BCS - The Chartered Institute for IT's response the All-Party Parliamentary Group (APPG) on Diversity and Inclusion in Science, Technology, Engineering and Maths (STEM)

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Who we are - BCS, The Chartered Institute for IT

BCS is the UK's Chartered Institute for IT. The purpose of BCS as defined by its Royal Charter is to promote and advance the education and practice of computing for the benefit of the public.

We bring together industry, academics, practitioners, and government to share knowledge, promote new thinking, inform the design of new curricula, shape public policy and inform the public.

As the professional membership and accreditation body for IT, we close to 60,000 members including practitioners, businesses, academics, and students, in the UK and internationally.

We also accredit the computing degree courses in ninety-eight universities around the UK. As a leading IT qualification body, we offer a range of widely recognised professional and end-user qualifications.

What are the demographics of STEM workers in your organisations or sector?

The UK's IT industry is known for its lack of diversity and its future is looking similar, with IT struggling to attract a representative future talent pipeline. The current IT demographic is characterised by a lack of ethnic and gender diversity, particularly in the case of Black women.

This response specifically looks at the IT sector in terms of gender and ethnicity given the extent of under-representation in the industry. However, BCS agrees with the recommendation from the APPG that inequity should not be seen through just these lenses and the IT sector should publish more in-depth research around all the nine protected characteristics[1].

Ethnicity

When we evaluate the IT workforce in terms of ethnicity, there are key variants, such as geography, job title and ethnicity itself. Recent BCS research looked at the number of IT specialists in the IT workforce, broken down by ethnicity of ethnic minority employees, compared to that information in other occupations.

[2]

	IT specialists	Other occupations	All occupations
White	83%	88%	88%
Non-white	17%	12%	12%
Indian	8%	2%	3%
Pakistani/Bangladeshi	2%	2%	2%
Chinese	1%	0%	1%
Other Asian	1%	1%	1%
Black/African/Caribbean/Black British	2%	3%	3%
Other ethnic groups	2%	2%	2%

This table shows ethnicity in the IT sector, broken down into Black, Asian and minority ethnic groups however this "group" of people/ IT specialists will have experienced completely different careers in terms of achievement, discrimination, bullying, harassment, and opportunities.

The demographics of ethnicity in IT varies across the UK, based upon that community's representation in the area. For example, just 4% of IT professionals from an ethnic minority background in the South West of England to 33% in London[3]. This is detrimental to levels of diversity and representation within all organisations across the UK, especially when members of the ethnic minority community are largely better qualified for IT roles, with almost 9 in 10 ethnic minority IT specialists possessing a HE level qualification (85%) compared to less than 7 in 10 (66%) of those

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[1] https://www.equalityhumanrights.com/en/equality-act/protected-characteristics
[2] https://mybcs.bcs.org/media/1830/diversity-report-2-ethnicity.pdf
[3] https://mybcs.bcs.org/media/1830/diversity-report-2-ethnicity.pdf

from a white background. IT employees from ethnic minority backgrounds are also less likely to hold positions of responsibility within their organisation with only 9% of IT directors having an ethnic minority heritage[4].

Gender

The IT workforce continues to suffer from a lack of female presence across the UK, with only 19% of tech employees being women[5]. This is a problem that stems from education, as 2020 saw an increase of 7.6% of students accepted onto computer science degree courses (30,090), however only 16.2% were women[6]. As with other minority groups, women face discrimination in IT roles with female IT workers being less likely to be in positions of responsibility[7]. The statistics for women in technology remain largely unchanged for the last decade, with many women inclined to leave the profession during their career because of unequal opportunities.

Are there gaps in quality of evidence, monitoring or reporting?

Definition: Ethnic Monitories – We use the term 'ethnic minorities' to refer to all ethnic groups except the White British group[8].

Like many other industries there are gaps and issues in the quality of evidence, monitoring and reporting, especially when considering ethnicity and gender. Firstly, Ethnic minorities are considered together a homogeneous group whereas, in reality, there are considerable differences in achievements and experiences within ethnic minority sub-groups. Although data often identifies ethnic minorities as one group of people, there is little monitoring or reporting around experiences, as research primarily focuses on statistics. For example, there is a higher presentation of Indians working in the UK IT industry[9] compared to other ethnic minorities, and Black women being the most underrepresented accounting for just 0.7% of the IT sector[10] so how does their experiences differ in comparison to their representation.

The IT industry lacks monitoring and capturing detail across all the stages of a career in IT by specific technical job roles. Experiences are essential for understanding what is failing to attract future talent and how we address that. Women and ethnic minorities who are looking to enter the IT sector should be provided with information and experiences that span different IT career pathways. Understanding negative experiences around, job satisfaction, career changers and leavers, will help us identify further steps we need to provide the future talent with to ensure they are not adding to the 'leaky' pipeline.

Ethnic and gender pay gap reporting is also a factor that requires more consistency across all organisations in all sectors. Organisations with over 250 employees must publish their gender pay report annually, however that is not a legal requirement for ethnicity, although organisations face

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[4] https://mybcs.bcs.org/media/1830/diversity-report-2-ethnicity.pdf
[5] https://www.womenintech.co.uk/
[6] https://www.computerweekly.com/news/252493740/Number-of-students-taking-computer-science-degrees-rises-76-in-2020
[7] https://www.bcs.org/media/5766/diversity-report-2020-part2.pdf
[8] https://www.ethnicity-facts-figures.service.gov.uk/style-guide/writing-about-ethnicity
[9] https://mybcs.bcs.org/media/1830/diversity-report-2-ethnicity.pdf
[10] https://www.bcs.org/more/about-us/press-office/press-releases/black-women-coders-take-a-major-new-role-in-it-s-professional-body/

growing pressure to publish their ethnic pay report. It is estimated that by organisations publishing their ethnicity pay gap it could boost the UK GDP by £24bn[11].

Women in tech roles are less likely to be white, with a third of the female tech workforce being Asian[12], and black women making up less than 1%[13], meaning that under-representation of Black women should be a matter of immediate focus. 65% of non-white people in the UK believe there is an ethnicity pay gap and 38% have or believe they have experienced discrimination in the workplace because of their ethnicity – 29% also feel they aren't taken seriously at work[14],highlighting the need for better evidence, monitoring and reporting in the tech industry, focused on gender and ethnicity to ensure we can hold organisations to account and make the workplace for IT professionals a fair and equal one.

Where is the inequality across the different protected characteristics and how are different communities impacted across different:

Types of STEM activity (academic research, education, engagement, commercial, funding)

- Women account for 16.2% of all computer science students in 2020[15]
- Men are twice as likely to be professors.
- Women are more likely to work part-time (29% vs 22%), with the biggest gender gap (around 11 percentage points) among women in their 40s.
- Women are more likely to be employed on fixed-term or teaching only contracts, but the gap is small in both cases (2 and 3 percentage points respectively).
- Women and those with a disability are slightly more prevalent among the research student population than among staff, suggesting a disproportionate drop out of these groups in the transition from postgraduate to academic.
- White students are more likely to have student fee assistance, and more likely to have research council grants than those of other ethnic backgrounds. Two thirds of black students and half of Asian students have no tuition fee assistance.[16]
- For young girls looking to pursue an education in IT there is an absence of role models[17]
- Children face the tribulations of 'social belongingness' and are therefore attracted to subjects that are largely populated by their own gender[18]
- Female IT specialists were more than three times less likely than males to hold an IT degree (4% compared with 13%)[19]

Job levels and/or qualification

- 18% ethnic minorities in IT [20]

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[11] https://www.raconteur.net/hr/diversity-inclusion/ethnicity-pay-gap-reporting/

[12] https://diversityq.com/uk-tech-workplace-equality-report-reveals-true-levels-of-pay-disparity-1508222/

[13] https://www.bcs.org/more/about-us/press-office/press-releases/record-numbers-of-women-in-it-but-black-women-still-under-represented-new-research-finds/

[14]

[15] https://www.bcs.org/more/about-us/press-office/press-releases/record-numbers-choosing-computer-science-degrees-new-data-reveals/

[16] https://epsrc.ukri.org/newsevents/pubs/napierdiversityreport/

[17] https://www.nextgeneration.ie/blog/2018/08/why-arent-there-more-women-in-tech

[18] https://www.theguardian.com/science/head-quarters/2018/mar/08/bridging-the-gender-gap-why-do-so-few-girls-study-stem-subjects

[19] https://www.bcs.org/media/5766/diversity-report-2020-part2.pdf

[20] https://mybcs.bcs.org/media/1830/diversity-report-2-ethnicity.pdf

- 9% ethnic minorities at director Level in IT[21]
- 5% of leadership positions in the tech industry are held by women [22]
- Low progression rate and exit rate from STEM careers above other fields[23]
- Women complete less technical tasks in IT roles [24]
- Ethnic minority employees have lower job satisfaction[25]
- Women and racial minorities have higher aspirations that white men[26]
- Almost nine in ten BAME IT specialists have an HE level qualification (85%) compared with less than seven in ten (66%) of those from white ethnic groups[27]
- BAME IT specialists are less likely to be in 'positions of responsibility' than those of white ethnicity, with 32% and 43% respectively stating that they were a manager/foreman or team leader in 2019[28]
- Female IT specialists were four times more likely to be working part-time than males (i.e. 16% versus 4%) – though most often as they did not want full-time work[29]

Where are there evidenced best practice inclusive behaviours and policies within different organisations, subsectors, sectors, and countries on: Recruitment; and/or Retention?

- BCS have recognised the importance of increasing representation of Black women in IT and have provided over 70 black women coders from Coding Black Females with a bursary for BCS membership to continually increase their presence in the industry[30]
- DiversIT Charter – CEPIS – IT Diversity charter aimed at reducing gender disparity in IT roles across Europe, following a roadmap to success[31]
- Tech Talent Charter – TCC is a charter for organisations to work together to increase diversity and inclusion of the tech workforce in the UK[32]
- Inclusion Matters project (Equality, Diversity and Inclusion : Inclusion Matters - Northern Power - Durham University) that aims to improve experience of under-represented groups in STEM. Would be useful to look at outcomes at end of project in 2021[33]
- McGill University in Canada has spent many years trying to close gender pay gap[34]
- Several Dutch universities have yearly recruitment rounds targeting women only STEM roles[35]

[21] https://mybcs.bcs.org/media/1830/diversity-report-2-ethnicity.pdf

[22] https://www.bcs.org/media/3653/insights-gender-2019.pdf

[23] https://www.womenssatnav.co.uk/

[24] https://www.womenssatnav.co.uk/

[25] https://www.womenssatnav.co.uk/

[26] https://www.womenssatnav.co.uk/

[27] https://www.bcs.org/media/5766/diversity-report-2020-part2.pdf

[28] https://www.bcs.org/media/5766/diversity-report-2020-part2.pdf

[29] https://www.bcs.org/media/5766/diversity-report-2020-part2.pdf

[30] https://www.bcs.org/more/about-us/press-office/press-releases/black-women-coders-take-a-major-new-role-in-it-s-professional-body/

[31] https://cepis.org/diversit-charter/

[32] https://www.techtalentcharter.co.uk/about-the-tech-talent-charter

[33] https://www.dur.ac.uk/equality.diversity/inclusionmatters/

[34] https://www.wsj.com/articles/one-canadian-employer-spends-13-years-to-close-gender-gap-in-pay-1404867493

[35] https://www.theguardian.com/education/2020/jun/15/its-what-students-look-for-the-dutch-university-thats-only-hiring-women

- How diversity, inclusion and belonging should look in the IT industry[36]
- Best practice of inclusion in tech and what best practices need to be implemented to achieve diversity [37]
- Information around what the ten biggest tech companies are doing to create best practise for other organisation in the industry and how they achieve optimum diversity and inclusion [38]
- Royal Academy of Engineering provide evidence on implementing diversity through 10 guiding principles to build a diverse workforce [39]

Are there any policies or activities undertaken by the UK government, or its agencies that advance or inhibit equity and inclusive cultures within the STEM workforce?

Ethnic minority workers are over a third more likely than white workers to be working temporarily, or zero-hours contracts[40].

Funding remains an issue for career development and supported career change at lower levels of IT employment, which particularly disadvantages women as they are less likely to have free time and less disposable income to invest on upskilling or being a member of a professional body to help with their career development. It is imperative to increase the diversity of women in technology for the government to support initiatives to help upskill disadvantaged groups to better their education or to switch careers into a digital discipline.

In digital careers it is especially important for those who have taken a career break and need to top up part of their knowledge/skills or extend it into other areas, this can be supported by programmes offered by organisations like Tech Returners[41], Women Returners[42] and Working Mums[43]. It would be beneficial if accessible services such as the Careers Service[44] focused on other areas of career opportunity, not just entry level jobs in digital and STEM, this prevents minorities from breaking the glass ceiling and is limiting our talent pipeline in the UK. However ethnic minority workers are over a third more likely than white workers to be working temporarily, or zero-hours contracts[45], and until this is addressed ethnic minority IT professionals will still face unequal opportunities compared to their white counterparts.

Arguably Covid-19 will increase the opportunities available to people working in IT positions as it has allowed for an increase in accessibility for many. Flexible working has proved that it can be as effective as working in the office environment, as we emerge from Covid-19 many organisations will decrease their office presence which could mean more disposable funds for things like employee development.

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[36] https://about.gitlab.com/blog/2020/06/17/what-diversity-inclusion-and-belonging-looks-like-in-the-tech-industry/

[37] https://www.inclusionintech.com/wp-content/uploads/2018/12/Diversity_Inclusion_in_Tech_Guide_2018.pdf

[38] https://www.diversityintech.co.uk/how-these-top-10-tech-companies-are-achieving-diversity-in-tech

[39] https://www.raeng.org.uk/publications/other/implementing-diversity-policies-guiding-principles

[40] https://www.tuc.org.uk/news/bame-workers-over-third-more-likely-be-insecure-work-finds-tuc

[41] https://www.techreturners.com/

[42] https://womenreturners.com/

[43] https://www.workingmums.co.uk/

[44] https://nationalcareers.service.gov.uk/

[45] https://www.tuc.org.uk/news/bame-workers-over-third-more-likely-be-insecure-work-finds-tuc

Improving teaching in IT for young people is something BCS is committed to. BCS delivers the National Centre for Computing Education (NCCE) along with Raspberry Pi and STEM Learning and funded by the Department for education to provide high quality support for teaching of computing in schools and colleges , which encompasses training, resources and support for every key stage level[46]. BCS would also suggest that to achieve the highest level of pedagogy across the curriculum teachers should acquire the best digital skills to ensure they can teach in any environment and to provide children with a better understanding of how digital skills are needed continually through multiple aspects of learning and life.

Where could policy change or sector action lead to addressing the equity of opportunity within the UK's STEM workforce

Equity of opportunity can be improved by more research, especially qualitative as statistics reflect the situation, but fails to give insight into reasoning. Research is required at different points of an IT career cycle: school, college/apprenticeship, university, early career, career progression, career break (if applicable) and the return to work, mid/end of career. Qualitative research is needed to understand more of the reasons why, especially around gender and ethnic minorities, so much talent leaves the IT industry and what organisations need to understand and implement in order for that to change; quantitative research cannot provide full insight into bullying, harassment, discrimination and unequal opportunities. Education for organisations and leaders is key in helping address this. This approach aligns with the APPG's recommendations that government should support a more joined up approach with education establishments to encourage more girls into the IT profession. However, girls need more role models in this sector to aspire to - women of all ages, backgrounds, ethnicity, and experience. It seems there is a constant limitation as to why girls firstly do not enter a career in IT nor, once in the career do, they pursue an interest to further their IT education.

There should be more emphasis on charters and incentives for ensuring people are provided with equal opportunities to progress and develop their careers in the tech sector. For example, Athena Swan[47], Race Charter[48] and DiversIT charter[49], but with real investment and commitment to achieving real equity, with diversity and inclusion at the heart of our industry.

What are the impacts of COVID-19 on equity for STEM workers (including job and income security, contract type etc) in the short-and medium – term> Which communities, groups, organisations, or sectors are being most impacted?

Ethnic minority communities have been disproportionately more affected by COVID-19 from every angle compared to their white counterparts, not because covid-19 discriminates but because it exposes existing inequalities within modern society[50]. Workers across all industries from black and ethnic minority groups are more likely to have experienced financial hardship and 58% of BAME

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[46] https://teachcomputing.org/about?_ga=2.79457693.806711003.1611568640-1033522666.1611568640
[47] https://royalsociety.org/topics-policy/diversity-in-science/athena-swan-charter-awards/?gclid=EAIaIQobChMImNb9pK6-7gIVme7tCh0YnQxQEAAYASAAEgIsI_D_BwE
[48] https://www.bitc.org.uk/race/
[49] https://cepis.org/diversit-charter/
[50] https://post.parliament.uk/impact-of-covid-19-on-different-ethnic-minority-groups/

workers have had their employment affected since the start of the pandemic compared to 47% of white workers[51].

The term ethnic minorities can mean numerous things to different people however it will encompass different experiences and connotations for each of the groups included in the term. It is clear than some ethnic minority groups would have fared better than other in the technology sector; for instance, the evidence suggests that Indian employees are the least vulnerable to COVID-19's impact on jobs[52]. People from an Indian background have high representation in low-proximity occupations, such as those associated with science and technology[53].

Covid-19 has highlighted that technology and digital literacy is essential for many organisations to even operate at a basic level as the pandemic has evolved. In the longer term, for digital technologies and practices to develop both within organisations as a whole and for individuals, it is critical to understand the importance of professionalism in IT as we emerge into a digitally reliant economy.

What are the implications and opportunities of new policies and employer action in the next 5-10 years following Covid -19 and Brexit? What will the future impacts be for communities, groups, organisations, or sectors?

Before Coronavirus or the reality of Brexit, the digital ability of the nation was already under pressure to change to accommodate new IT and technology trends. However, the changes that every organisation within the UK economy have had to implement in a newly digital world has increased the need for all adults to improve their digital ability. IT professionals coming from the EU will now also face greater scrutiny when applying for visas, therefore the UK needs to invest and increase the ability of the people made redundant as a result of Covid to increase the home grown talent for new and everchanging roles in the tech sector. Recent research highlights the importance of basic digital skills but also more specific skills for job seekers looking for employment in middle-higher skilled roles in the sector; these specific digital skills are key to unlocking these middle and high-level opportunities[54].

As we emerge form Covid, digital is naturally going to be a significant component to millions of roles across the UK. Many jobs will be handling large amounts of personal and private data especially those working in the NHS for example. These people are likely to have limited to no IT qualifications or understanding of the information that is in their hands. To ensure data is collected, used, and distributed responsibly it is vital that anyone dealing with sensitive data in any discipline upholds professional standards and acquires the correct digitals skills to do so.

Diversity and inclusion are significant issues in the tech industry which will increase in severity due to covid-19. Increasing diversity and fostering inclusion within organisations post-Covid is a fundamental way of helping bridge the UK skills gap. For the IT sector it is essential for organisations to foster inclusive cultures to attract a wider talent pool. In many ways minority groups will benefit from the effects of Covid and working in the IT industry as organisations will be more inclined to offer flexible working, return to work programmes, recruitment from a wider pool of people

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[51] https://www.turn2us.org.uk/About-Us/Media-Centre/Press-releases-and-comments/BAME-workers-take-biggest-financial-hit-from-coron

[52] https://www.mckinsey.com/industries/public-and-social-sector/our-insights/problems-amid-progress-improving-lives-and-livelihoods-for-ethnic-minorities-in-the-united-kingdom

[53] https://www.mckinsey.com/industries/public-and-social-sector/our-insights/problems-amid-progress-improving-lives-and-livelihoods-for-ethnic-minorities-in-the-united-kingdom

[54]https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/807830/No_Longer_Optional_Employer_Demand_for_Digital_Skills.pdf

(therefore reducing bias within recruitment) and instilling an inclusive culture at the heart of their operation. For example, people with physical disabilities may have better chances of employment by working remotely and removing elements of working day such as commuting that prove problematic. On the flip side people in the IT sector from the neurodiverse community may struggle with elements of homeworking such as zoom calls, so employers need to be aware of provisions and adjustments that need to be made when hiring people of this background. We have a massive opportunity to futureproof the IT sector by making diversity and inclusion a priority for all organisations in our industry since Covid-19 has highlighted so prominently the social-inequality we still face.

As we lean towards operating in an almost fully digital way of life and organisations increase and improve their digital transformations, employees will need to continually refresh their digital dexterity to meet the needs of changing technologies. Organisations are now implementing technologies that will allow their business to grow internationally, which increases the urgency of diversity for success in other cultures. Organisational leaders should consider the impact on their organisational culture and values when operating multiculturally to ensure technology is used to create appropriate working environments which are both physically and digitally inclusive for all and not just for people on permanent contracts or who possess digital qualifications.