

Women & STEM Daring Circle

Frequently Asked Questions

About women in STEM

What is the representation of women in STEM?

Globally, women are underrepresented in STEM fields and functions, and the pipeline to management is leaky:

- In contrast to the broader workforce, the gender disparity in STEM starts with the entry to the pipeline: only 36% of STEM degrees are earned by women (vs. 56% across industries)¹
- Only 25% of the total STEM workforce is female (vs. 38% across industries)²
- The representation of women in STEM drops off precipitously at the Manager level—with only 14% of managers being female (vs. 26% across industries)³
- Only 9% of STEM executives are female (vs. 15% across industries)⁴

Why is gender diversity and inclusiveness important – particularly in STEM?

Supporting diversity in STEM is critical to the evolution of our future workforce and society:

- The European institute for Gender Equality estimates that closing the gap in STEM education will contribute to an improvement in EU GDP per capita by €610b - €820b in 2050.⁵
- While the total number of jobs today held by women is set to decline by 11% (vs. 9% for men) due to automation, STEM companies and functions will grow.⁶ Digital skills make up around 70% of all fast-growing skills; demand for expertise in areas like artificial intelligence, the internet of things, fintech and cloud solutions will be needed across industries.⁷
- Addressing global challenges, and capitalising on the associated opportunities, depends on getting more women and girls into STEM, for example, in agriculture, increasing women's access to finance and green technologies could increase on-farm yields by 20-30%, improving women's income and security while also positively impacting climate resilience of communities and food security.⁸
- Representation of women in STEM promises higher innovation and better performance for companies. BCG research has shown that companies with above-average diversity in their management teams are 19 percent more innovative—an attribute that is especially critical in

¹ UNESCO Institute for Statistics

² Deloitte Global

³ Credit Suisse

⁴ Harvey Nash/KPMG global survey

⁵ 'Economic Benefits of Gender Equality in the EU: How Gender Equality in STEM Education Leads to Economic Growth', European Institute for Gender Equality

⁶ IMF – Gender, Technology, and the Future of Work

⁷ Strack, R; Kaufman, E; Kotsis, Á; Sigelman, M; Restuccia, D; Taska, B (2019) 'What's Trending in Jobs and Skills', BCG

⁸ (2017) 'Migration, Agriculture and Climate Change: Reducing Vulnerabilities and Enhancing Resilience', Food and Agriculture Organisation of the United Nations

STEM roles and industries —and that these companies have reported a 9 percent higher EBIT margin on average.⁹

How can social and environmental impact motivate more women and girls to lead with STEM skills?

Research shows that 72% of girls aged 5-12 surveyed in Europe felt it was important to have jobs that directly helped the world, but only 37 % thought of STEM careers as making the world better.¹⁰ Studies also tell us that girls who believed more strongly in the altruistic value of science careers scored higher in self efficacy and utility measures than their peers – it boosted their confidence. Their belief in the altruistic value of science also predicted their interest in science.¹¹ Highlighting the potential for social and environmental impact from STEM skills might be an important part of attracting more women to these disciplines and helping them thrive.

About the Women & STEM Daring Circle

What is the Women & STEM Daring Circle?

Launched in the second half of 2018, the Women & STEM Daring Circle is an initiative of the Women's Forum for the Economy & Society. Led by Google, the Daring Circles Strategic Members are American Express, AXA, BNP Paribas, L'Oréal, Microsoft, Publicis Groupe and P&G, in collaboration with Johnson & Johnson, Lenovo and Orange as Partners and Shearman & Sterling as Insight Partner. The Circle is supported by Knowledge Partner Boston Consulting Group (BCG) and Politecnico di Milano as Academic Partner. Other member institutions and experts include: Ersilia Vaudo Scarpetta of ESA (European Space Agency), Caroline Ramade of 50inTech, Josephine Goube of Techfugees, the IMF (International Monetary Fund), the OECD (Organisation for Economic Co-operation and Development, and UNESCO (the United Nations Educational, Scientific and Cultural Organisation).

What is the Women's Forum?

The Women's Forum for the Economy & Society is a global platform of actions to highlight women's voices and build together a more inclusive economy. With the Daring Circles, the Women's Forum's ambition is to drive innovative solutions at scale and at pace through collaboration between businesses, public entities, NGOs and the media to have impact on issues where women are disproportionately affected and where their leadership is most urgently needed.

What is the goal of the Women & STEM Daring Circle?

The goal of the Women & STEM Daring Circle is to increase the representation, leadership and impact of women with STEM skills at all stages of the pipeline from school to boardroom, and to

⁹ BCG – How Diverse Leadership Teams Boost Innovation

¹⁰(2017) 'Closing the STEM Gap: Why STEM Classes and Careers Still Lack Girls and What We Can Do About It', Microsoft

¹¹ Weisgram, E.S; Bigler, R.S (2006) 'Girls and science careers: The role of altruistic values and attitudes about scientific tasks', Journal of Applied Developmental Psychology, Vol 27:4, p.326-348

highlight the strong connection between STEM skills, access to jobs and the potential for positive societal impact. The Daring Circle recognises the importance of taking a holistic and system view which targets the full breadth of the Women & STEM pipeline simultaneously; from education to the corporate environment and beyond.

What are the work streams of the Women & STEM Daring Circle?

Daring Circle collaborates through three parallel and mutually supportive workstreams:

- Workstream I: Women & STEM Daring Circle pilot actions and recommendations
- Workstream II: Women & STEM Daring Circle research
- Workstream III: Women & STEM Daring Circle campaign

What are the key activities of Workstream I: Women & STEM Daring Circle pilot actions?

The Daring Circle has outlined an agenda to of pilot actions promote STEM skills and to support women and girls. These are initiatives that companies and organisations volunteer for, collaborate on and learn from, in cooperation with public institutions or internally. Ultimately, successful pilot actions will be replicated, scaled and the keys to their success shared. Provisionally, they include:

- Drafting recommendations to inform a proposed new law in 2020 on women's economic empowerment, focusing on how public and private sectors can create the conditions for women to thrive in STEM fields (commissioned by the French Ministers of Gender Equality and Economy).
- Working with education ministries to develop content designed to: enable and encourage proactive communication from schools to parents about girls' potential in STEM roles; and help ministries better communicate with teachers and administrators of educational institutions to enable staff and students understand job market needs.
- Co-curating in-person workshops focused on digital re-skilling for women, with the potential to iterate and scale online as a co-branded MOOC (mass open online course).
- Producing a digital role-playing app aimed at teenage students and their teachers to highlight the benefits of diverse teams and STEM skills in a variety of roles.

What are the key activities of Workstream II: Women & STEM Daring Circle research?

Women & STEM Daring Circle Partners have undertaken two key pieces of research to better understand what is holding women in STEM back and to identify drivers of change:

- Academic Partner, Politecnico di Milano, carried out a literature review to investigate barriers to women and girls' access to STEM and the importance of language for overcoming these. Findings demonstrated that from the earliest years, girls are taught that STEM-related activities and fields of study are not for them. This early bias persists and deepens as girls grow up, develop their own personal identities and make academic and career choices.
- In parallel, Knowledge Partner BCG surveyed 1,600 women and men in STEM roles from eight countries to identify the obstacles and barriers for women in STEM, and what really works to retain and advance these women at key junctures of recruiting, retention,

advancement and in terms of leadership commitment . They then compared these findings to the 16,500 responses in BCG's Diversity and Inclusion Assessment for Leadership (DIAL) database to understand how the challenges and opportunities for women in STEM compare to those for women in the workforce more broadly.

What are the key activities of Workstream III: Women & STEM Daring Circle campaign?

The focus of the campaign is to create a human connection between teenage girls and women in STEM roles to give teens the tools they need to be authors of their own futures. With STEMKEY, we plan to launch a European campaign that helps girls meet like-minded STEMSISTERS who can open doors for girls (e.g. through internships) and help them change the world with STEM.

About the Women & STEM Daring Circle research findings

What are the key challenges women in STEM face identified by the Women & STEM Daring Circle research?

In the research undertaken by Women and STEM Daring Circle Knowledge Partner, BCG, 43% of surveyed women identified are obstacles in recruiting and retention, as well as in advancement (41%) and in leadership commitment (40%). Straight men aged 45+ in STEM – those who are often decision makers – underestimate those challenges by far. Only 31% sees obstacles in recruiting, 29% in retention, 27% in advancement and only 26% think that there are obstacles to gender diversity in leadership commitment.

How do women in STEM perceive the status quo and progress of diversity and inclusion (D&I) in their company?

The BCG research indicates the most positive results on the perceived progress on diversity and inclusion come from women in STEM roles who work in STEM companies—companies that are directly involved in one of the STEM fields such as tech companies. Answers from women in STEM roles who work in non-STEM companies (e.g. computer programmer in a financial services company) are behind of those of women overall. The hypothesis is that public and internal attention on the underrepresentation of women in the STEM field has resulted in increased efforts to tackle diversity and inclusion by STEM companies.

- Of women in STEM companies, 65% report their company taking steps to improve D&I. This compares to 57% of women overall.
- 56% of the surveyed women in STEM agree that men in their company are involved in championing diversity vs. 45% of women overall.
- While 64% of women in STEM have seen progress in D&I in all levels in the last 1-3 years, only 54% of women overall agree with this statement.
- 58% of women in STEM roles in STEM companies experience a consistent support across all leadership-levels, while 53% of women overall and only 46% of women in STEM roles in non-STEM companies agree with this statement.

If STEM companies are more aware of the lack of gender diversity, why do women in STEM still face significant challenges?

Even if STEM companies may be aware and have begun to take steps to address gender diversity, the results of these efforts are not yet being felt. While 99% of the surveyed women in STEM roles reported their company has a gender diversity program in place, two thirds of the women say they have not benefitted. There is a lack of understanding and companies don't know how to address obstacles and which interventions are being valued by the targeted group.

Which diversity interventions do women in STEM value?

BCG asked survey participants to evaluate the effectiveness of 31 diversity initiatives. Women and men in STEM as well as women overall are aligned on half of the top 10 interventions: Trainings e.g. bias awareness, anti-discrimination policies, bias-free promotion and evaluation decisions, employee surveys and bias-free day-to-day experience. Interventions that women highly valued but men did not perceive to be as effective were classified as "hidden gems" – and companies could benefit from investing in them further. Examples of hidden gems include flexibility programs, setting a specific diversity strategy, healthcare coverage and parental leave. There were also differences in which interventions women in STEM roles and women overall value. Interventions related to leadership commitment such as a specific diversity strategy, public commitment by CEO and a diversity leadership team are valued by women in STEM, but less so by women overall.

What can companies do to increase the number of women in STEM?

To address specific obstacles that women in STEM roles face, companies can launch a set of measures that data shows make a difference for women in STEM:

- *Get back to basics*: essential measures that rank highest in importance for women in STEM include bias awareness training, antidiscrimination policies and reducing bias in evaluations and promotions. Foster a day-to-day culture of inclusion and showcase women role models¹²
- *Lead and commit*: leadership commitment is differentially important to women in STEM. Companies should set a diversity strategy, demonstrate CEO commitment, and engage a leadership team against KPIs.
- *Prioritise flexibility*: women in STEM rank flexibility programmes as the top intervention to support their success. Enabling women (and men) to manage professional and personal commitments through a focus on when, where, and how much they work over a career will keep women in the leadership pipeline.
- *Engage your future workforce*: Develop programmes for hosting high-school girls for short internships, apprenticeships and mentoring opportunities in areas that use STEM skills. Work with schools to communicate the value of a STEM education among girls and their families as early as possible, helping girls to see themselves in STEM roles.

¹² Catalyst – High Potentials in Tech-Intensive Industries

- *Contribute to the narrative on STEM-for-Good:* Showing the social impact that STEM jobs can have, through real stories and concrete example helps motivate women and girls who want to do well by doing good.

What can public authorities do to increase the number of women in STEM?

Public authorities can drive change by focusing on a set of programmes and policies.

- *Grow the talent pool:* increase the participation of girls in STEM through educational programmes in schools targeted at girls (coding, maths, science and more) as well as developing public marketing campaigns that target participation and challenge stereotypes.
- *Support pipeline development:* fund or develop public reskilling or upskilling programmes targeted at women in STEM, to support growth throughout the pipeline.
- *Promote positive messaging:* launch or participate in campaigns and other media opportunities that raise awareness of messaging that helps increase women's participation in STEM. Consider enforcing parity between men and women on public platforms.
- *Capitalise on expertise:* use Women STEM experts to inform gender responsive and other policies and actions.
- *Create a coordinated framework or guidelines:* support coordination between existing efforts to engage women in STEM, identify opportunities to create synergies and inform the creation of future initiatives.

What can individuals—both men & women—do to increase the number of women in STEM?

Men and women will need to work together to create a more diverse STEM workforce:

- *At work:* men will help create a more equal environment by modeling more inclusive leadership styles and sponsor/champion women at key inflection points in their career,
- *At home:* man can help women to have more time to devote to career related activities by taking on more of the mental load and task load at home, where studies show women disproportionately carry primary responsibility.
- *Everyone has a platform – use it!:* giving women a platform and supporting them wherever possible helps create visible role models and breaks down stereotypes. Look for opportunities in your place of work, at events or on social media.

Definitions

What are STEM occupations?

The acronym STEM stands for Science, Technology, Engineering and Mathematics. It refers to education in those degrees as well as to occupations and industries involved in this field. STEM occupations can be either roles in which employees are directly involved in any of the STEM fields such as software engineering or chemistry or business roles related to STEM such as STEM management or sales. STEM roles can be found in companies that are directly involved in STEM (e.g. tech companies) as well as in non-STEM companies (e.g. in the IT department of a financial services company).