Women in STEM: Untangling Myths

universum

New research highlights what women in science, engineering and math look for in a future employer — and the steps businesses can take to attract and hire them.

Why the big focus on women in STEM?

Given the smaller pool of women in STEM fields (and, in particular, in specific subject areas like IT, engineering and the hard sciences), many global businesses have made significant investments in recruiting more women to those fields. Why is it so critical for businesses to achieve gender parity—or near parity—in these hard-to-hire areas?

Multiple studies show that a gender-diverse workforce has outsize effects on innovation, profitability and productivity. A study from McKinsey found gender-diverse executive teams are 21% more likely to experience above-average profitability.[1] It also reports that companies in the top quartile for gender diversity are more likely to have financial returns above their peers.[2]

A study from Accenture found companies with a "culture of equality" (which includes support for gender equality) have innovation levels six times their peers.[3] And a recent study by the Wall Street Journal shows the 20 most-diverse companies on the S&P 500 have better operating results and share performance on average compared to lower-scoring firms.

Given all this, businesses are keen to attract top-tier female students, but to do so must understand what women most want from future employers and which messages are less likely to resonate.

With all the attention on (and investment in) attracting more women to work in STEM fields, inequality still persists. Many recent studies have tried to diagnose the core drivers of the problem: inadequate pipelines for women in grade schools and universities, biases in schools and workplaces that cause higher attrition rates, or even different choices women and men make along their STEM career paths that exacerbate inequalities.

New research from Universum examines the attitudes, career goals and aspirations of university women who plan to work in STEM fields. It offers employers specific steps they can take to attract more talented women to work for them, ensure women who come on board are more likely to stay in their roles, and push closer to achieving gender parity.

[1] https://www.mckinsey.com/~/media/mckinsey/business%20functions/organization/our%20insights/delivering%20through%20diversity/delivering-through-diversity_full-report.ashx
[2] https://www.mckinsey.com/~/media/mckinsey/business%20functions/organization/our%20insights/why%20diversity%20matters/diversity%20matters.ashx
[3] https://www.accenture.com/us-en/about/inclusion-diversity/_acnmedia/Thought-Leadership-Assets/PDF/Accenture-Equality-Equals-Innovation-Gender-Equality-Research-Report-IWD-2019.pdf#zoom=50

Disparities in STEM education: Dissecting the data

To understand the career challenges of women in STEM-related professional fields, we must begin with women in university. The most comprehensive study of female students in science, engineering and math in recent years was sponsored by the United Nations Educational, Scientific and Cultural Organization. Cracking the Code recounts girls' and women's achievements in STEM—from grade school through university—across 120 countries.[4] While the research shows that overall STEM enrollment for women is increasing, the devil is truly in the details.

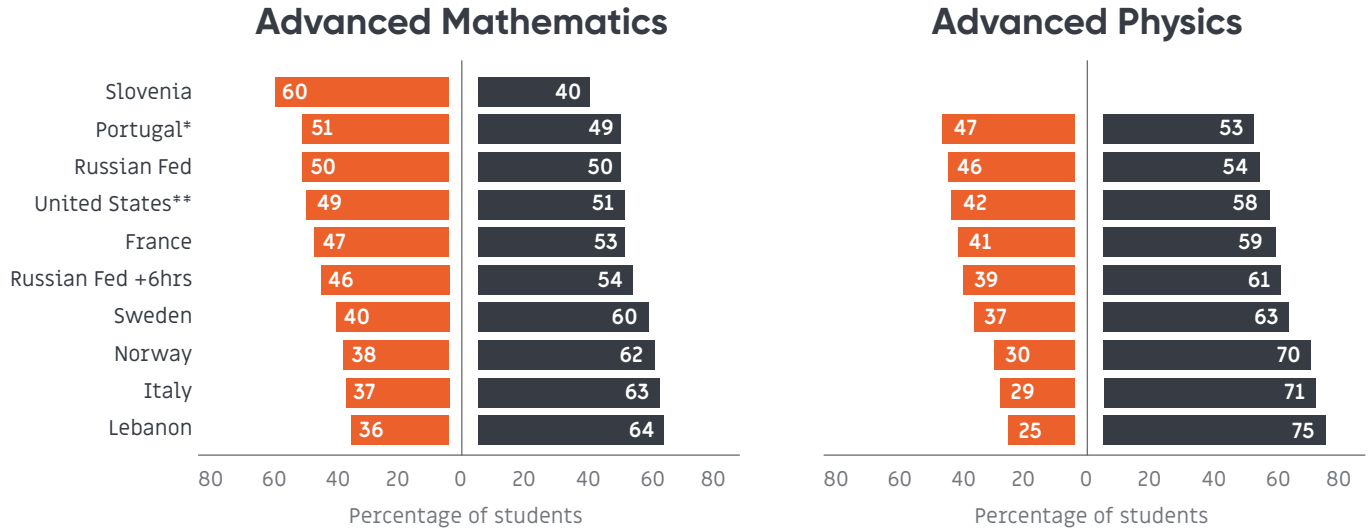
- **Country-level inequality:** The unequal distribution of men vs. women in the STEM fields varies enormously by country, and often not in the way one might expect. In engineering programs, for example, there is a higher share of women in Brazil, Algeria and Tunisia than can be found in the US and Germany.

- **Subject-level inequality:** Also, certain subjects tend to attract many more men than women. In the US, where on average men and women enroll in STEM fields in equal numbers, just 39% of physics students are women.

- **Attrition compounds problems:** Enrollment only tells part of the story. Attrition rates are also higher for female enrollees, particularly in fields where students typically go on to scientific research careers rather than professional careers.

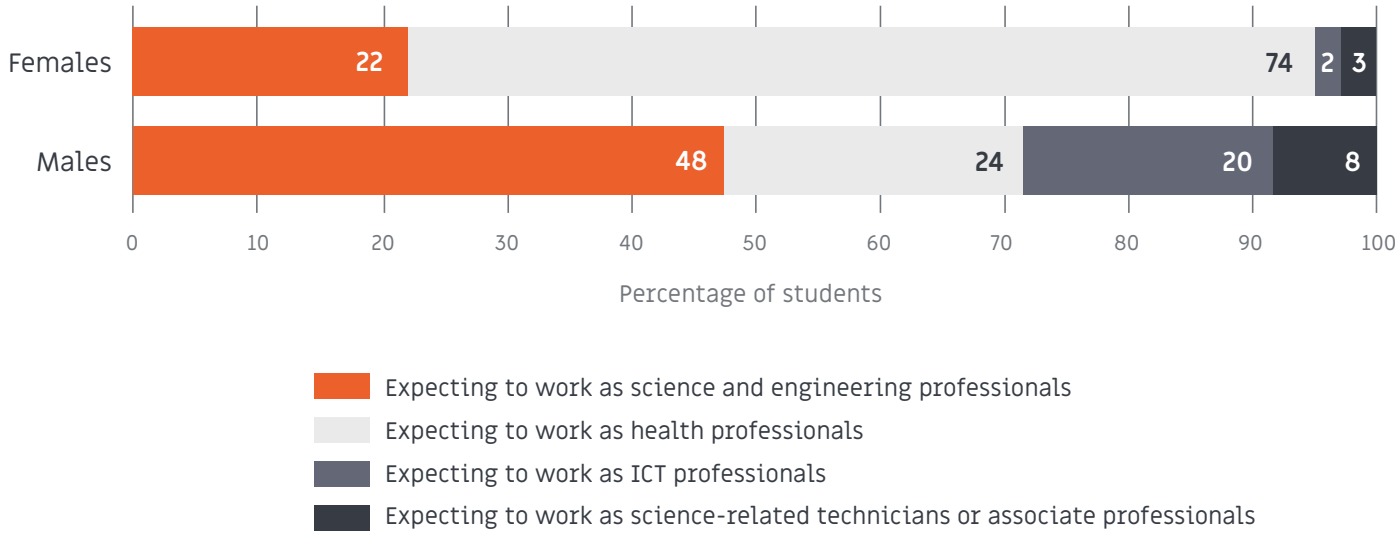
[4] https://unesdoc.unesco.org/ark:/48223/pf0000253479/PDF/253479eng.pdf.multi

Percentage of students that take advanced courses in mathematics and physics



Graphic 1
Source: https://unesdoc.unesco.org/ark:/48223/pf0000253479/PDF/253479eng.pdf.multi

Which industries do women seek out?



Graphic 2
Source: https://unesdoc.unesco.org/ark:/48223/pf0000253479/PDF/253479eng.pdf.multi

Women in STEM: What they seek in future employers

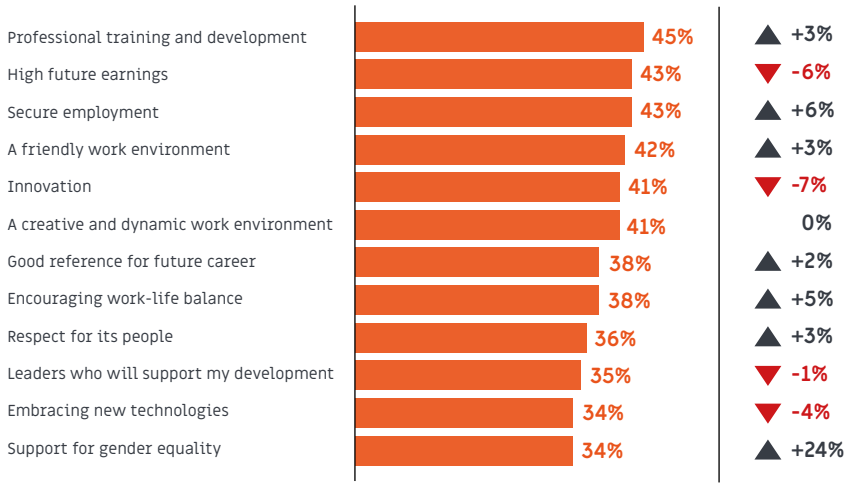
Each year, Universum surveys over one million career seekers globally. The research examines the career aspirations of university students and recent graduates, as well as the specific employer attributes young people seek out most. In 2019, it surveyed over 130,000 career seekers in science, technology and engineering across 14 countries.

Women in STEM fields say the top-three most important attributes in a future employer are: (1) opportunities for professional training and development, (2) expectations of high future earnings and (3) secure employment. (See graphic 3.) What is deemed attractive by young students and professionals, however, varies significantly by country. In Brazil the desire for training and development opportunities is very high—64% of female STEM students say it's a priority. While in France just 1 in 3 prioritize it, and in Japan only 1 in 4 say the same.

For employers, some of the most interesting data is in how women's ideas about employer attractiveness diverges from men's. These differences signal where employers may need to focus more carefully, particularly if their success in attracting women lags market competitors.

Women in STEM: What they seek in future employers

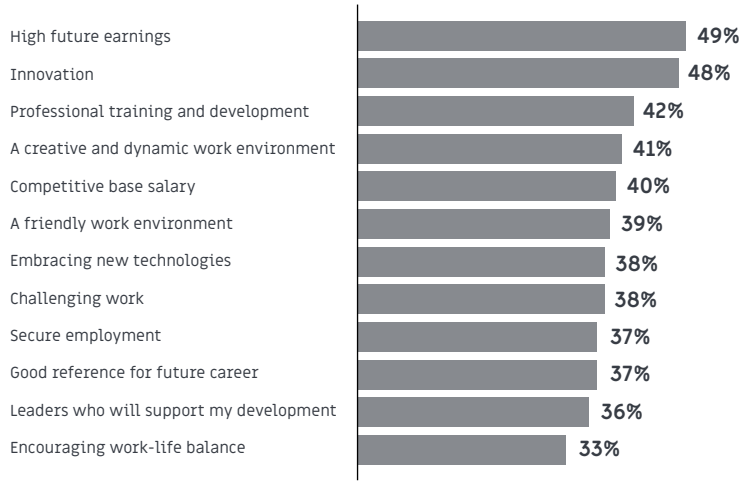
Top 12 Attributes WOMEN 2019



COMPARED TO MEN

Professional training and development	▲ +3%
High future earnings	▼ -6%
Secure employment	▲ +6%
A friendly work environment	▲ +3%
Innovation	▼ -7%
A creative and dynamic work environment	0%
Good reference for future career	▲ +2%
Encouraging work-life balance	▲ +5%
Respect for its people	▲ +3%
Leaders who will support my development	▼ -1%
Embracing new technologies	▼ -4%
Support for gender equality	▲ +24%

Top 12 Attributes MEN 2019



Graphic 3

1. Secure Employment

Women are significantly more likely than men to seek secure employment. (Men also value secure employment, but it is chosen less often as a critical attribute.) "Secure employment" is a nuanced term. The simplest explanation is that would-be employees want to minimize the chances of a layoff, but realistically it also can mean minimizing voluntary departures. To what extent does an employer support the varied stages of a woman's career and professional life? Do women who work for Company A stay for many years, or are they likely to move on after a year or two? A company with high turnover can signal an unhealthy company culture, lack of advancement opportunities or punishing work hours.

2. Support for gender equality

Not surprisingly, women value companies that clearly support gender equality inside their organizations. It's chosen by 1 in 3 women, but only 1 in 10 men.

Employers should be exceedingly careful, however, that their support for gender equality goes beyond low-hanging fruit: adding photos of women to their careers site or sponsoring one-off leadership programs for women. Women want to know how a company invests in women over the long term and supports issues women care about most. They are also attuned to cases where a company publicly supports certain ideas but doesn't back these up with action.

The most visible signal of gender equality is the number of women in leadership roles and, if the company is public, the number of women on the board. One female scientist explains on social media, "In the companies I have worked in, [...] lower tiers of the organization have always been super diverse. When you look at mid/late-stage career posts, that is where you are missing women. My company's C-suite is all men, our science advisory board is all men, and our VP level is all men in technical roles. Where are the women going in this leaky pipeline and how can companies like mine contribute to solution in plugging that leak?"

3. Flexible working conditions

Careers in STEM, particularly in tech and the sciences, have a reputation for long hours and inflexible schedules. The problem becomes particularly acute for women who want to take time off for family but fear the move can derail advancement opportunities. Yes, a company may offer generous maternity leave options, but what is the impact of stepping away from work for six months to a year? Many women say that even when employers purport to support women, the lived experience is quite different.

One woman commenting on a discussion about female attrition in STEM careers says, "[Employers] expect people to work full time (usually with extra hours of course), no remote work or other flexible options. And then they wonder why they can't keep their personnel or have such a hard time hiring."[5]

[5] https://www.reddit.com/r/TrueReddit/comments/ayiwaa/almost_half_of_all_women_leave_their_careers_in/

4. Ethical Standards

Numerous studies document that women seek companies with a strong ethical standard or social mission. The Universum findings underline this: 1 in 4 women seek out companies with high ethical standards, and 1 in 3 say they want to work for a company that supports a social cause (both rates are significantly higher for women than for men). A study from Deloitte found nearly half of Millennials (46%) say they want to make a positive impact in their communities or in society at large.[6]

Not every company has a social mission at its core. Does this mean those companies will be forever hindered when trying to recruit women? Absolutely not. HR consultant Patty McCord explains the "cause" she helped promote while consulting for Netflix: "A big filter for hiring people at Netflix was, were they interested in our goal of making the customer happy?"[7]

[6] https://www2.deloitte.com/cy/en/pages/about-deloitte/articles/millennialsurvey.html?mod=article_inline

[7] https://www.wsj.com/articles/the-dangers-of-hiring-for-cultural-fit-11569231000

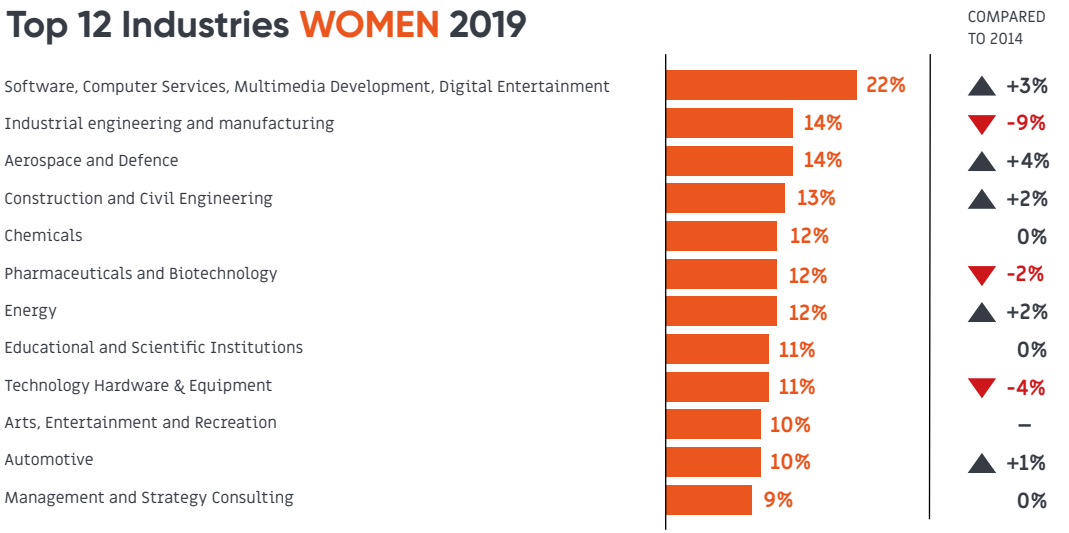
Which industries do women seek out?

Given all the attention to recruiting more women in recent years, does the research show any noticeable change over five years?

Software and digital media companies are a top choice for both women and men. Women are slightly more likely to choose the industry (up two points) over the last five years.

The second most popular industry for women is industrial engineering/manufacturing, but that industry is substantially less popular than it was five years ago (down 10 points). The reason may be twofold: deep-set challenges among some of the industry's biggest names (e.g., GE), as well as greater competition for top female talent from outside industries, including aerospace and defense, and construction and civil engineering companies. (See graphic 4.)

Top 12 Industries WOMEN 2019



Graphic 4

Both the chemical and pharma/biotech industries are significantly more likely to be chosen by women compared to men — and the difference is at least partially explained by big investments that companies in these industries have made in gender equality and parity.

Some companies have set explicit targets to hire more women into mission-critical roles. For example, German chemical company BASF said it wanted women in 22% to 24% of leadership positions—up from 19%—by 2021 to match the percentage in its global workforce.[8] This type of gender target setting is part of a larger movement called Paradigm for Parity, a coalition of companies that have pledged to achieve gender parity in leadership roles by 2030.

Other companies are investing heavily in women-focused initiatives. ExxonMobil, one of the world's largest companies by revenue and a massive engine for STEM hires, has dozens of programs to help women both in grassroots initiatives and leadership development at the corporate level. One of its most ambitious programs is the Women's Economic Opportunity Initiative, which aims to help women become drivers of economic and social change in their communities.

Some industries continue to struggle to attract women. Aerospace and defense, for example, is chosen much less frequently by women than by men, but the difference is due to pipeline problems more than anything else. That industry is one of the biggest employers of physics students — one of the subject areas with the lowest levels of female students.

[8] https://www.paradigm4parity.com/#intro

Attracting women means getting granular with data

While media companies may attract clicks with headlines like "What Do Women Professionals Want?" in reality there are no broad brushstrokes useful to describe all women in STEM careers. The desires and goals of women in the US versus Italy versus India are often as varied as the desires of men versus women. The Universum data shows that companies must develop strategies that make sense at the country-level and for specific roles. What will it take to attract more female engineers to a global consulting firm based in Munich? And how will the same company attract women to IT roles in its Boston office?

"People analytics" is essential to the new decade of talent acquisition because it can uncover insights from vast troves of information. 71% of companies agree people analytics is a high priority, yet just 9% say they have a good understanding of what type of data predicts performance, and only 8% say they have any usable data in the first place.[9]

Attracting greater numbers of women will require a cultural shift inside many companies, but the starting point must be data: what is your baseline, what are your goals, and what specifically will you measure to ensure you are headed in the right direction?

[9] https://www2.deloitte.com/us/en/insights/focus/human-capital-trends/2017/people-analytics-in-hr.html

Thank You!

To find out more about the portfolio of Universum data, visit:

www.universumglobal.com

universum