Focus: Women in IT

Your expert guide to the shifting landscape of gender and diversity
In this e-guide:

Diversity has been an issue in the IT industry for a long time, and the number of women choosing IT for a career has been stagnant over the last few years. Many firms have been trying to shift the dial to increase the number of women they have in their technology remit, but the number of women in tech has stayed steadfast at around 16%. This guide offers a collection of articles highlighting some of the prominent issues surrounding increasing the number of women in the IT industry, as well as some of the solutions that will help increase the number of women in the IT industry proposed by those on the front line. Maggie Philbin, the 2016 winner of the Computer Weekly Most Influential Woman in UK IT award talks about increasing technology diversity across the pipeline, and self-proclaimed geek Sue Black discusses how the number of women in technology has fluctuated since the 80s. These articles encompass how the industry as a whole is trying to tackle a lack of diversity in the technology sector, and how it hopes the gender landscape will look in the future.

Clare McDonald, business editor
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### Everywoman Forum 2017: Diversity, digital and the impact on the working world

**Clare McDonald**, business editor

Technology is disrupting all industries at a rapid pace, with artificial intelligence (AI), 3D printing, robotics, augmented reality (AR) and automation all changing the way people live and work.

During the 2017 Everywoman Forum, Maxine Benson, co-founder of the women’s network, said technology is shaping society so rapidly that it “would have been seen as science fiction” just a decade ago.

Meanwhile, the world’s political landscape is changing. The election of Donald Trump as US president is already having an impact on the IT industry and the UK’s decision to leave the European Union has caused uncertainty in the sector.

Diversity is becoming increasingly important in businesses to give them a competitive advantage, and the Everywoman Forum addressed some of the areas that firms must consider to stay relevant in the modern age.
Everywoman found that 70% of its members think women are more risk adverse than men, and are less likely to take an opportunity if they think there is an element of risk involved.

Nick Telford-Reed, director of technology innovation at Worldpay, said organisations should create an environment where people feel “comfortable” taking risks.

“It’s got to be OK that a lot of the things you try will not work and to celebrate that those things didn’t work,” he said.

**Learning from mistakes**

To promote a good environment for failing fast and learning from mistakes, Telford-Reed suggested using technology to increase collaboration between teams. “If you can create that collaboration and constant communication between people, it is incredibly empowering,” he said.

Research shows that only one-fifth of small businesses are started by women, and this is often because women do not feel they are well-equipped enough to take the leap into the startup world.

But Elspeth Briscoe, founder and CEO of MyOnlineSchool, said failing at something is seen differently by entrepreneurs than it is by larger businesses. “Unless you are prepared to put yourself out there and fail, you can’t innovate properly and you can’t be an entrepreneur,” she said.
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The agile “fail fast” ethos is often attributed to startups, and many of today’s larger businesses are still referred to as startups because their internal culture promotes this behaviour.

Ariane Gorin, senior vice-president and general manager at Expedia, said resilience is extremely important for entrepreneurs because they often have to rely on themselves to keep trying after a failure.

Failures should be looked upon as a learning experience, and by choosing not to take risks, firms are putting themselves in more danger by not innovating, he said. “The price of doing nothing is higher than the price of doing lots of little things and having one succeed and the rest fail.”

Future of the workplace

The growth of entrepreneurship and the embracing of a startup-like culture within organisations, combined with increased adoption of technology, is changing the way people view the workplace. In some cases, the traditional workplace no longer exists, replaced by using technology to work from anywhere.

Nicola Millard, head of customer insights and futures at BT, said this new environment, with people “untethered” from their desks, has resulted from technology and workplace diversity, and is killing the era of the “Dilbert” – the stereotypical IT guy who has to be at his desk at all times.
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Millard said tech adoption and concepts such as flexible working are driving trends such as more diversity, a breakdown of the “computer says no” attitude and the death of the nine-to-five job.

Offices need to be redesigned to become “dynamic spaces” built for collaboration, rather than somewhere that must be visited – and the office can no longer be a “one size fits all” space, said Millard.

She pointed out that firms know they have to increase the diversity in their workplace because a lack of diversity often leads to a lack of innovation.

**Growth of diversity**

Growth of diversity in the modern workplace is also driving flexible working. For example, by offering workplace flexibility, BT sees 98% of its female employees choose to return to their roles after maternity leave.

Thousands of jobs are likely to be automated in the next 20 to 30 years, but research shows that people with jobs requiring emotional intelligence have less chance of their role to a computer in the future.

Millard said the future of automation and robotics for the workplace lies in using technologies to take the stress out of work while still being creative.

“We are versatile, we can be innovative, we can be creative – all of those things are difficult to programme into a machine learning engine,” she said.
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But the problem of distance between workers – which technology aims to tackle – is “not dead”, said Millard, because nothing beats a face-to-face conversation.

“Face-to-face is by far the easiest way to build strong ties and trust, but it is increasingly becoming a luxury,” she said. “I work for a telecoms company, and we’re trying to kill distance.”

Communication in the digital age

But even if distance is not dead, there are many other things to consider when using technology to communicate.

More employees are interacting digitally through emails, conferencing systems or communications software, and it is increasingly important for brands and individuals in particular industries to have a social media presence.

Anna Lawler, director of marketing at VMware, said that when using social media, it is helpful to have a strategy behind the channel you are using and the message you want to get across.

To ensure engagement with others through social channels, Lawler emphasised the need for “relevant content” and actively participating in the community, rather than letting your online presence stagnate.
Different channels require slightly different approaches, she said. For example, people on Facebook are more likely to be your friends, whereas LinkedIn is more for professional connections.

But in either case, Lawler suggested being “genuine” and to “put yourself forward” to make the best impact when communicating in the digital landscape.

“Even if you are posting in a professional capacity, I still think there is room to have a bit of your personality there,” she said. “Ultimately, you are always going to be yourself, but just be mindful if you are representing a corporate brand.”

**Face-to-face communication**

Moving the relationship from online to offline is important, especially in a business context. But where technology has to be used rather than face-to-face communication, Niki Dow, senior director of technical communications at ARM, suggested using some form of video for important communications.

Between 50% and 90% of communication is non-verbal, made through hand gestures or facial expressions, so care is needed when deciding the best way to put your message across.

Dow said: “You can’t use [non-verbal communication] in a tweet, you can’t do it in email and Facebook, so when you think about the future of
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Communications, I think we’re going to look at tech driving gesture-based comms.”

When communicating through non-gesture-based means, Dow suggested speaking out loud what you plan to write online to hear what it sounds like when read and make sure it comes across as you expect.

“We need to be ready for that and mindful that we are communicating all the time without saying a single thing,” she said.

The younger generation are so adept at using technology that they are often referred to as “digital natives”, so there is a concern that in the future, people will lose their aptitude for traditional communications skills.

Dow said: “When we are teaching our young people how to engage and have a conversation, you have to do it at home and you have to teach them – you have to teach them the art of conversation.”

Younger generation in the workplace

As people born after 1995 – known as Generation Z – enter the workplace, organisations will have to adapt ways of working around this tech-savvy group.
This generation have grown up with technology, they cannot remember what life was like without the internet and they are beginning to outnumber the rest of the population.

Because they are tech-savvy and already have technology at home, they often expect better technology in the workplace than firms can provide.

Tara Beard-Knowland, senior director of Ipsos Mori, said there are many misconceptions about the younger generation that firms need to be aware of so they can properly adapt the workplace to the future workforce.

Common myths surrounding Generation Z include the suggestion that they are lazy, but 61% of 14 to 16-year-olds say being successful involves hard work.

“They want to be successful,” said Beard-Knowland. “The number one thing they say they want out of a career is opportunities for advancement.”

The misconception that Generation Z would rather skip university is also untrue, with 92% of 15 to 18-year-olds believing university is important to getting a job.

Beard-Knowland added: “This is a pretty sensible group of people.”
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Diversity is also important to the younger generation, who differentiate less between gender, ethnicity or orientation, and many think opportunities should be equal for all.

To cater for this generation, employers will need to provide excellent technology, opportunities for advancement and collaborative working environments.

Two young women currently working in the technology sector, Marie Foster, junior DevOps engineer at BP, and J umainah Munim, project manager at Lloyds Banking Group, said technology seemed like a natural step for them because they are always using technology.

Munim said her father had suggested she should pursue a technology career, and had told her: “You are glued to your phone all the time – so why not go into IT?”

**Gender imbalance**

After entering the technology industry, Munim discovered a gender imbalance, but said having some other women around her made her feel more empowered.

“It just really soaked in that this place was full of men,” she said. “In schools, they try to put you in a 50/50 female/male ratio. Although I’m quite fortunate
in my team, when you look across the floor, you realise a big, big difference in ratio.”

Foster said it was “unintentional role models” that led her into the industry, and through these role models she learnt women can be successful in the workplace.

“I wanted to go into the industry and I saw [women] being successful and I guess that normalised it for me,” she said.

A lack of role models is often cited as a reason why young women do not choose to go into the technology industry, but where role models can be found, girls are encouraged to reach for the top.

Laleh Nassiry-Mahjour, chief operating officer at Modern Muse, encouraged Everywoman Forum attendees to make a profile on the Modern Muse application to make more role models accessible to young women and encourage them into the industry.

“With technology ingrained in their DNA, you can imagine how valuable those skillsets could be in companies,” she said.

Resurgence of Girl Power

Research has found that 70% of executives are concerned that within the next two years, their companies may no longer be relevant.
Karen Quintos, executive vice-president and chief customer officer at Dell, said firms are increasingly recognising the role of diversity in keeping businesses relevant. “People are noticing and we are clearly having an impact,” she said.

“The old perceptions are gone. Technology is in every company and it is a catalyst for growth – it’s the reason behind all we can do and enable, and the disruption that is happening.”

More students are choosing to study computing in higher education and Quintos said that not only are more women graduating from university than men, but they have many skillsets and traits that lend themselves to the tech sector, such as flexibility, collaboration and effective communication.

“I am absolutely convinced that, going forward, we are not going to have a pipeline problem,” she said.

After urging more people to start their own business and insisting that “it’s a great time to be a girl”, Quintos said the world needs women “more than ever”.

“As women in the tech field, it is ours for the taking and a brill opportunity,” she said. “Now is our time to step up, now is our time to believe in ourselves, now is our time to embrace all the change happening around the world.”
Closing the tech gender gap requires a shift in culture

Clare McDonald, business editor

The percentage of women working in the technology sector has not changed much in recent years, remaining at about 16%.

But, with the need for skilled workers in the sector growing, there is a danger that ruling out half the population when selecting candidates will make the problem worse.

Cyber security is an area in need of an increasing number of skilled workers, and it is argued mentorship and other initiatives should be put in place to make the space more attractive to diverse candidates.

Lanita Collette, Northern Arizona University’s information security officer, said some roles have fewer women than others, and that this often down to negative stereotyping of the types of people holding tech jobs.

“We have a cultural problem, even within a supportive institution,” she said.
According to Collette, people working in IT security are often thought of as “cyber-warriors”, with cyber security roles still perceived as “aggressive, traditional and male orientated”. She said the message needs to change.

Haiyan Song, senior vice-president of security markets for Splunk, claimed changing these perceptions was not just up to the firms advertising cyber roles.

“There’s an image, a stereotype,” said Song. “Hollywood needs to make more movies where the geeky hoodie head isn’t representative of people in cyber any more.”

Culture change is a group effort

As well as the negative stereotype surrounding some tech roles, the women on Splunk’s panel agreed that the culture of an organisation can also contribute towards putting off minorities from applying for technology roles.

To make a role more “attractive” and “inclusive”, the culture of the team is very important, as is creating an environment that people want to work in.

But, according to Song, to steer the culture of an organisation, everyone needs to be on board. Acting as the glue of a community is something women are particularly good at.
More than a gender gap

Diversity is coveted in teams, as diversity of employees encourages diversity of thought, but firms often focus too much on technical skills when hiring staff, without considering what other skills are needed for tech roles.

Tina Thorstenson, acting vice-president and chief information security officer (CISO) at Arizona State University, said as the tech industry has grown, people who could be trained to fill a role are overlooked in favour of the few people who have the technical skills needed to walk straight into a role, which has led not only to the gender gap, but also the skills gap.

Not only are employers failing to consider soft skills, but many also still suffer from an unconscious bias, making them more likely to hire people who are like them, leaving out the diverse applicants.

“It’s so important that we don’t have this vision of exactly what the team make-up needs to look like,” said Thorstenson.

Hiring, retaining and mentoring

Once the culture of an organisation is more inclusive, and women and minority groups begin applying for roles, the diversity of skills in those hired must also be looked at.
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There has been a shift towards hiring people with softer skills and training them on the more technical side of a role, with communications and teamwork skills now equalling the importance of tech skills in potential candidates.

“I hire engineers and architects and analysts, and they all need to be able to have a conversation with students, frontline staff, managers or a vice-president, and they need to be able to speak to our executive team and cut to the crux of the issue.”

Once people are on board, however, keeping them can often be an issue.

“The way you keep people is by empowering them; you give them something new and fun and interesting,” said Thorstenson.

**The power of empowerment**

The panel pointed out that the average amount of time a CISO will stay in a job is 18 months, and many women drop off in their careers at a certain age when work is perceived to be inflexible.

Thorstenson said: “A lot of women don’t go into these roles because of the hours and the expectation you have to be available all the time.”

Julie Tablot-Hubbard, head of information security operations at SunTrust Bank, said many employees will leave an organisation when they feel they
can no longer make a difference or if they don’t feel supported and appreciated.

Thorstenson added: “Empowering your employees or team means to guide development and drive things. You’ve got to build a relationship and support for the team.”

**Giving women confidence**

**Imposter syndrome** – the term used to describe accomplished individuals who lack confidence their own abilities regardless of how competent they are – is often associated with women in the IT industry.

Thorstenson pointed out that many women will not apply for roles due to a lack of confidence, and this is also a huge factor in women leaving organisations: “Young women don’t have the confidence in themselves, yet confidence is a key factor in helping keep them interested.”

To tackle this, Thorstenson suggested sponsoring younger women, especially in male-dominated firms, and ensuring they have the career progression and mentorship they need to stay and grow with a firm.

By focusing on changing culture, removing negative stereotyping, focusing on soft skills and helping instil confidence in female employees, not only will cyber security jobs be more attractive, but firms will be able to retain good
employees. But, as the panel highlighted, this cannot be the job of one person alone – it takes a village.
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Focus on diversity, not gender, says most influential woman in UK IT 2016

Clare McDonald, business editor

Those who are aware of 1970s TV show Swap Shop, and more recently Tomorrow’s World, will know of Maggie Philbin, television personality, radio presenter and advocate for a more diverse technology industry.

Now, Philbin is the CEO of awards scheme TeenTech Awards. She uses her business to give young people the opportunity to develop technologies designed to solve real-world problems, with the hope that it will encourage them to consider science, technology, engineering and maths (Stem) careers in the future.

The 2016 TeenTech Awards was entered by more girls than boys, but Philbin claims the focus in the tech industry should be on diversity and not solely gender.

“It’s really important to think about diversity as opposed to just gender, because if you look across an office, it’s very easy to say ‘we don’t have that many women here, it looks like we’ve got a lot of white middle aged men’, but what you can’t see is people’s social backgrounds,” she says.
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TeenTech makes an effort to ensure its events are advertised and focused in areas of “greater social need” so children and parents of different backgrounds are aware of the opportunities children could have in the technology industry in the future.

The firm does this to avoid “preaching to the converted”, and instead focuses on giving children who may not have a well-connected or informed social background the opportunity to try something different.

"If we address all diversity, other things would start to fall in place as well, whereas if we simply focus on getting more women into companies, we’re not going to achieve what we really need to achieve. We still won’t have diversity, we’ll have gender diversity, but we won’t have real diversity,” says Philbin.

Sparkling interest in Stem

Many firms already know that an increase in diversity will mean an increase in revenue as the firm’s products and services will better reflect its target audience.

Philbin has noticed some patterns in the behaviour of girls who take part in the TeenTech competitions, looking up to girls who have already participated and eventually becoming “evangelists” for tech once they understand its purpose in the wider world.
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“It’s about igniting an interest, showing young girls the relevance of science and technology, showing them where they might fit in,” she says.

Although introducing coding into the curriculum will give children new digital skills and make them more aware of IT, Philbin says there may be too much focus on technical skills, and it is important to let young people know other roles are just as important.

“It’s very useful to have some technical knowledge, but there are a million and one opportunities for working in tech that don’t require you to be a brilliant programmer,” she adds.

These soft skills, such as the ability to communicate and work in teams, are labelled “core skills” by Philbin, and are “hard to teach” skills that a lot of girls naturally have.

The 2016 TeenTech finals took place in London on June 20, and saw 75 girls and 69 boys compete against each other in finalist teams.

Philbin insists this gender split has not been “engineered” by the TeenTech team, but it as a result of the enthusiasm the children felt when attending previous events, and all TeenTech events are usually a 50/50 gender split.
Attracting and retaining talent

This gender balance at the TeenTech awards is down to how the children are approached, according to Philbin. She says an effort is made to ensure a focus is put on what can be achieved through technology, as opposed to an emphasis on technical skills and coding.

“Not everyone has to be a programmer or a coder. It’s also useful to have someone who can tell the story or who understands how to market that product and who will help provide and develop some of the presentation design,” says Philbin.

This approach dispels the attitude many girls have towards technology, no longer considering the subject “too difficult”, and many firms implementing these approaches in their recruitment processes are attracting more women.

Philbin claims firms should work harder to make sure they are visible to children and young people, as many have not had the opportunity to take part in a technology-focused event and may not be aware of the future careers available to them.

“They have no idea ‘X’ company exists or what it does. Companies need to do much more to get themselves on the radar,” she says.
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“When you ask kids what companies they’re aware of, it’s a very narrow list of companies and it’s a narrow number of companies that their parents know about.”

A focus on the recruitment process in firms is also needed to attract talent, according to Philbin.

She says on the bottom of the advert for her first job, it was stated that they could teach all of the skills required for the job if someone was willing to learn, and she would not have applied for the job if it wasn’t for this small inclusion in the advert.

“Understand the skills that someone will need, but also understand what you’re willing to teach somebody,” says Philbin.

“Don’t put people off who would be brilliant, but perhaps don’t have the specific skills that you could teach them. Sometimes, without realising it, you do things in a certain way that means that you lose some of the talent, so perhaps look at those interviewing procedures.”

To attract different types of people to organisations, Philbin claims firms should have the “intelligence” to understand that people are different and will need different things from the workplace.

“Once people have got talent into an organisation, I don’t think they’re always good at hanging on to it,” she says.
“It’s not just a problem of encouraging more women and people from diverse backgrounds, or people of all racial backgrounds into this industry, it’s also about putting certain things in place to keep them.”

**Flexibility for all team members** is an important step forward in encouraging different types of people into all teams, which might mean treating people differently depending on their personal needs.

Philbin says where there is an increase in diversity in teams, internal culture is often slow to change and the environment can still feel male-dominated.

“A lot of companies really want a diverse workforce but are not prepared to change things to achieve it, so they want the diverse workforce, but they want the diverse workforce to work the same way that they’re working at the moment,” she says.

“Those companies will be undermined because other companies will find a way of making it possible for that talent to work. And if they don’t, they will lose that talent, which will obviously be a real pity.”

**Taking steps towards change**

Philbin says she focused on careers she was aware of when she was a child, which included trapeze artist and show jumper.
According to her, visible role models in the industry are very important as a first step towards encouraging fresh talent into IT careers.

“If you’ve got role models, whether it’s your friends or girls in the year above you who have just had great success with something, you know it’s possible. You know that someone like you can do this stuff because you’ve just seen them,” she says.

**How we make these role models visible** to children has changed and, according to Philbin, the new way children consumer content means TV is no longer necessarily a viable channel for the job.

“In this multi-channel age, with all of the content students are looking at on YouTube, there aren’t that many role models of any gender who really cut through.”

Speaking of her project with Haringey Council to determine how to help children in under-privileged areas, Philbin states it is not only a case of offering teachers and parents information about careers, but also supporting children who are choosing to take those career paths.

“If students do choose subjects such as computing, physics or maths at university, it would be great if some of those students – particularly those who come from quite challenged background – had some kind of support,” she says.
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Through her work on the TeenTech Awards, Philbin hopes to reach as many children, parents and teachers as possible to educate them about the possibilities the technology industry can offer through participating in the events.

“The whole point of the TeenTech Awards isn’t just for kids to win awards, but to make a real difference for kids who wouldn’t normally put themselves forward,” Philbin says.

“It’s one thing to tell kids something, but it’s something else for them to actually achieve it.”
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Women in technology – the shifting gender landscape

**Clare McDonald**, business editor

“Women in IT” has become a phrase associated with a battle for diversity and inclusion in technology roles or companies.

In 2015 women were found to make up only 4% of the developer population in the UK, and account for just 16% of the IT sector.

Yet women make wide use of tech products and half of gamers are female. While the figures might suggest that women have little to do with IT innovation, the reality is that women have been involved in the IT industry since the dawn of technology.

It’s difficult to discuss the history of women in technology without mentioning **Ada Lovelace**, the first computer programmer.

Back in the 1830s and 1840s, well before Computer Weekly ever saw the light of day, Lovelace was exchanging frequent letters with Charles Babbage about his Analytical Engine.
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A mathematician and scientist, Lovelace is credited with writing the world’s first computer program in the form of an algorithm designed for Babbage’s machine.

Colleges, schools and initiatives for boosting diversity in IT have all been named after Lovelace to honour her efforts in the technology space.

At the launch of the Ada National College for Digital Skills, Martha Lane Fox highlighted Lovelace’s education in science and mathematics, describing her as a “force of nature”.

War effort

Just as fundamental as Lovelace’s involvement in creating the industry as we know it today were the technology innovators who lived in the grounds of Bletchley Park, on the outskirts of Milton Keynes, during the Second World War.

Nearly 10,000 codebreakers were assembled at Bletchley Park in 1939 to decipher coded messages sent by the Nazis during the war, including cracking the Enigma cipher.

What many people don’t know is that about 75% of those working on the Bletchley Park effort were women, many of them working as operators for the machines used in the codebreaking process.
Outside of Bletchley Park, members of the Women’s Royal Naval Service, the Women’s Auxiliary Air Force and the Auxiliary Territorial Service (the women’s branch of the army during the Second World War) worked as wireless operators to forward enemy radio messages to Bletchley in the effort to win the war.

Bletchley’s saviour

For the conservation of Britain’s Bletchley Park code-breaking headquarters, we have modern female tech powerhouse Sue Black to thank.

Black wrote a book on her experience of visiting Bletchley Park and her shock at its disrepair. She aims to teach people about the women working on the site and gain funding to ensure the site is not knocked down.

Her book, Saving Bletchley Park, was, she said, “an opportunity to try and get people to go and visit Bletchley Park because they still need people to go and visit, they still need funding”.

The founder of the Tech Mums group, which helps mothers to understand and use technology, Black is an example of how modern women are smashing through stereotypical tech barriers to leave their mark on the IT industry.
Call me Steve

One of the first examples of this disregard for barriers is Stephanie ‘Steve’ Shirley. In the 1960s Shirley launched her own company Xansa, which she now describes as “a company by women for women”.

To help gain business in a competitive market, she used the name Steve rather than her own. Her business employed 300 programmers, only three of whom were men. She supported flexible working at Xansa and allowed job sharing where possible.

Now she works on philanthropic projects through the Shirley Foundation to support initiatives in the field of autism spectrum disorder.

She has pledged to help get one million people with Asperger syndrome working in the IT industry by 2020, and supports Abilitynet, which helps disabled people use digital technology to aid their work, education or home life.

The gender crash

During the 1980s initiatives like these were few and far between, and it was in this decade that the number of women in the industry began to drop away.
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Some have suggested that the 80s was when the stereotype of the sweaty male geek coder was formulated, affecting the perception of what someone in IT looks like. There is, however, no solid evidence that this is what led to the decline of a mixed-gender tech industry.

According to research, only 23% of businesses have gender-diverse teams at management level, while the number of women tech bosses doubled between 2015 and 2016... to just 7%.

Initiatives

To address this decline of women in tech, Black founded BCS Women in 2001 to build a network for women still persevering with careers in technology.


BCS Women members include computer science lecturer and Lovelace Colloquium founder Hannah Dee, MD of Accenture UK and Ireland Emma McGuigan, co-CEO of Apps for Good Debbie Forster, News UK CTO Christina Scott, and Everest Group vice president Sarah Burnett.

Government influencers have also stepped up to help promote the diversity in tech and digital message.
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Eileen Burbidge, fintech envoy for HM Treasury and chair of TechCity UK, acts as a role model for women in the fintech sector. And Chi Owurah, MP for Newcastle upon Tyne and shadow minister for the department of Business, Innovation and Skills (BIS), refuses to sit on single-gender panels.

Meanwhile Martha Lane Fox, Lastminute.com co-founder and previous government adviser, launched her Doteveryone campaign to promote inclusivity in the digital world. She has said that an increase in women in the IT industry could fill the current skills gap.

Maggie Berry, executive director of WEconnect Europe, has also made efforts to connect women across the technology industry. She founded the Women in Technology network in 2012 to help recruit and keep women in the IT industry.

But the sector still faces a drop-off of female tech talent. Only 15% of computer science degree applications in 2014 were from women, and only 27% of those taking ICT and computing A-levels were women.

Top 50

Each year Computer Weekly releases a list of the most influential women in UK IT to showcase the names of the great women in the technology industry. Since its launch the shortlist has doubled from 25 a year to 50.
As the longlist of candidates grows annually, so does the hope that the number of women in the IT industry will steadily grow too.

Computer Weekly also showcases Rising Stars in the tech industry, highlighting those who have huge potential in the space. Many Rising Stars have gone on to feature in the top 50 list.

Not only does the top 50 list showcase the number of great women in the industry, it also offers young people role models. A lack of role models is a deterrent for girls thinking about their future careers.

Organisations such as Stemettes, Apps for Good, Coder Dojo, TeenTech and Code Club are working to make coding and technology seem interesting to young people, and especially girls. Their aim is to increase the diversity of people joining the industry in the years to come.

Smashing the stereotypes

By making technology accessible and fun, these organisations are breaking down the industry stereotypes that put so many young women off entering the industry.

Ask any woman involved in IT, tech or digital and she will say she’s sick of having to discuss the issue of diversity in the industry.
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But those women will also agree that shining a light on the problem is important. The hope is that by bringing the issue to the forefront of people’s minds we can escalate the change we’ve already seen.

Next on the agenda is to stop focusing on having an equal number of men and women in the technology industry. It needs to be opened up to people of diverse backgrounds, genders and minority groups, and creating an inclusive industry and environment that drives forward innovation for everyone.

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Tech is trendy now but hasn’t always been, says Techmums founder

Clare McDonald, business editor

It’s no secret that there has been a lack of women in the technology industry over the past 20 years.

There are many theories as to why this is, one of which is the negative stereotype surrounding the tech industry, with people thinking it is populated by “geeky” men with few social skills.

But Dr Sue Black, computer scientist and founder of Techmums, believes this perception is now being broken down, and the industry is slowly improving.

“It’s trendy to be in tech now, but it wasn’t always,” says Black.

Black says she has heard anecdotally that the tech industry had a more equal split of women and men in the 1960s, especially in development roles.

But when she was studying for her computer science degree in 1989, only about 10% of the students were women. By the time she set up BCSWomen
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in 1998, Black says the proportion of women in the industry had reached 20%.

Now women make up about 16% of the workforce in the IT sector.

“I feel like all of us have put so much effort in and then the numbers are still the same,” says Black.

“But I do feel quite positive about it, because 20 years ago, being in tech was not the trendy thing at all, but now I think more and more people are starting to understand the amazing opportunities if offers.”

Set up BCSWomen

Black originally set up BCSWomen as a way for women in technology to meet and network, something that didn’t exist at the time.

“It’s quite hard to be in a minority – I know that from going to computing conferences when I started my PhD,” she says. “It was only about 5% women and I had quite a hard time being in that 5% – it just wasn’t easy to network.

“Being in a majority, you don’t realise how easy that makes your life, and it’s not until you become a minority in some way that you realise how easy it was before.”
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Black says she would be “shocked” if the number of women in tech does not increase soon, but stresses that the lack of diversity in the sector should not pit men and women against each other.

“I think it’s more about our culture and doing something that’s a bit different from how we were all brought up,” she says. “So actually it’s about change more than about one gender against the other. We’re going through a transition.”

Impact of social media

An important way to shift the dial is to ensure people are aware of the lack of diversity in the industry, and social media has contributed greatly to spreading the message.

“I think social media has had a massive part to play because we can all see everyone else’s opinion all the time if we go looking for them, whereas before, how would you find them?” says Black.

Black says that her book, Saving Bletchley Park, both explains the history of the Bletchley Park site and how it fell into disrepair, and describes how Black used social media to raise awareness about the building, effectively saving it from demolition.

“I wrote the story of the whole campaign all the way through using traditional media and social media,” she says.
“It’s like a case study of the power of social media; it’s a book about technology; it’s new technology saves old technology.”

But social media can also be a danger to young people who are not properly trained in how to use it, and many millennials have jeopardised their career prospects by misbehaving on social platforms.

Black says industry and employers must “change the way they see” indiscretions on social media, because so many young people use sites from a young age without guidance and are bound to make mistakes.

“We all have lives and we all do things that maybe weren’t the best thing to do, but you don’t know anything when you are growing up,” she says.

**Teaching digital skills**

The **UK is currently suffering from a skills gap**, with employers struggling to find skilled staff to fill roles, and there is also a digital divide, with **12.6 million UK adults without basic digital skills**.

Although younger people have a better understanding of how to use technology, they still have gaps in their knowledge, such as not always being aware how to stay safe online.
“It’s like growing up with anything,” says Black. “You’re going to be more familiar in a certain way, but that doesn’t mean you understand all the ramifications and everything about it.”

Black started up Techmums to teach tech skills to mothers who grew up without technology. She says the responsibility to learn and teach tech skills is down to all of us, but she hopes the government will do more to upskill adults in the future.

“Showing people what opportunities there are in technology, you can really change the way people see things and see themselves,” she says.

Black says one of the best pieces of advice she was ever given was from another startup founder – that not being afraid of failure is one of the keys to success in the tech industry, because a failure is a lesson that can be learnt from.

“If you’re not scared of things, you’ll just play with them, whereas if this stuff has come in during your lifetime and you don’t quite know what it is, you just think you don’t know what to do,” she says.

“But you can’t just learn how to do something right from the off – it just doesn’t make sense.”
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The quota controversy

There is a lot of debate around quotas in the tech industry, and whether firms should have to take on a set number of people from diverse backgrounds each year.

Black says that realising how slow the current pace of change in the industry is made her realise that quotas may be the only way to speed up change.

“If we don’t have quotas, we can’t move things on and it is going to take 100 years to make a change,” she says. “But I don’t think we need quotas for ever.

“I think we need some kind of transition period where we decide, maybe for five years, that we have quotas in place to get enough women and diversity of all types, so we can get more diversity at higher levels.”

Black believes that once this greater diversity is established, there will be no more need for quotas because the industry will begin to equalise itself. “If we just carry on with the way things are, it’s going to take 50 or 100 years to make a difference,” she says. “That’s not me, that’s not my daughter, that’s not even my granddaughter – that’s ludicrous.”

There is concern that if quotas are enforced, firms will begin hiring women just to make up the numbers, but Black says there are plenty of women
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worthy of tech jobs who are already being overlooked, and quotas will give them a better opportunity to be considered for positions.

“There are lots of good women out there – they are just not able to get to the positions they need to get to,” she adds.

“There will be peaks and troughs, but then suddenly the planets will align.”

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