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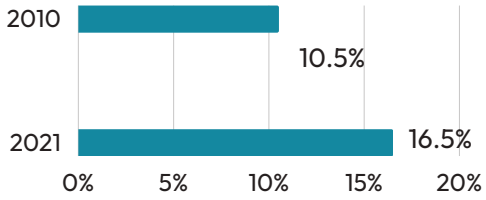
Women in Engineering: How to close the gender gap

+44 01582 450054 info@RedlineGroup.com www.RedlineGroup.com

Executive Summary

According to Engineering UK, women make up 16.5% of all engineers, which is a considerable increase from the 10.5% reported in 2010. The number of women working in engineering roles increased from 562,000 in 2010 to 936,000 in 2021, highlighting an increase in the number of women entering the industry.



In fact, the increase in the number of women in engineering roles continued even when the total number of people working in engineering fell in 2020 and 2021, during the Covid-19 pandemic. However, studies show that, despite this undeniable growth, there is still a lack of support for women in the engineering and technology sectors.

According to the World Economic Forum, only 3% of students joining information and communication technology (ICT) courses globally are women. This improves slightly to 5% for maths and statistics courses. Engineering, manufacturing, and construction courses enjoy only a slight increase to 8%.

In this document, we will explore the importance of supporting women in engineering, the challenges faced by female engineers, and how businesses can empower women engineers in various aspects of the industry.

A lot of businesses make the mistake of assuming that empowering women engineers means providing adequate parental leave or ensuring women are paid fairly and while these are essential steps to be taken, it goes a long way beyond that.

Contents

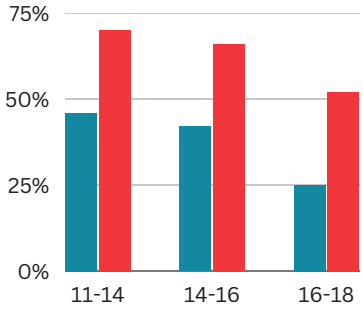
Engineering and Technology

Latest research by the Women's Engineering Society suggests that women account for approximately 20% of employees in the UK engineering sector (incl. engineers), showing significantly fewer women than men in the industry.

In 2020, there were almost 6.6 million women scientists and engineers in the European Union, 254,500 more than in 2019. In 2021, in a few countries, such as Norway and Latvia, over 50% of engineers were female.

There are several reasons for the relatively low number in the UK, such as girls being less exposed to engineering and technology from a young age, and men being made more aware of job opportunities. The UK Engineering Report 2018 and the Engineering Council found:

- Boys have more positive views of engineering than girls even in primary school.
- 46% of girls 11-14 would consider a career in engineering, compared to 70% of boys.
- 42% of girls 14-16 would consider a career in engineering compared to 66% of boys.
- 25% of girls 16-18 would consider a career in engineering compared to 52% of boys.
- Young people who attend STEM outreach events are more likely to know what engineers do – but only a quarter of women surveyed had been to such an event.



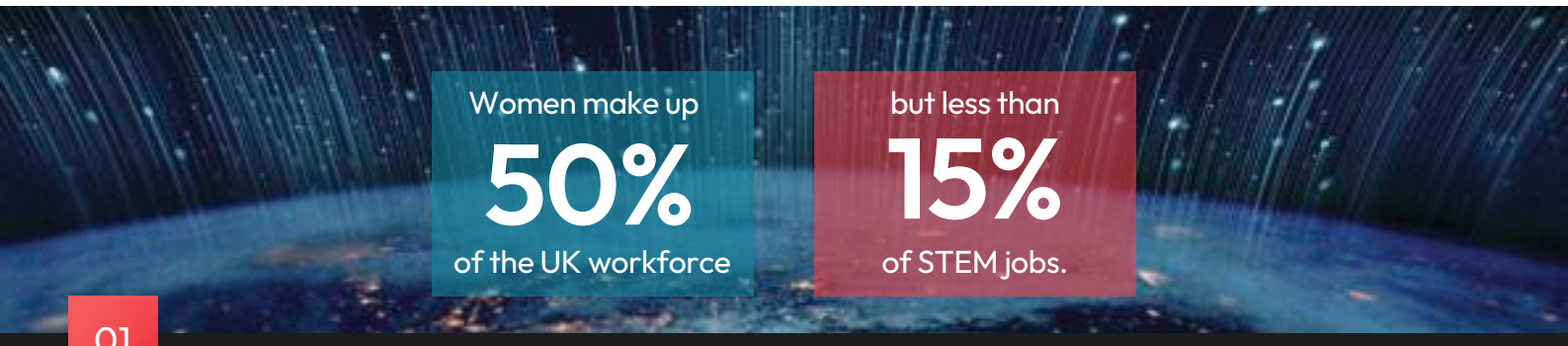
Forbes noted that women are still underrepresented in US technology leadership. In the last five years, gender representation has improved at every level in the corporate pipeline. Despite this, women still occupy less than a quarter of current C-suite positions.

This means that a significant number of women, though present in technology companies, struggle to progress to a leadership role. Great support is now being provided by some investment institutions such as Plum Alley and Qualcomm Ventures, both of whom take a proactive approach to funding and encouraging female leadership in technology. These companies have dedicated funds to assist with change including organising Female Founders Summits.

One reason it's important to champion women in the workforce is they tend to champion diversity, equality, and inclusion (DEI) initiatives in comparison to males. It has been found women in the tech industry tend to support and pick up roles outside of their job duties, increasing their value to the company they work for and also improving culture.

According to a McKinsey study, Women in the Workplace 2021, Women leaders are up to twice as likely to spend substantial time on DEI work that falls outside their formal job responsibilities. This includes additional responsibilities like supporting employee resource groups, mentoring females, and organising charitable programs and volunteer efforts that support the company's mission. These DEI initiatives result in increased productivity and a happier workplace.

With greater support from businesses and more women in leadership roles, a great number of women will see engineering and technology as viable career options for them. Simply, there is someone to aspire to.



Understanding Education – Getting Girls into STEM

One of the main ways to empower women engineers is to make it easier for them to break into the industry in the first place, which starts with school and education. As a business, it's important to understand the part education plays in a woman's engineering journey.

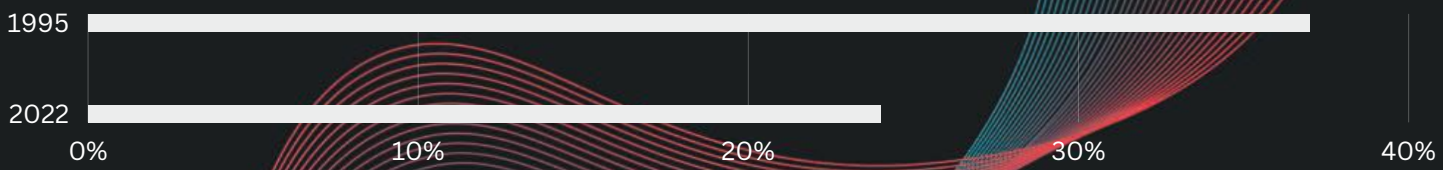
Without adequate education and learning opportunities from a young age, it's unlikely that girls will discover a talent or develop an interest in science, technology, engineering, and mathematics (STEM).

In 2019, only **26%** of core STEM graduates were women. Therefore, several businesses are focusing their attention on getting girls into STEM, by offering summer programs and pathways.

For example,

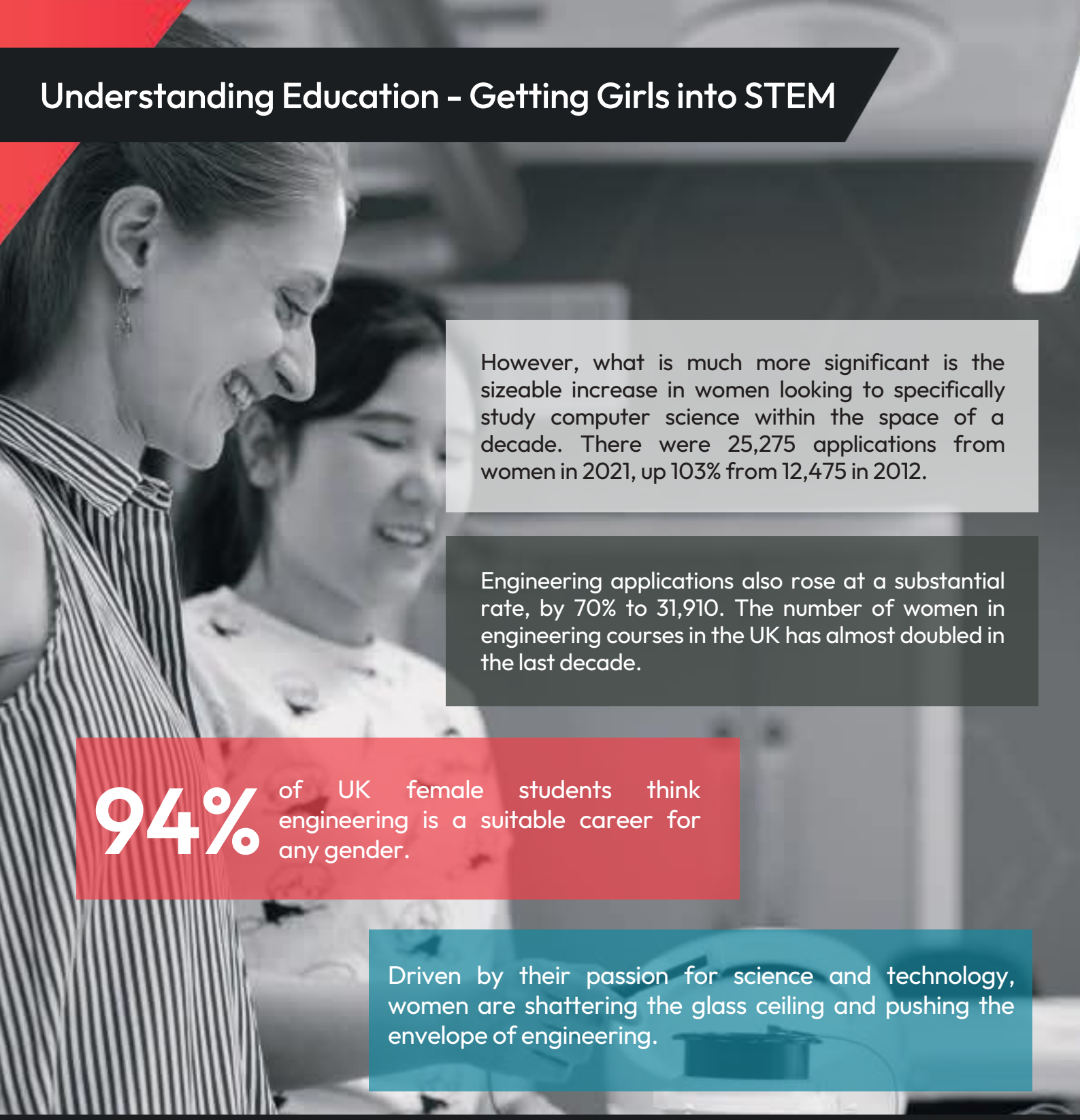
girls who code offers free summer programs and clubs to encourage girls to learn to develop software. Similarly, the toy brand Goldieblox has been created to encourage more young girls to take an interest in engineering.

The Gender Gap in Computing is Getting Worse - In 1995, 37% of computer scientists were women. Today, it's only 24%. The biggest drop-off of girls in computer science is between the ages of 13 and 17.



Some of these activities are already making a difference. In 2012 according to UCAS application data, a grand total of 368,570 women applied to study at a UK university and college. By 2021, it had risen to 434,965, an increase of 18% – despite continued population decline throughout the decade.

Understanding Education – Getting Girls into STEM



However, what is much more significant is the sizeable increase in women looking to specifically study computer science within the space of a decade. There were 25,275 applications from women in 2021, up 103% from 12,475 in 2012.

Engineering applications also rose at a substantial rate, by 70% to 31,910. The number of women in engineering courses in the UK has almost doubled in the last decade.

94% of UK female students think engineering is a suitable career for any gender.

Driven by their passion for science and technology, women are shattering the glass ceiling and pushing the envelope of engineering.

This highlights that, by providing more opportunities for girls, more women will seek out engineering and tech careers.

Parents, schools, the state, and businesses can help to improve the uptake of women undertaking STEM courses by:

- Introducing creative problem-solving at home.
- Reminding girls that STEM doesn't only live in a laboratory, research centre, or technology company.
- Combining informal and formal learning through extracurricular activities.
- Placing value in non-cognitive skills.
- Emphasising the skills that underlie STEM fields, such as curiosity, observation, problem-solving, critical thinking, collaboration, creativity, and communication.

Sponsorships, Apprenticeships, Programmes, and Networking Events

Though a lot of the engineering and tech industry is aimed at men, there are programmes and organisations that are purposely aimed at women. These have been created to support, inspire and equip women with everything they need to build a successful career in the engineering and technology sectors. This type of support not only empowers women, but it shows that they are 'seen' and valued in the industry.

STEMettes is an award-winning social enterprise working to inspire and support young women and non-binary people in Science, Technology, Engineering, and Maths careers.

CODE FIRST GIRLS aims to transform tech by providing women with the skills, confidence, and inspiration to make it in the industry.

INTERNATIONAL WOMEN In ENGINEERING DAY 23 June is an international awareness campaign to raise the profile of women in engineering and bring attention to the career opportunities available to girls in the industry.

wes The Women's Engineering Society is a charitable company, founded in 1919 to support women in engineering.

WISE Women in Science and Engineering is an initiative intended to highlight career opportunities for girls and women in science and engineering professions.

WOMEN in tech Women in Tech is a site dedicated to women already in or looking to start their careers in the IT and high-tech sectors.

How Businesses are Empowering Women Engineers

Women engineers often require different support compared to their male counterparts, and this is something that a lot of businesses are starting to offer. Women tend to suffer from 'brain drain' when trying to juggle work life and home life, and this leads to them deciding to no longer pursue a senior-level position. To combat this, businesses can empower them by offering flexible work arrangements, which allow for remote hours and flexible solutions to achieve a work/life balance.

For example,

NORTHROP GRUMMAN has partnered with the **Society of Women Engineers** and **iRelaunch** to hold a **12-week returnship** program for people who took a career break. This is for a range of people, such as those who took time out to care for children or family members, many of whom are women. It has been designed to help prepare them to return to careers that align with the company's key jobs. A lot of women find themselves falling behind in current engineering trends, simply due to a career break, especially when starting a family. If a man wishes to start a family, a long-term career break is rarely needed. Similarly, caring for elderly or unwell family members often falls onto women's shoulders, whereas it is less likely to be the sole responsibility of a man. There are of course exceptions to the rules, but Northrop Grumman understands that many women struggle to get back into engineering after a career break, often one that was unavoidable.

3M is empowering women engineers. According to Catalyst, **3M has an award-winning program** aimed at accelerating women's leadership. The program "comprises of a variety of talent management and leadership development components, including networking, mentoring, talent development, work/life, and workplace flexibility programs, and external community efforts." These are all forms of support that make it easier for women to navigate the engineering industry.

NOKIA one of the world's most well-known companies, is creating a more inclusive workplace with a **3-year Inclusion & Diversity strategy,** established in 2021 to positively differentiate Nokia from its competitors by focusing on setting a global gender diversity target. Nokia I&D stays relevant by targeting company operations, strategy, and business objectives. They focus on specific areas: Diversifying Nokia's talent pool. They set women hiring targets and are aiming for **30% of corporate CSR** spend is focused on empowering diversity programs. Creating a culture of high inclusion. Logging year-on-year improvements in employee inclusion experiences in business groups and functions, based on the yearly Inclusion Survey results. Being the preferred choice for customers and investors by role modelling best I&D practices. To score above the industry average in external benchmarks that are visible and accessible to customers and investors.

According to Nokia, awareness is the first major step in supporting women engineers and recognising the imbalance between genders within the sector.

Schneider Electric has a global presence in over 100 countries. The global leader in power management has also adopted a hiring policy to ensure gender equality in the workplace. Their 2025 ambition includes a **50/40/30 model,** which means women must comprise **50%** of all hiring, **40%** of frontline managers, and **30%** of senior leadership. They have also launched a global leadership program called the **Schneider Women Leader's Program (SWLP)** for high-potential mid-career women. The nine-month long coaching and virtual workshop experience culminate in a three-day virtual global summit.

EDWARDS a multinational vacuum pump manufacturer is a member of **WISE (Women in Science and Engineering).** Their goal is for women to represent **30% of the STEM workforce in the UK**. In 2020 women represented **29% of the people hired through their Early Careers programs**. Increasing the number of women in Early Careers is critical to their long-term goals and key to driving an inclusive culture. They have also launched several diversity and inclusion-centric programs and workshops in an effort to minimise gender bias.

Mentoring

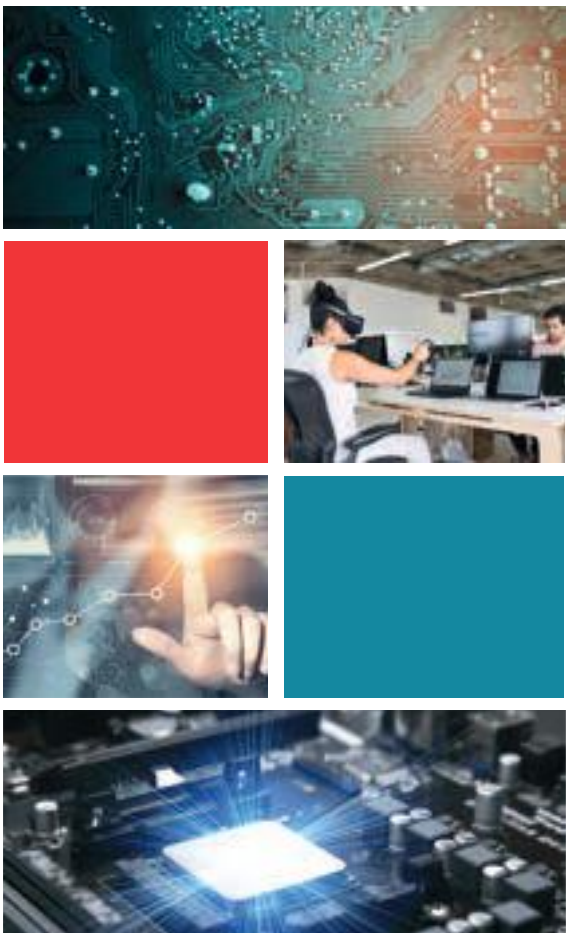
One of the most effective ways of empowering and supporting women engineers is by providing mentorship programmes, which can play a vital role in helping them thrive in their careers.

Research has shown that appropriate mentoring is a mechanism proven to recruit and retain more women in engineering. The value of mentorship is irreplaceable. Finding a mentor early on can do wonders for the amount of job satisfaction, thus leading to a higher retention rate.

Not only does mentoring provide information, guidance to teach techniques, and advice when it's needed most, but it also creates a supportive community of individuals, all of which are working together to empower women in a largely male dominated industry.

- Additionally, in the context of higher education, it has been found that women who were assigned a female mentor experienced more belonging, motivation, and confidence in engineering, better retention in, and greater engineering career aspirations.
- Women role models improve students' performance and retention by reducing concerns about representing one's group in a stereotyped domain.
- Exposure to relevant role models increases career motivation and academic and career aspirations.

For many technical companies, laying this mentorship groundwork begins with industry partnerships. For example, Dell has partnered with the Women's Business Enterprise Council (WBENC) to offer targeted programs supporting women technology business owners. Similarly, **US-based Million Women Mentors** is an organisation that is working hard to support careers in STEM by connecting mentors with people moving into these careers. This type of mentoring encourages and empowers personal development, and it helps women achieve career goals that could otherwise seem out of reach. It's also a great way to identify and correct gaps in generic skills and knowledge, and even boost confidence. It's likely that women will feel more inspired to develop and progress a career in engineering and tech when they know mentorship is available.



Teaming with a mentor is a career strategy, especially for women in unbalanced work environments like engineering. The majority of successful women time and time again credit their participation in some sort of mentorship for dramatically helping them reach their career goals.

However, even with mentorship, the fact still remains that women in STEM careers have higher attrition rates than their male co-workers and women in careers outside of the STEM disciplines. Addressing the reasons why the attrition rates are higher is important for starting the discussion and correcting the problem. Researchers are exploring factors that possibly overwhelm women in STEM fields, including extreme work schedules, more frequent disciplinary actions, and unclear rules about advancement.

Addressing the Skills Gap – Offering Upskilling and Training

Many businesses underestimate the importance of addressing the engineering skills gap, even though doing so could have several positive ramifications for the company. With more skilled workers, there's a broader talent pool to choose from, and this increases the potential for success within the business.

This lack of qualified personnel also has several impacts on businesses. It can cause:

- A loss of productivity and revenue
- Lower levels of morale
- An inability to expand the business
- Increases in stress and sickness
- A higher rate of staff turnover
- Lower-quality work
- Ineffective staff management
- Unsafe work environment

Research shows companies that are gender and ethnically diverse outperform their peers on economic performance.

Businesses need to offer upskilling and training opportunities, especially to women, as many are being held back by a lack of skills and experience. Studies show that with fewer training opportunities available, many women find themselves unintentionally falling behind. Offering upskilling and training also helps diversify the workforce, which brings with it a greater range of ideas and opinions, some of which are sure to turn into an innovation.

Upskilling can include:

- Someone improving or perfecting a skill they already have so they can do their work at a higher level.
- Updating an existing skill or skill set to keep up with changing requirements.
- Someone learning a completely new skill or skill set.

Addressing Hiring Bias

Numerous studies show that hiring bias exists, which leads to decreased rates of satisfaction, and retention, and it needs to be addressed more often. However, some businesses are starting to do so, and as a result, this is increasing the number of women they hire in high-technology and engineering roles. It's not always intentional but some hiring managers may find themselves subconsciously drawn to male candidates. It's not uncommon for a woman's application to be overlooked simply because she is a woman, despite having the same skills and experience as men who are given the job.

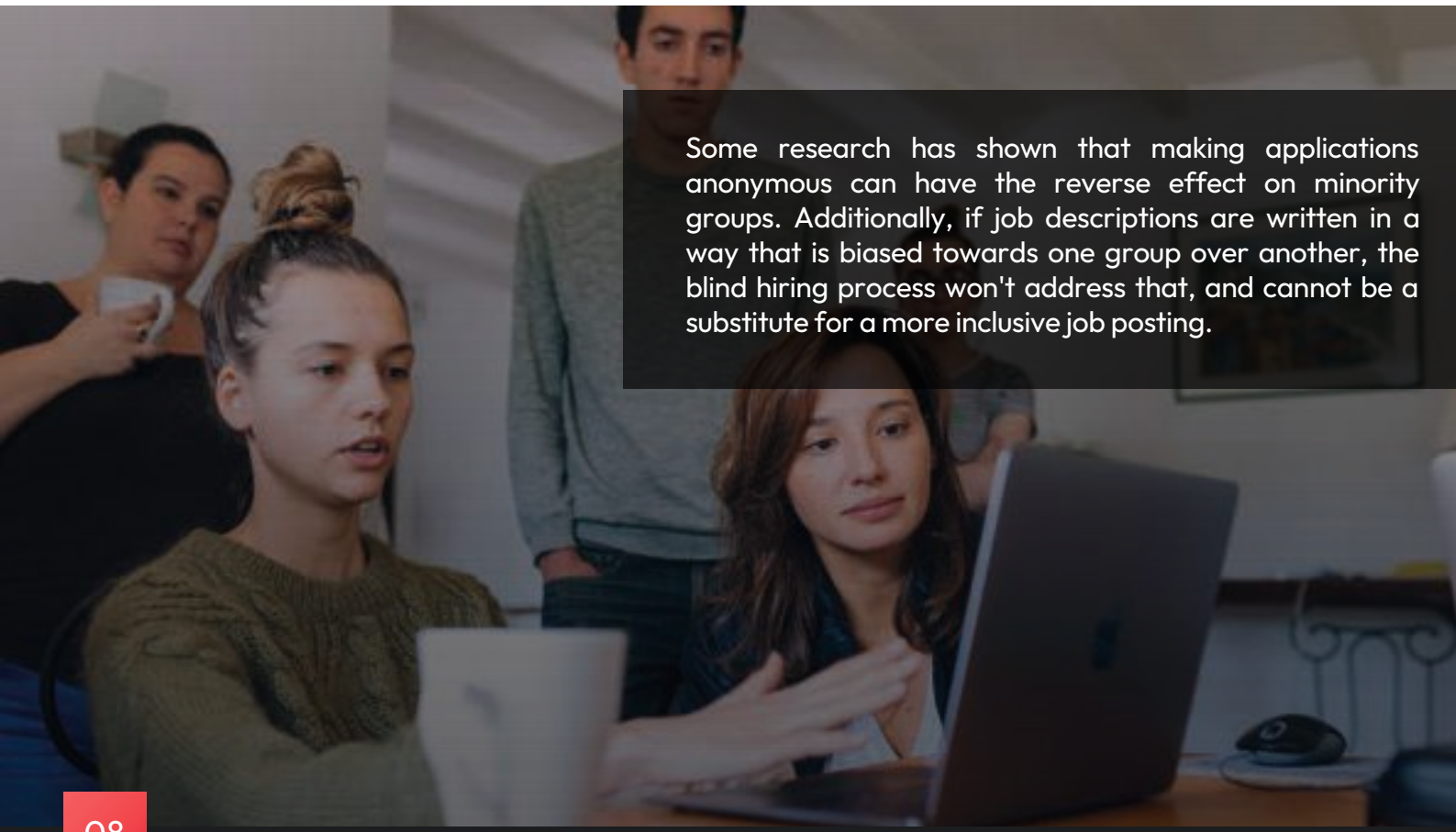
Also referred to as implicit bias, unconscious bias favours one segment of work over others. The favouritism is considered subtle, as the person exhibiting the prejudice is often unaware the discrimination exists. Four ways to reduce bias include:

- Establish a structured interview process
- Become aware of your biases
- Pay attention to how you feel
- Make data-driven decisions

To combat this, some businesses have started removing names, photos, and other gender identifying details from applications. When a CV or cover letter is reviewed, it's impossible for them to know if the candidate is male or a female. By doing this, everyone is judged on their professional merits, eliminating unintentional gender bias.

Tools such as **Blendoor**, **GapJumpers**, and **togglhire** are all helping talent decision-makers make better and fairer talent decisions. Such tools are assisting with the blind hiring processes and are a practical component of recruiting efforts.

If you're considering creating a blind hiring process, it is best to first create a goal around what you aim to achieve. For example, your business might have a goal of increasing the number of women executives. Decide what parts of the resume you'd like to redact and train your hiring managers and recruiters on unconscious biases, and the value of diversity.



Some research has shown that making applications anonymous can have the reverse effect on minority groups. Additionally, if job descriptions are written in a way that is biased towards one group over another, the blind hiring process won't address that, and cannot be a substitute for a more inclusive job posting.

Gender Bias In Job Advertising

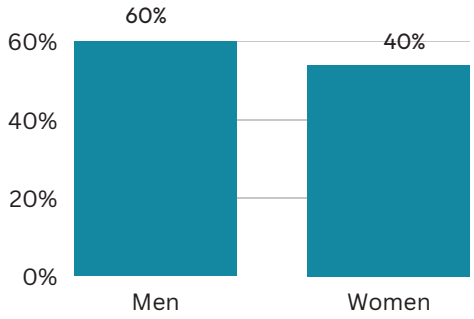
A new study supported by the Economic and Social Research Council and the Social Sciences and Humanities Research Council under the scheme of the Canada-UK Artificial Intelligence Initiative analysed a dataset of

11.2 Million

digital job advertisements and provides new evidence on gender bias in online STEM job postings published by UK employers between 2018 and 2020.

The study found the wording of job postings across most STEM industries and occupations in the UK to be biased toward traits and social-psychological cues that are masculine and are likely to attract male job applicants whilst deterring female candidates.

A clear gender bias was seen in STEM occupations in STEM industries, having the highest percentage of men (60%), while non-STEM occupations in non-STEM industries have the highest percentage of women (54%). Among the 20 occupations that have a larger proportion of men than women were electrical and electronic trades, engineering professionals, and production managers.



Further analysis of the data showed that the gendered workforce compositions across STEM industries and occupations are closely associated with gender bias in STEM job postings. Therefore, in STEM industries/occupations where the job postings are male-biased, the workforce is more likely to be composed of a larger proportion of men and more likely to be male-dominated.

Some corrective actions to eliminate these biases were also suggested. These include:

- Establishing contact with and attracting a wider pool of candidates by posting on different types of job advertising platforms that can reach diverse demographics.
- Using tools such as gender checkers to analyse the extent to which the language used in job postings is inclusive and not (gender) biased.
- Diversifying hiring teams to allow for diverse input in the formulation of the job description avoiding male-dominated interviewing processes.
- Developing training programs to help hiring teams avoid unintentional bias in developing skill matrices, job postings, and recruitment strategies.

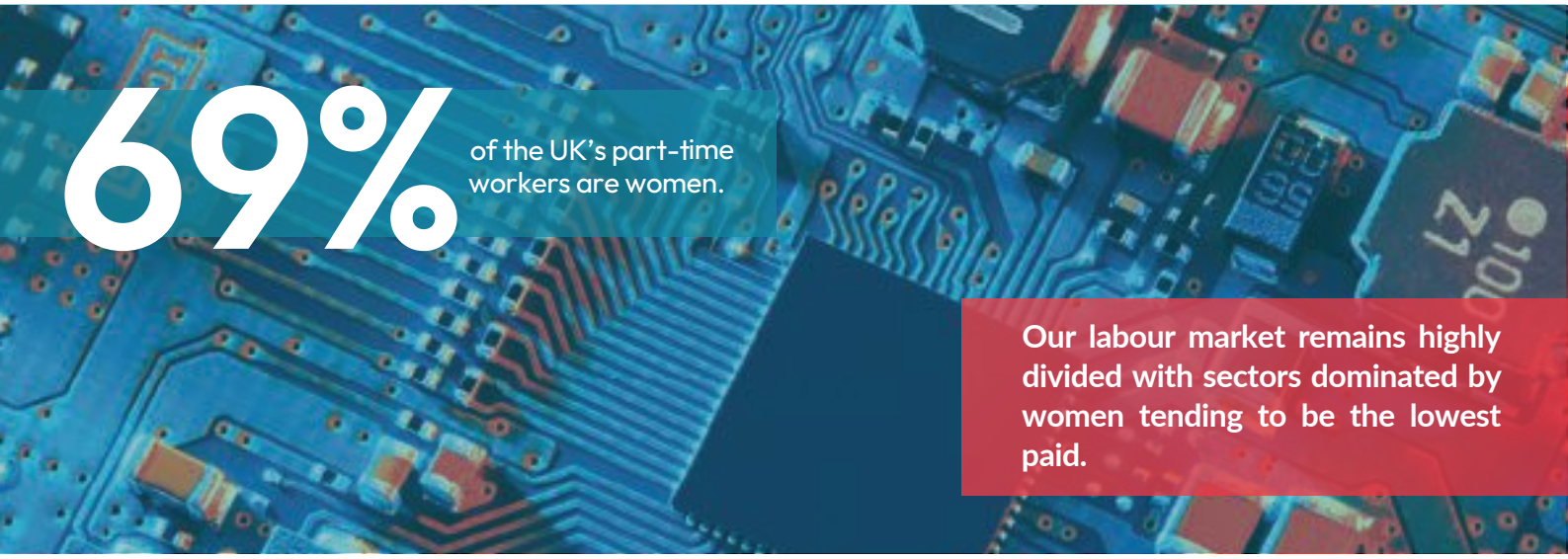
The language and wording used in UK STEM job advertisements are biased toward a masculine orientation.

The Gender Pay Gap

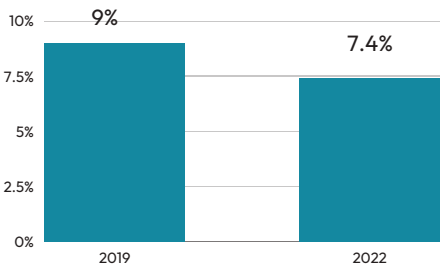
Choices made by boys and girls about their academic careers from GCSE through to university influence the jobs they enter after graduation. Some types of jobs are paid more than others, and men are more likely to go into higher-paid work than women because of the academic choices they have made earlier in life.

The 2022 Gender Pay Gap report from the Office for National Statistics provides the clearest insight into gender pay by analysing age groups. For groups aged under 40 years, the gender pay gap for full-time employees (which is a more homogenous basis than all employees for measuring differences in hourly pay) is low, at at 3.2% or below. This has been the case since 2017. However, for age groups aged 40 to 49 years and older, the gender pay gap for full-time employees is much higher, at over 10.9%. Their 2019 analysis explored the types of occupations that men and women work in, by age group. It flagged a lower incidence of women moving into higher-paid managerial occupations after the age of 39 years, at which point pay in these occupations increases.

Besides these imbalances, women have often been socially conditioned from a young age to take on more caring roles, which often means that they don't have as much time to invest in their careers. The lack of investment in their engineering and technology careers translates into lower wages and fewer opportunities for promotion or raises. The report shows that a significant proportion of men are employed at higher grading levels whilst a high proportion of women are part-time and employed at lower grading levels in support roles (corporate and operational) which also skews the average.



However, since gender pay gap reporting came into effect, a lot of industries have seen their pay gaps drop and engineering is included in this. Whereas the gender pay gap for full-time employees was 9% in 2019, it fell to 7.4% in April 2020. This shows that things are moving in the right direction, but there is still a long way to go.



A Deloitte study has predicted that men and women will not achieve pay parity in the UK until 2069. The study recommended that businesses looking to close the pay gap should publish detailed pay gap reports, offer more support to women returning to work, and provide practical career insight to policymakers and educators.

Deloitte found that the gap in starting salary for STEM graduates in STEM jobs was smaller than for any other subject–but that up to

70%

of women STEM graduates were not working in relevant fields, even though girls outperformed boys in all STEM subjects at A-Level.

50%

of women in STEM careers drop out of their field within the first 12 years.

The lack of women engineering talent is a particular concern in the green jobs market. Only

16.5%

of UK engineers are women, a lower percentage than in any EU country, and LinkedIn data reveals that

81%

of women believe the technology industry would benefit from having a gender equal workforce.

2/3

Two-thirds of workers transitioning into green jobs are male.

Women themselves can also help to drive change by demanding pay gap data. Many of those who expected to see pay gap data said a large gap would be a dealbreaker, while of those who didn't, many had never realised the information was available. Clearly more needs to be done to publicise pay gap reports and make them more easily available.

Transparency of Pay

Access to technology and data is creating increasing transparency in all areas of life – and salary data, pay fairness, and pay equity in particular are no exception.

There needs to be more transparency of pay within STEM, as this will help women build a strong career alongside their male counterparts, without being held back by lower wages. According to BCSWomen, women are discouraged from entering the IT industry as they know that they will not earn as much as a man working in the same role. The organisation - which offers support to women in the Information Systems and Technology community - found that "the gross weekly rate of pay for women IT specialists is 16% less than the comparable figure for men working in IT roles." With transparent, and subsequently, equal pay, this could be avoided.

If a business wants to make the most of this transparency with a view of getting fair pay right, the focus should be on getting the right balance between organisational transparency, and individual privacy.

While pay transparency policies have brought businesses public goodwill, Uber, BBC, and Google have all become ensnared in controversies over alleged gender pay gaps.

The UK government launched a pay transparency pilot on International Women's Day 2022, with participating employers publishing salaries on all job adverts and pledging to stop asking candidates about salary history. At the same time, the government launched a 'returners' programme to provide training and employment support for women returning to STEM after taking a career break to care for loved ones.

Meanwhile, the EU's 2021 Directive on Pay Transparency and Equal Pay, published on 4 March 2021, aims to help close the gender pay gap by giving workers more opportunities to gather the data they need to call out unequal pay.

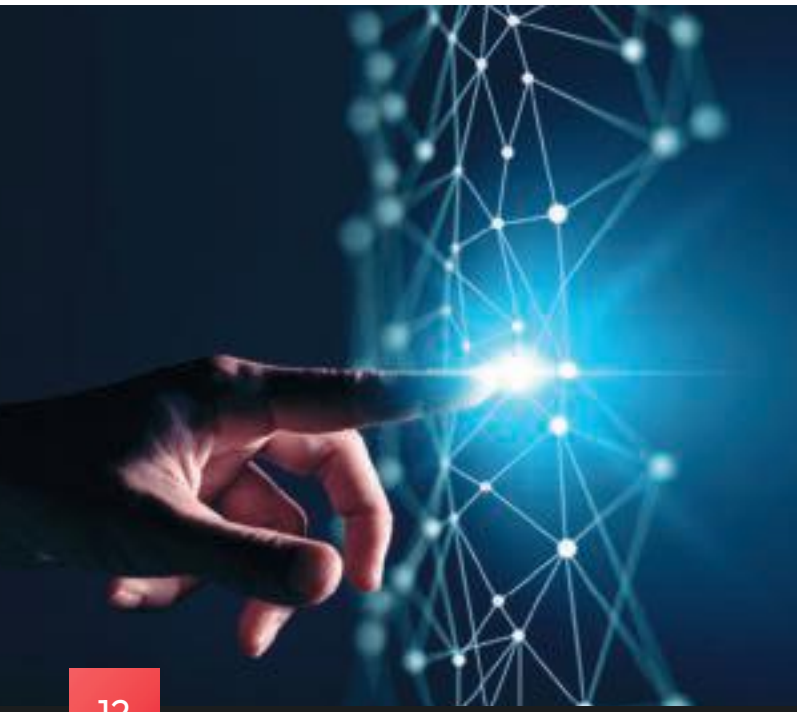
The Directive's two objectives are to:

- **Empower workers to fully enforce their right to equal pay**

  bringing instances of pay discrimination to light through transparency and giving workers the necessary information and tools to act on it; and

- **Address the systemic undervaluation of women's work at the employer level**

  through transparency and correcting biases in pay-setting mechanisms that perpetuate the undervaluation of work done by women.



Studies back up the importance of pay transparency, with 67% of people polled by Glassdoor saying salary was the most important factor in a job advert. A Fawcett Society study found that questions about salary history impact confidence in pay negotiations for both women and men, but place women at a particular disadvantage, with 58% believing they received lower salary offers as a result.

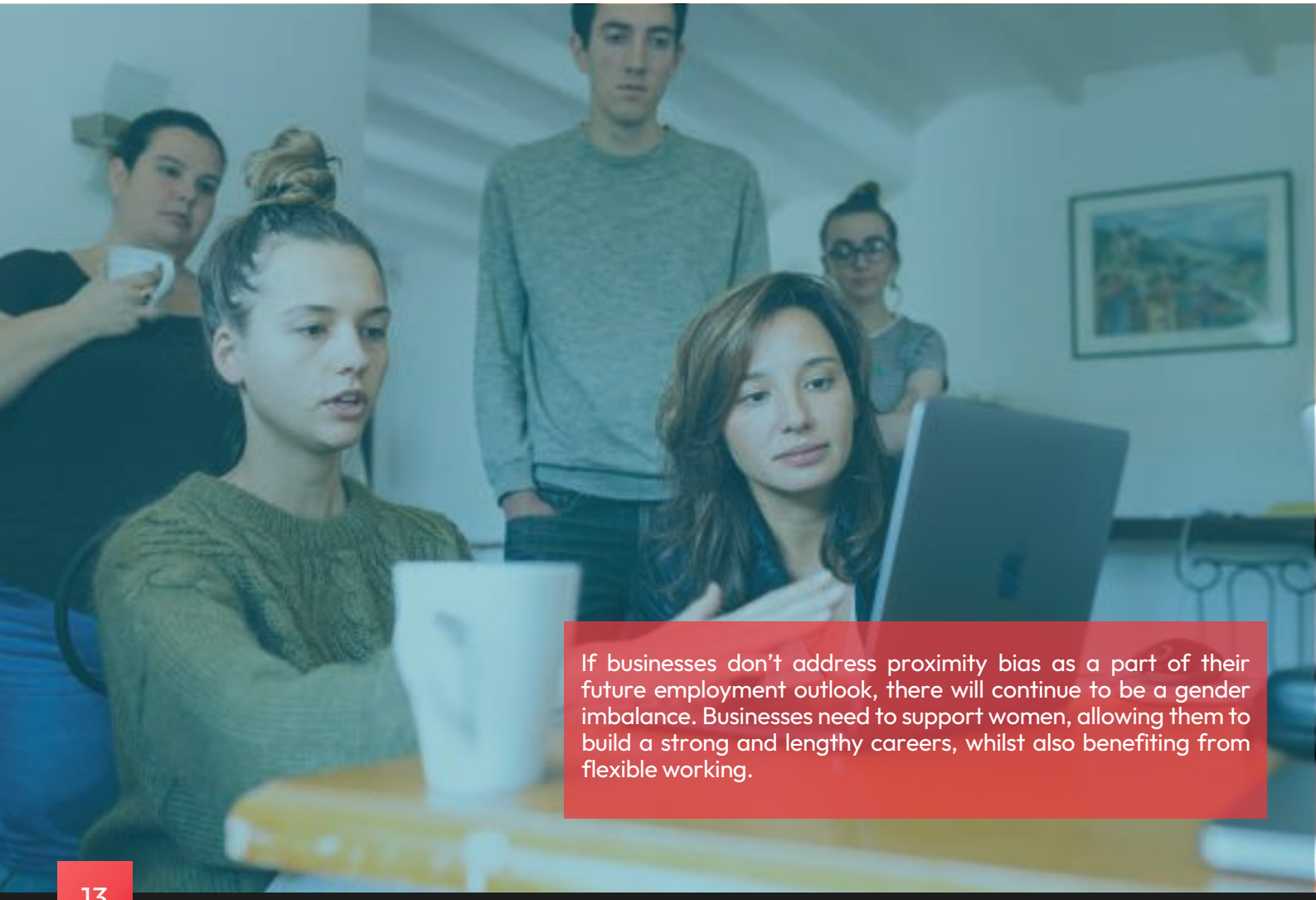
Proximity Bias

Women, often fall behind in engineering and tech because of proximity bias. The recent shift to remote and hybrid work has created a "visibility" concern for many employees. Proximity bias describes how people in positions of power tend to treat employees who are physically closer to them more favourably, and arise from the antiquated assumption that those who work remotely are less productive than those who work from the office.

Someone in physical proximity to their team will be perceived as being a better employee. They might be given preferential treatment or chosen first for career progression, or they might fall out of favour for requesting greater flexibility of remote working. This often leaves those who work from home at a disadvantage. As it's often women who need to work from home to manage childcare and family responsibilities, they may suffer the consequences of proximity bias.

This concern is not unwarranted. Last year, the Society for Human Resource Management (SHRM) released findings from a survey of more than 800 supervisors. SHRM reported two-thirds (67%) of supervisors overseeing remote workers admitted to believing remote employees are more replaceable than individuals based onsite. Forty-two percent said they sometimes forget about remote workers when assigning tasks. This may explain why remote workers get promoted less often than their peers.

When proximity bias combines with an unconscious gender bias, the result is a toxic brew that has the potential to seriously harm organisational cultures and undermine diversity, equity, and inclusion efforts. Some ways to combat this are by instilling an "excellence from anywhere" culture, mitigating face time concerns proactively, and pushing for equal treatment.



If businesses don't address proximity bias as a part of their future employment outlook, there will continue to be a gender imbalance. Businesses need to support women, allowing them to build a strong and lengthy careers, whilst also benefiting from flexible working.

Future Employment Outlook

Now more than ever, the power of engineering and technology to foster development and growth is evident. From simplifying everyday activities to ground-breaking interventions, the impact cannot be over-emphasised.

The jobs market is continually changing in response to technological developments. Robotics, 5G, IoT, artificial intelligence, 'big data', Industry 4.0, and information technology, in general, are changing today's workplace. Different skills are continually needed to perform the valuable jobs in an information-based and digital world.

Employment growth in engineering and high-tech occupations average in EU27 over the period 2020-2030 is estimated at **12.3%**

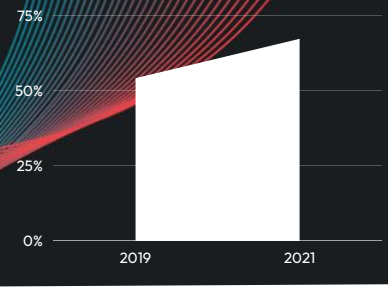
Instead of technology simply replacing labour, there is a strong relationship between technological advancement and job creation. In the future businesses will need a range of social and cognitive skills, such as management capability, creativity, and complex problem-solving.

New jobs are being created in various sectors of the economy, not just in engineering and high-tech occupations. However, jobs created in the scientific and technical sectors pay significantly more than new jobs in health, social work, and education.

Jobs that are futureproof include STEM-related jobs that men are more likely to take after graduation than the caring and education-related jobs that women are more likely to take. Analysis also suggests that, on balance, the impact of technology on future jobs will be 'gender-neutral'.

Considerable support exists for women in engineering and technology at a government and policy level. In addition to its pay transparency pilot and "returners" programme for women in STEM, the UK government has set a goal of increasing the number of women entrepreneurs by 50% by 2030 and launched a Taskforce supporting female-led start-ups — which includes engineering and tech. But more affirmative action is also needed from businesses and institutions.

According to STEM Women, the number of poll respondents who said a company's gender balance would influence whether they accepted a job offer rose by 13% between 2019 and 2021, from 54% to 67%.



Providing mentoring programmes, supported learning opportunities and community networks for women, promoting more women to leadership roles, and encouraging women to lead high-visibility projects are all important to give women the role models and confidence they need to pursue engineering careers. This could unlock a huge untapped pool of female talent: evidence suggests men often apply for roles where they only meet 60% of the job criteria, whereas women tend to apply only for roles where they're a perfect fit.

Working in engineering and tech has several dynamics and the accompanying benefits - ranging from competitive pay, often flexible work hours, health care insurance, skills enhancement, paid parental leave and job security continues to make the field attractive.

Conclusion

Despite notable advances in many forms of technology, the labour market in the 21st century remains unequal. Women have been underrepresented in engineering and technology for centuries, but recently there has been a considerable increase in their participation. This is due to several factors such as society's acceptance and recognition of women's ability to work in such fields, and more support for girls pursuing these careers. In addition, many programs exist to encourage girls to enter the world of science, technology, engineering, and mathematics (STEM). These programs range from sponsorships that offer hands-on experience with robotics, to mentoring programs where organisations work with younger girls interested in STEM fields.

However, there are undoubtedly challenges faced by women engineers even today. Women engineers face many hurdles that their male counterparts in the industry do not have to think twice about. For example, they are often paid less than men and are regularly overlooked when it comes to promotions.

Since the gender pay gap has various causes, no single measure will be sufficient to eradicate it. The problem partially lies in the choices made by girls and boys at school about the academic subjects they take and consequently the skills they acquire in their learning.

Therefore, it's important for businesses to empower women engineers, and to ensure that women are given the same if not greater support and opportunities as men in the engineering and technology sector.

Job opportunities will continue to grow in an increasingly technological workplace, and ability in STEM subjects also drives up median pay. Without a change in perceptions by women (and probably also of women) the skills gap that begins to emerge at school age will not disappear.

If more women are encouraged to study STEM subjects and subsequently given the support they need to apply their skills in business, we not only prepare them for the future world of work but simultaneously tap into the huge latent potential of women engineers and high-tech professionals.

Our recommendations include:

Education

As Sir James Dyson highlighted in the Telegraph, we "need to double the number of engineering graduates..for the next twenty years"--and that demands a revolution in the National Curriculum, encouraging girls as young as 7 to develop the design, building, and critical reasoning skills that are crucial for a career in engineering.

Busting Stereotypes

A Girlguiding UK study has found that 62% of 11-21-year-old girls still think STEM careers are just for boys. Organisations need to banish the stereotype of hard hats and dirty overalls and make sure young women are informed about the exciting reality of modern engineering.

Women entering engineering and technology fields not only need more support in terms of policy and legislation but also more media attention to dismantle stereotypes.

Flexibility and more support for women returning to work

Flexible working is another vital piece of the puzzle. A large majority of women with expertise in STEM subjects are not working in industries that require these skills. The consequence of this 'missing talent' is two-fold: a disproportionate number of women are working in roles that are not well paid, and the economy as a whole is missing out on a hugely valuable pool of ideas and skills

Women unfortunately still carry a disproportionate burden of care responsibilities; as well as offering structured support for women returning from maternity leave, companies also need to shift the balance by offering fathers as well as mothers adequate parental leave and flexible working options–and creating a culture where fathers are encouraged to take equal advantage of those options.

Publish information on the gender pay gap

As more organisations publish details of their gender pay gap, the additional scrutiny applied will act as an incentive for action. By business publishing more sensitive data it will speed up the time it takes to achieve greater parity.

Equal Opportunities

The call for a more diverse workforce — from the movies to the boardroom to the engineering laboratory — is rightfully a large part of today's public discourse. Nowhere is the lack of talented women more apparent than in the fields of engineering and technology.

As new technologies emerge the engineering industries face talent shortages, and there is currently a unique opportunity to draw from and develop an underutilised talent pool. In making the engineering and tech workforce more diverse, it should tackle biases and reduce barriers for women, creating a mutually reinforcing cycle that pushes toward greater gender equality in the workplace.

The industry must recognise the importance of creating an environment that fosters STEM talent and encourages growth, highlighting 'unconscious acts of bias that frequently occur' in workplaces. By identifying a need for diversity training to combat 'conflicting role expectations, feelings of a lack of authority and interpersonal cues indicating gender bias.'

The greater the diversity of talent, the more opportunity for innovation and growth.

Discovering and nurturing the next generation of engineers is critical to the economy and whilst areas are improving, there is still considerable work to be done on closing the gap between the men and women in engineering and technology sectors. By making a conscious effort to support women engineering talent, organisations can pave the way for a significant increase in both revenue and innovation.

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Contacts

Adam Walker
Director
+44 (0)1582 878802
awalker@redlinegroup.com

Natalie Tyler
Associate Director
+44 01582 878808
ntyler@redlinegroup.com

Peter Livingstone
Director of Contracts & Interim
+44 (0)1582 878852
plivingstone@redlinegroup.com