competes with many countries for dominance in science and technology. Our nation will need to build a larger and more diverse scientific workforce than it has right now to keep pace.

A [2019 report](#) by the U.S. National Science Foundation shows how much progress needs to be made to build a strong 21st century scientific workforce, focusing on the untapped potential of women and minorities. Women and minorities make up the majority of the U.S. population. But their participation in the sciences has never reached the levels we'd expect based on their population size.

The “leaky pipeline”

Women's interest in science and engineering matches that of men. Women earn 50% of the nation's bachelor's degrees in science and engineering. But they only earn 41% of doctorates in those fields. And their participation in the science and engineering workforce is even lower. Women hold fewer than one-third of these jobs, according to a 2018 [report](#) by the U.S. National Science Foundation.

There is a steady loss of women from the sciences at each stage of education and across the career ladder. This loss is often called science's “leaky pipeline.”

The reasons women opt out of science and engineering careers vary. Sexual harassment is common and [well documented](#) at colleges and universities. Women are also more likely than men to say that family obligations keep them from working in science.

Minorities are a rapidly growing but untapped labor force in science and engineering

African Americans, Hispanics and Latinos, American Indians and Alaska Natives make up about 30% of the U.S. population. But they are underrepresented in the sciences — in 2016, they earned only 22% of bachelor's degrees and 9% of doctorates in science and engineering.

Underrepresented minority students are as interested in science and engineering careers as white Americans and Asian Americans, according to a [2011 report](#) by the National Academies of Sciences, Engineering and Medicine. But minorities suffer from a “leaky pipeline” too, with an even more severe drop-off than women. In 2015, they held only 11% of the nation's science and engineering jobs. This is almost three times smaller than we'd expect based on their share of the population.

There are many reasons why minorities drop out of science education and careers. According to a [report](#) by the National Academies of Sciences, Engineering and Medicine these reasons range from unwelcoming work culture to outright discrimination. A quality mentor is an important asset for someone pursuing a career in the sciences. But when there aren't many minorities in mentorship positions, aspiring scientists can struggle to find mentors who understand them.

The U.S. pays a price when women and minorities opt out of science and engineering

These disparities matter. Women make up more than half the population and underrepresented minorities are among the fastest growing segments of the population. When fewer women and minorities choose to become scientists and engineers, it harms our nation's ability to innovate.

Science and engineering jobs are growing. And their growth is expected to continue outpacing other jobs in the future. Engineering and the computer sciences are two of the largest employers in the sciences, and they often suffer from labor shortages. Yet these are also two of the least diverse areas of the sciences.

Investing in diversity contributes to better science and a fairer society

Our nation's lack of diversity in science and engineering doesn't only limit the size of our workforce. It also harms the quality of our nation's research and innovation. More diverse teams produce better science, according to a [2020 report](#) by the National Academies of Sciences, Engineering and Medicine. They ask better, more innovative questions. They're more productive. Their research is more influential. And at the university level, more diverse programs have higher rankings than less diverse ones.

Our country has a checkered past in the sciences. The infamous Tuskegee Syphilis Study is but one example of a culture that has [contributed](#) to minority distrust of and disparities in research and health care. But if more women and minorities pick scientific careers, they will wield [beneficial influence](#) over how research and care are practiced.

Our nation has a long way to go to increase the diversity of our science and engineering workforce. But our investment in that exercise will pay dividends. More inclusive medical care. More culturally competent classrooms and workplaces. And research that benefits everyone.

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