WOMEN IN STEM

Why an inclusive strategy is critical to closing the science, technology, engineering, and maths talent gap in Europe
WORK-LIFE DESIGN IS CRITICAL TO RETAINING WOMEN IN STEM

Factors that attract Europe’s female STEM workers by level of position

European women in STEM not only look for factors that positively impact work-life balance, they seek these all along the career spectrum.

Factors that would positively impact the balance between work demands and personal life

Trading it off

Beyond salary and healthcare benefits, a high percentage of women across all STEM sectors in Europe consider flexible work arrangements to be key decision drivers when evaluating one position over another.

% listing flexible work arrangements as a key evaluation factor

Many of Europe’s STEM women are willing to pass up higher pay in return for a more balanced life. Would you be willing to give up higher pay?

In addition to analyzing worker preferences and psychographic insights based on survey data from the 2014 and 2015 Kelly Global Workforce Index, this report incorporates insights from Kelly Free Agent Research (2015) survey data as well as secondary research sources.

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Introduction

If we’re going to reduce the massive talent gap in the science, technology, engineering and mathematics (STEM) fields across Europe, we have to start engaging more women now, and we have to work together to do so. Tipping the scale towards a more optimized and gender-diverse STEM talent pool takes more than just ramping up recruitment efforts—it also involves creating an inclusive environment that facilitates greater engagement and retention of females in STEM. At the same time, we must make it a priority to eliminate bias and barriers, to deliver top-down support and institutional accountability. We must also focus on providing greater mentorship for women in STEM, and on increasingly raising diversity scores, because there’s a lot at stake—not just for your company, but for the future of the STEM industry Europe-wide.

As a pioneer in the staffing industry, and in the study of workforce preferences, Kelly Services takes a high-level look at the need to address the underrepresentation of women in STEM across Europe, as well as the factors that play a role in successfully engaging them for the long-term benefit of your organization.

In addition to analysing worker preferences and psychographic insights based on survey data from the 2014 and 2015 Kelly Global Workforce Index™ (KGWI), this report incorporates insights from Kelly Free Agent Research (2015) survey data as well as secondary research sources. Unless otherwise noted, all statistics come from recent Kelly workforce research data.

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The numbers tell a story of a Europe risking being left behind by its global competitors as a shortage of engineers and scientists—female engineers and scientists, in particular—feeds into lower productivity and a loss of domestic and international trade.
The importance of retaining women in STEM

Europe’s lack of STEM-skilled labor has the potential to significantly constrain its future economic growth. In countries such as the United States (US), Japan, and South Korea, investments in scientific research and education as a share of GDP already exceed those within the European Union (EU). Competitors are also developing in emerging economies, such as those in Southeast Asia, whose share of high-tech exports has grown impressively over the past 20 years.

Unfortunately, the STEM talent gap in Europe seems set to only get worse: the European Commission (EC) projects that the IT sector alone will need an additional 900,000 employees by as early as 2020. As is the case globally, employment in STEM fields across Europe is male-dominated. Recent EU research shows that women account for just 24% of science and engineering professionals, and 15% of science and engineering associate professionals.

In some EU countries, the disparities highlighted by the underrepresentation of women are particularly glaring. In the United Kingdom (UK), for instance, an additional 87,000 graduate-level engineers are needed each year between now and 2020, yet it has the lowest percentage of female engineers in the EU, at just 9%. As a result, it is forced to rely on immigration to fill around 20% of skilled roles.

By simply reducing female attrition in STEM fields, Europe’s STEM skills shortage could be substantially decreased. However, the barriers to adding female workers to the STEM talent pool are many and complex. Take, for example, the persistent underrepresentation of women among STEM university graduates: in 2012, only 12.6% of female university graduates majored in STEM-related subjects in Europe, versus 37.5% of male graduates.

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The need for STEM talent is enormous

The drivers behind this gender gap are multiple and complex. They are rooted in traditional gender roles and stereotypes, the lack of...
support for women and men to balance care responsibilities with work, and the prevalent political and corporate cultures, to name just a few. Yet by understanding them—and the key levers for attracting and retaining skilled female talent in those fields—companies and workers can unlock much-needed advantages.

Preventing or filling key skills gaps
Once women join the STEM workforce in greater numbers, it can help to create a virtuous circle where retention drives recruitment, which creates momentum and scale—boosting further retention.

Increasing innovation and new product development
Globally, women control about USD$20 trillion in annual consumer spending. This includes the purchase of products that rely heavily on STEM talent—such as automotive, pharmaceutical and consumer-packaged goods industries. Actively involving women in product design and re-balancing the male-dominated professions of design and engineering would go a long way towards creating products and services that resonate with women.

Improving organizational performance and profitability
Hidden biases and barriers cost corporations billions in revenue per year in turnover. Recent UK research shows that a diverse workforce that includes a range of perspectives can improve creativity and problem-solving, enhancing the quality of decision-making. New global research from The Peterson Institute for International Economics and Ernst & Young, meanwhile, reveals significant correlation between women in corporate leadership and profitability.

Enhancing corporate reputation
Corporations—and in particular, technology firms—are under increasing pressure to regularly report on, and improve, their diversity statistics. These can generate positive press and enhance the company’s brand by clearly communicating that it values diversity. This pressure also encourage companies to create ‘stretch goals’ and demonstrate continuous progress towards meeting these goals.

Those who are lackadaisical about diversity can face a PR nightmare; just one verbal slip by an executive can create enormous damage, both externally and internally. In 2014, for example, Microsoft Chief Executive Satya Nadella suffered a storm of criticism when he said women should not ask for raises but instead rely on “karma” for advancement.
Why women drop out of STEM careers, and when

The scarcity of women in STEM is not merely an education problem or a government or industry problem. It is a societal problem.

A lack of female role models and mentoring, gender stereotyping and less family-friendly flexibility in the STEM fields are all barriers to women in STEM careers that organizations will need to address.

Even if women overcome these barriers and achieve a career in a STEM field, gender bias and hostile work cultures can cause them to feel stalled in their careers and more likely than their male peers to leave their positions.

Where women face challenges along the STEM career arc

Secondary school and higher education

At risk due to mindset and lack of role models
Research shows that the proportion of girls doing STEM subjects drops off at A-level (late high school). In the UK, for example, lower numbers of females compared to males were entered for all STEM subjects except Biology in 2015.13

At university, the trend continues: across Europe, women hold a disproportionately low share of most STEM undergraduate degrees. In France, for instance, only 30% of the total number of tertiary-level graduates enrolled in STEM studies in 2015 were women. In Germany, the figure was even lower, at 23%. In Switzerland, it was 21%.14

Early career

At risk due to lack of support
Research on the gender gap in science reveals similar disparities. In 2013, only 25.6% of research roles in France were held by women. In Germany, the figure was 26.8%; in the UK, a relatively high 37.8%.15 Additionally, only 15% of all professional information and communications technology (ICT) roles in the UK are held by women.16

Globally, women with STEM degrees are less likely than their male counterparts to work in a STEM occupation; they are more likely to work in education or healthcare.17

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Why women drop out of STEM careers, and when (continued)

**Mid-career**
At risk following motherhood and/or due to a lack of career growth expectations
Women tend to drop out of the workforce at key phases in their life and career, most notably around childbearing years and then again at mid-management levels, where their networks and peer ranks start to thin.

**Established career**
At risk due to isolation and exclusion
Women find themselves with few female peers in high-level leadership positions. Across the EU, the proportion of women involved in top-level business decision-making is very low. Research shows that in 2012, women occupied a quarter of the seats on boards of large listed companies in Finland, Latvia, and Sweden and just over a fifth in France. Yet, there were fewer than one in 10 in Ireland, Greece, Estonia, Italy, Portugal, Luxembourg, and Hungary; fewer than one in 20 in Cyprus; and around one in 30 in Malta.18

Technology firms, in particular, have come under fire for a lack of gender diversity, especially at the top. The number of female executive directorships in the 25 manufacturing companies listed on the FTSE 100 fell from seven in 2013 to six in 2014 before dropping to only five in 2015, underlining the fragility of female board representation in Europe’s STEM sector.19
Only 56% of the women in STEM sectors across Europe feel confident that they are in a position of high demand, compared to 67% of their male counterparts.
Against this backdrop, perhaps it’s not surprising that data from the most recent Kelly research reveals that only 56% of the women in STEM sectors across Europe feel confident that they are in a position of high demand, compared to 67% of their male counterparts.

In different countries across the EU, the confidence gap prevails. In Switzerland and in Hungary, for instance, only 47% of STEM women feel they are in a position of high demand, along with 34% in Portugal and 29% in Italy.

The confidence gap also extends across all key STEM skill sets and all stages of the career ladder, although it is most pronounced in engineering, followed by science.

It’s a similar story in Europe’s IT sector. While relatively confident compared to other STEM women, female IT workers still have some way to go before they are as confident of their market value and ability to compete as their male peers.

The confidence gap also exists across those industries reliant on STEM talent in Europe. Compared to men in their industry, STEM women are least confident across key measures in Life Sciences, slightly more confident in Natural Resources and most confident in High Tech.
To date, no one has discovered the secret to closing the confidence gap. However, cross-industry solutions recommended by experts are listed below.

**Share the statistics and encourage open discussion**
Just publishing some key figures and encouraging open discussion can help change behaviors. But talking alone isn’t enough: senior executives need to also “walk the talk.” It’s critical that senior executives set the tone by actively participating at women’s events and helping to create a culture of diversity and inclusiveness that encourages both men and women to excel.

**Encourage executives to actively sponsor high-potential future women leaders**
There are key differences between mentors and sponsors. Sponsors are senior individuals with power and influence, who visibly support colleagues in navigating their career paths and endorse them within their networks. Mentors are often behind-the-scenes supporters.

It may also be beneficial for company leaders to reach out to high-potential candidates and encourage them to apply for open positions.

**Make it easier for women to be mentors and role models**
Receiving praise from mentors and leaders is a key way to boost women’s confidence and motivation, and help them overcome negative perceptions of themselves. Two-thirds of women in a recent KPMG study felt they had learned their most important lessons about leadership from other women, and 82% believed that networking with female leaders would help them advance their careers.20

**Ensure job descriptions focus on the must-haves for any role, and aren’t a quest for “purple unicorns”**
A US study21 found that one reason women don’t apply for jobs or promotions is that they are socialized to be rule-followers. Often, they won’t apply for jobs if they don’t meet all of the requirements.

Make sure you don’t add to the problem with an unrealistic job description. If you send a message that you’re looking for a “purple unicorn” that doesn’t exist, you could be scaring off potential candidates who have the most important skills of all—the drive and intelligence to learn new technical skills in an era of constantly-evolving technologies.22

**Investigate gender pay gaps and invest in closing them**
Money talks, and women listen. CEOs who are serious about gender equality must review employee compensation at all levels and close pay gaps.23
Why work-life design is critical to retaining STEM women

Like their global counterparts, European women in STEM are clearly ambitious, and highly value career advancement opportunities when evaluating potential work opportunities. However, recent Kelly research shows that a desire for more flexible working arrangements is also common among STEM women as they seek greater work-life balance.

Notably, 36% of European female STEM respondents say they would even be willing to give up pay in return for more flexible work schedules or arrangements. A total of 29% would be prepared to sacrifice career advancement.

STEM women seek work-life balance all along the career spectrum

This desire for flexible work arrangements is important to STEM women of all ages and levels – from women in entry level and mid-management roles right across to those in specialist and executive positions.

Importance of flexible work arrangements for STEM women

What work design elements would you give up higher pay for? (Percentage who chose flexible work arrangements)

- Entry level: 29%
- Specialist: 38%
- Mid-manager: 37%
- Executive: 37%

Flexible work arrangements for STEM women

- Entry level: 58%
- Specialist: 70%
- Mid-manager: 69%
- Executive: 65%

Paid time off for STEM women

- Entry level: 51%
- Specialist: 49%
- Mid-manager: 44%
- Executive: 33%
Why work-life design is critical to retaining STEM women (continued)

However, these arrangements are especially valued by European STEM women in specialist roles. This is perhaps because these women are seeking the kind of employer support that demonstrates that they do not have to continue to prove themselves in typically male-dominated STEM cultures.

**STEM women rate their employers more highly than their male peers do on work-life balance**

Since European women give more weight to work-life design support when evaluating potential employers and positions, it makes sense that they would end up working for employers who offer more support. They also rate their current employer slightly more highly on work-life support (68%) than their male peers (64%).

### Work-life balance as an attractive employee trait for STEM women

**By country**

- **Germany**: 81%
- **Switzerland**: 73%
- **Portugal**: 73%
- **Italy**: 69%
- **France**: 69%
- **Hungary**: 68%
- **Russia**: 60%
To increase female retention numbers, STEM employers must take a top-down, multi-pronged approach in creating a more attractive and supportive environment for women.
Recommendations for boosting female STEM talent

It takes a multi-pronged approach from all parties involved to create meaningful, lasting changes in the retention of women in STEM fields—from parents and teachers all the way up to executive leadership in Europe’s leading STEM companies. So what measures should firms be looking to put in place?

Evaluate change efforts
As with any corporate priority, create accountability measures and track progress against goals. Gather feedback on a regular basis—and listen to it. Tweak programs based on input from STEM talent.

Provide support for competing responsibilities
As we have seen, flexitime and other family-friendly policies are critical—but these must be offered to all employees, not just women. And it’s vital that anyone taking advantage of flexible arrangements is actively encouraged, with direct managers and senior leadership acting as models in the adoption of flexible arrangements.

Initiatives that only support women or other underrepresented groups can be counterproductive, as those employees may hesitate to participate for fear of being further marginalized.

Successful firms have adopted the following measures to counter this effect:
- Making work-life design elements such as flexible schedules the norm
- Making it easier for employees to take time off from work and to return
- Providing extended parental leave options to both women and men.

Offer formal peer support programs
Employee resource groups such as a women’s forum or working parents’ connection are valuable tools to help women feel they truly belong in STEM fields. Best practices include an executive sponsor for each group. Learning communities around patenting or innovation can also provide networks, support, role models, and professional development.

Offer clear steps for performance evaluation and promotion
Clearly articulate measurable steps for promotion, and identify and work to close any gender pay gaps.

Reduce subtle biases and barriers
It’s also important to educate others on how bias may affect the composition of teams and the assignment of tasks. Subtle biases include tokenism, gender or colour “blindness,” and within-group competitiveness versus collaboration. Provide sensitivity training to increase awareness of these biases, and offer ways to reduce them across the board—beginning with recruitment, and continuing through to employee development and performance evaluation and promotion.
Cultivate mentorships to aid employee development
While the majority of women in STEM want mentors, there are few women in the upper ranks of STEM fields to serve in this role, which can be a source of frustration and attrition. As well as encouraging mentorships—both male and female—it’s important to value mentoring and employee development as performance evaluation or promotion criteria.

Cultivate executive sponsors
Mentors are invaluable for helping women understand the unwritten rules of their industry and workplace and to prepare entry-level to mid-career women for promotion. At the same time, sponsors are necessary for moving this nurtured talent into senior leadership roles. Individuals with sponsors are most satisfied with their rate of advancement.

Refine recruitment/selection practices
Job postings should be worded to encourage women to apply. For example, use phrases such as: “ability to work on diverse teams.” Job posting language should not reflect stereotypical masculine or feminine behaviors. Interviewers and search committees should be educated on reducing unconscious attitudes of bias.

Promote more women to company boards
Since October 2010, the EC has put the issue of women and boards high on its political agenda. It has been considering a directive since 2013 that would force publicly listed companies to allocate 40% of their board seats to women.24

Progress is slow, but it is happening. As of October 2014, the average share of women on the boards of the largest publicly listed companies across the EU had reached 20.2%, an increase of more than 8 percentage points since 2010.25

Meanwhile, in early 2015, Germany passed a law requiring its biggest public companies, including Bayer, BMW, Merck, and Volkswagen, to allocate 30% of their board seats to women by the beginning of 2016.24

NOTE: Baseline framework was created by NCWIT; framework updated and expanded with KGWI data and other insight gathered by market intelligence. https://www.ncwit.org/resources/women-it-facts-infographic-2015-update
Footnotes


6 EngineeringUK, “UK has Lowest Number of Female Engineers in Whole of Europe,” 2014 http://www.engineeringuk.com/View/?con_id=145


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