Evidence base: Commission into diversity and inclusion in digital tech
(previously called STEM Commission)

1. INTRODUCTION

1.1 As the digital tech sector continues to grow creating many more new jobs it's important that we foster greater inclusivity and diversity across the sector, helping us deliver an inclusive economy that works for everyone.

2. DIGITAL TECH: AN OVERVIEW

2.1 Sector definition:

- The digital tech sector[1] includes the following sub-sectors: Manufacturing of electronics and computers; Wholesale of computers and electronics; Publishing, Software publishing; Film, TV, video, radio and music; Telecoms; Computer programming, consultancy and related activities; Information service activities; and Repair of computers and communication equipment.

2.2 The importance of the digital tech sector

- Digital tech contributed £149.0bn[2] to the UK economy in 2018, accounting for 7.7% of UK GVA. GVA by this sector has increased by 30.4% in real terms since 2010. The digital tech sector grew six times faster than other industries in the UK from 2017 to 2019.
- The UK digital tech sector employs 2.93m people[3], with 40% growth in two years. Digital tech now accounts for 9% of the UK workforce
- London accounts for close to half of the UK digital tech sector's total annual turnover; almost 30% of UK tech businesses are based in London.[4]

2.3 Skill demand

Technical roles are in extremely high demand in digital tech. The roles require specialist knowledge and focus on the creation and implementation of technologies. Tech Nation[5] reported:

- Advertised digital tech roles grew 36% from June to August 2020, second only to healthcare for the number of jobs advertised.

---

[1] DCMS Sectors Economic Estimates 2018
[2] DCMS Economic Estimates 2019, Feb.2021
[3] Tech Nation, Jobs and skills, 2020
[4] Ibid
[5] Tech Nation, Jobs and skills, 2020

- The most in-demand role was for software developers, accounting for 6% of all advertised digital tech roles.
- Cyber-security skills were mentioned in 49992 job ads, up 79.69% and
- Cloud skills were mentioned in 56640 job ads, up 26.16%.

Beyond the digital tech sectors, demand for advanced digital skills is likely to rise as more tasks across all sectors become digitised.

- An analysis of job adverts in 2019 found that digital skills were an essential entry requirement for two-thirds of UK occupations, and that digital skills are required in 87% of online advertised openings in London, spread across all sectors.[6]
- A survey conducted by CBI in 2019 found that three in five (58%) of employers expected they would need significantly more advanced digital skills in the next five years.[7]

2.4 Skills participation and representation

GCSE

A 2020 study by the Learning and Work Institute[8] found that:

- The uptake of IT subjects at GCSE has fallen by 40% since 2015, and the numbers taking A Levels, further education courses, and apprenticeships were also declining.
- Women account for just 22% of GCSE entrants in IT subjects, 17% of A-Level entrants, 23% apprenticeship starts in ICT, and 16% of undergraduate starts in computer science.

A levels

- 2018 saw a 3% increase in STEM A-Level entries than 2011/12; however: only 9.4% of A-Level examination entries in computing, 21.2% in physics, and 39% in mathematics are women.[9]

Undergraduate Qualifications

- Women make up only 13% of students studying computer science, gaming and related courses.[10]

Teaching and academic representation in the UK

- Only 2.2% of school teachers, 0.65 per cent of university professors, and 15 of the 445 people who graduated with postgraduate research degrees in computer science in 2018/19 are Black.[11]

2.5 Sector employment and representation

The Chartered Institute for IT[12] found in 2019 that:

- The 249,000 women working in UK technology accounted for 17% of tech workers in the region, a figure which has only grown by 1% over the past five years.

---

[6] DCMS and Burning Glass Technologies. (2019). No Longer Optional: Employer Demand for Digital Skills.
[7] Educating for the modern world, CBI and Tata, 2019
[8] Learning and Work Institute, Disconnected: Closing the digital skills gap, 2020
[9] National Audit Office. (2018). Delivering STEM skills for the economy, Page 26.
[10] StemWomen, Solving the Gender Gap in Computer Science and Gaming, 2019
[11] Obum Ekeke, Tackling tech's big diversity problem starts with education, Wired UK, 2021
[12] Sourced from Computer Weekly, Tech's diversity gap: Slow growth for minority groups, 2020

- There were 268,000 black, Asian and minority ethnic tech specialists in the UK, accounting for 18% of tech workers, which has increased by 2% over the past five years from 16% in 2015. Around 8% of tech workers are of Indian ethnicity, 2% from a black, African, Caribbean or Black British background, and 2% from Pakistani or Bangladeshi backgrounds.
- In 2019, 11% of all UK tech workers had disabilities, rising from 8% in 2015. 22% of tech workers were aged 50 or above.

The APPG on Diversity and Inclusion[13] analysed representation in the technology workforce. They reported:

- In London, people from ethnic minorities represent 31% of the technology workforce versus 34% of the broader workforce. Women represent 29% versus 46% of the wider workforce.

3. THE CURRENT SITUATION IN HACKNEY

3.1 Hackney has seen more rapid social and economic change over the last 15 years than almost any other UK area, yet inequalities characterise the local economy. Much of the difference is related to the boom in digital companies and technology start-ups which attract more highly qualified people to the borough. However, Hackney is ranked the seventh most deprived local authority in England. With one in three older people experiencing income deprivation, 19.6 % of the population live in income-deprived households, of which 40.7% are older people.[14]

3.2 Low incomes are not just associated with households of the unemployed, economically inactive, or retired. Around half of low-income families in London have at least one member in some form of employment. As far as Hackney is concerned, not all residents have the education or skills to access the opportunities on offer. Nearly 20% of working-age residents have a low skill level of NVQ level 1 or below.

3.3 Pre-Coronavirus, Hackney's employment rate was 74.9%. However, there were significant inequalities between different population groups. Insecure and low-paid employment was already increasing; 27.9 % of employment was in part-time work, 18.9% of residents were self-employed, and were often in low-paid jobs in the gig economy. In 2017, there were signs of falling job quality with one in ten people employed in insecure work (up from 8% in 2006), with a fifth of employee jobs in the capital paying below the London Living Wage (compared with 12% in 2006).[15]

3.4 The coronavirus is having an ongoing and cumulative impact on employment. Across London, as of 31 August 2020, 557,400 employments were furloughed (13% of eligible jobs); in Hackney, this was 18,900 people (14%). [Data to be updated when available] The most recent national unemployment rate - from November to January

[13] APPG on Diversity and Inclusion in STEM, The State of the Sector: Diversity and representation in STEM industries in the UK, 2020
[14] The English Indices of Deprivation, 2019, p.11
[15] Hackney, Understanding Hackney's economy, 2017,p.1

- was 5%, according to the Office for National Statistics.[16] This is the highest figure for five years and means that 1.7 million people were unemployed nationally. Once the coronavirus furlough scheme comes to an end, a wave of unemployment is likely, and there is no knowing how many people employers will let go.

3.5 The pandemic's economic impact will be felt disproportionately by women and people from ethnic minority backgrounds, as they are overrepresented in the sectors that have been most affected by social distancing restrictions. The House of Commons' 'Coronavirus: Impact on the labour market' [17] reports that, at a national level, 15% of workers in sectors that have shut down because of the coronavirus pandemic are from a minority ethnic background, compared to 12% of all workers, 57% are women, compared to a workforce average of 48%, and nearly 50% are under 35 years old. Low-paid workers are more likely to work in shut-down sectors and less able to work from home.

3.6 Hackney's digital tech economy

Hackney's digital tech economy is mainly made up of small companies involved in application design, web development and gaming, and activities associated with advertising and marketing, architecture, video, IT, software, and computer services.

- Shoreditch is the largest concentration of creative industries in Europe[18] and is home to global tech companies Amazon and Microsoft's 'Reactor' accelerator.
- Hackney Wick and the Queen Elizabeth Olympic Park are the base for small start-ups and scaling companies:
  - Here East, an accelerator space for global businesses and scaling companies to work with universities and research institutes. It is a video games and esports cluster.
  - Plexal, a coworking space for collaboration on cybersecurity, mobility and inclusion/assistive technology.
  - UCL, UAL, Loughborough, East London, and Staffordshire universities have campuses on-site.
  - BT Sport, Sports Interactive, Bidstack, and the innovation departments of Ford and Ladbrokes Coral and other media production companies operate from the site.

3.7 Medium-size companies such as Wise (previously TransferWise, founded 2011), a fintech company and Little Dot (Founded in 2013), a digital agency appear to be less engaged with the council. This may be a segment to focus on to open up new opportunities.

3.8 Known challenges

Council research from 2013[19] into resident's barriers to access Tech City jobs remains relevant:

---

[16] ONS, Employment and labour market
[17] Commons Library, Coronavirus: Impact on the labour market
[18] Hackney, Future Shoreditch, 2017
[19] Hackney, Making the most of Tech City, 2013

- Qualifications gap**:** The number of residents with higher-level qualifications has increased as highly qualified people move into the area. 66% of Shoreditch residents have level 4 qualifications or above, higher than the c.42% in Hackney, and c.38% in London. However, nearly a fifth of Hackney's working-age population has NVQ level 1 (GCSE grades D-G) or no qualifications at all. This accounts for 38,600 residents with a need for the Council and local education partners to support to improve their skill level from a relatively low base and bridge the gap. before they can embark on higher-level skill-building.
- Social capital. Recruitment agencies estimate that 80% of jobs are not advertised. Small businesses commonly recruit from closed communities.
- The job market is confusing and difficult to access for university graduates, even more so for job seekers who need more digital skills training or lack prior experience or community connections.

3.9 The challenge for educators, parents and carers is that jobs are not clearly defined in the fast-moving digital tech economy. There is a general lack of understanding and guidance about where the opportunities are and potential career paths at different levels.

3.10 A challenge for schools is recruiting and training computing teachers; Hackney Education is looking to partner with STEM Learning to improve the quality and quantity of computing teaching at the GCSE level to filter through eventually to A-Level computing being offered more widely.

3.11 Potential sources of opportunity based on recent national government policy

- 'Flexi-job' apprenticeships' scheme targets industries with flexible working patterns, such as digital media companies. Apprentices register with an agency rather than a specific employer, enabling them to acquire skills and experience with several companies working in their chosen field.
- The demand for digital skills is likely to grow, as the UK government's March 2021 Budget included investment in the digital economy. The 'Help to Grow: Digital' scheme aims to help SMEs upgrade their digital capabilities and create new, highly skilled jobs.

4 BUILDING ON SUCCESS: HACKNEY'S EMPLOYMENT AND SKILLS PROGRAMMES

Hackney's Employment and Skills programmes provide a powerful lever for creating a more inclusive society. Current programmes have a proven track record of success and provide a compelling proposition to engage digital tech employers but more pathways must be provided to widen opportunities to currently underrepresented groups.

4.1 Apprenticeships

Apprenticeships are central to the Council's approach to creating opportunities for

groups experiencing barriers; they provide a route for people of all ages to gain in-demand skills and experience while earning a living. An apprenticeship combines a real-job with part-time training as well as pastoral support to increase the odds of successful outcomes. Key statistics for the Council's apprenticeship programme include:

- 250 apprentices recruited since 2016.
- 1 in 3 study a digital qualification.
- 42 % study higher or degree apprenticeships.
- 78 % are from non-white backgrounds.
- 37 % are aged 25+.
- 76 % achieve a positive outcome, with 68% staying in employment with the Council, and the rest progressing onto higher level apprenticeships.
- 50 % of ICT apprentices are women.
- 22 % of new starters in 20/21 are care leavers or have a disability

Leveraging their experience in digital apprenticeships, the team is working with The London Office of Innovation and Technology (LOTI) and a consortium of London councils to increase the number of digital apprenticeships across London councils to more than 100. They are also piloting part-time apprenticeships for parents with childcare responsibilities.

4.2 Hackney Apprenticeship Network (HAN)

The Hackney Apprenticeship Network supports employers to create and manage high-quality apprenticeships. The Council supports apprentice recruitment, finding a training provider and management support such as job descriptions, contracts and apprenticeship levy transfers. Key statistics

- 37 active apprenticeships, with 1 in Healthcare, 34 in Childcare and 2 in Hospitality
- 44 apprentices in Hackney Schools, mainly Level 3 & 6 teaching qualifications, and Level 2 to 7 business subjects. Apprentices are 78.5% female, 6.25% male (16.25% not declared).
- 23 employers hold HAN Kitemark (pay the living wage, use approved training providers) 2 employers are in discussions.
- 22 different training providers engaged, often selected directly by employers
- > £100,000 of apprenticeship levy funding transferred to network members through Council support.

4.3 S106 and Employment & Skills plans

Hackney's regeneration and development plans create significant employment opportunities. Employment & Skills Plans (ESPs) are co-developed with developers to specify how they will deliver employment and training targets that maximize positive outcomes across equalities groups. Results so far include:

- 40 approved ESP plans in place by Q3 2020.
- 1354+ new jobs created. Of the new jobs, 18% are held by black and black British residents (79% held by white residents), And only 6% are held by

women, mostly in support roles such as traffic marshals and project assistants.
- 302 trade apprenticeship starts; of these, 67% held by black and black British residents, and 17% Asian/Asian British residents.
- 41 paid work experience placements.

4.4 Kick Start scheme

The Kickstart Scheme provides 6 months of paid work with a local employer to help 16 to 24-year-olds gain work experience. Recruitment is focused on groups facing barriers to employment, with guaranteed interviews for disabled people and care leavers.

- 300 placements generated with local employers, starting Apr - Dec 2021. Roles include: Digital Marketing Assistant, Graphic Design Trainee, E-commerce Assistant, ICT Engineer, 3D & CAD Designer, Videographer
- 22 placements confirmed with Hackney council, with an additional 8 roles in the pipeline, pending funding

4.5 Hackney Works

Hackney works offer wrap-around support for job seekers, working in partnership with Jobcentre Plus, external training providers and employers. Services include:

- Employability support: Identifying job goals, addressing barriers to work, CV development, help to apply for jobs and interview preparation and access to ICT facilities.
- Career insights: Employer and partner information sessions about work in key sectors e.g. Healthcare, identifying transferable skills, using LinkedIn. Connecting residents to external training, volunteering & work placements.
- Job brokerage: Connecting residents to local jobs, apprenticeships and paid work placement opportunities (e.g. Kickstart).
- Talent bank: Database of job-ready residents screened and matched to roles in construction, health & social care, education, creative/media, IT & management.

Key Data

- Since 2016, more than 4,500 residents supported; 2275 into jobs and 1132 into training (as of July 2019).
- Over 1000 residents supported annually, including the most vulnerable: young people/ NEETs, parents/single parents, those with health conditions, long-term unemployed, low-income earners, homeless/or at risk of homelessness, ex-offenders, refugees, residents with ESOL.

Hackney Works continues to innovate: Youth Hub provides an enhanced, joined-up offer to young people, delivered in partnership with Jobcentre Plus and New City College.

5.SKILLS GAPS AND INEQUALITIES: LONDON AND UK LEVEL

5.1 Some groups face disproportionate barriers to accessing learning and skills, making

it more likely that they have fewer qualifications making it harder to find good work.

5.2 A 2018 report identified the challenges adults face in engaging in learning. Barriers included cost, family and childcare obligations, the way learning was organized or delivered, self-belief and confidence, disability and health issues that affect their ability to physically access learning and social pressures and expectations.[20]

5.3 Qualification gaps for different groups in London
Many communities have been left behind across London, resulting in inequalities and age, gender, and socioeconomic disparities. The evidence base for the GLA's Skills Strategy[21] reports:

- 43% of “Black Londoners” (the source report does not break the data down to a granular level e.g., Black British, Black Caribbean and / or Black African) and 41% of Mixed Ethnicity Londoners had the highest proportion of NVQ Level 2 or below, compared to 37% for all Londoners.
- 9% of single parents had NVQ Level 1 or below, compared to 28% of all Londoners.
- Only 18% of Londoners with a disability had the highest qualification of NVQ Level 4+ in 2011, compared to 42% of those without a disability.

5.4 Women are still more likely than men to be working in low-paid jobs, and young people, particularly those with less than tertiary education, are facing worsening job prospects. The risk of unemployment and underemployment has increased over the past decade, especially for men and youth unemployment is particularly high among young black men in London and people of mixed or other ethnicities.

5.5 Foundation skills
UK-wide, there are gaps in English, maths, and digital skills that must be addressed so that people can find a good job or progress their careers. 49% of adults have numeracy skills at the level expected of an 11-year-old, and 15% have literacy skills at that level. 52% of the workforce do not have essential digital skills for work, with digital exclusion more common among older people and lower socioeconomic grades.[22]

5.6 A recent survey of Londoners[23] found that cost (49% report this as one of their two top barriers) and lack of time (40%) are also the main barriers for individuals taking on learning opportunities. For example, coding bootcamps are a fast route to build skills for digital tech, yet they are prohibitively expensive:

- Le Wagon runs coding bootcamps in Shoreditch. Courses are designed to teach students the necessary skills to land a job in software development, product management or prepare them to create a startup. Costs are high which presents a significant barrier. For example, a Web Development course in London, full-time over 9 weeks costs £6,500. They do not guarantee employment or publish detailed data on graduation rates and job placements.

[20] DfE, Barriers to learning for disadvantaged groups, 2018
[21] GLA, Skills strategy for Londoners: Evidence base, 2018
[22] DfE, Skills for Jobs: Lifelong Learning for Opportunity and Growth, 2021
[23] GLA, The Evidence Base for London’s Local Industrial Strategy – Final report, 2020, p.76

- General Assembly's international, online software Engineering course costs $15,950 (£10,758) for a 12-week course. They do publish outcomes, audited by KPMG. They report that 86% graduate, with 91% getting a job placement within 180 days of graduation.

5.7 Access to training

There is an inequality dimension to training in London: more qualified individuals are disproportionately likely to benefit. Simultaneously, cost and lack of time are barriers for individuals taking on learning opportunities. Almost three in ten working-age Londoners qualified at NVQ 4+ received training in the past 13 weeks in 2018, compared to less than a fifth of those qualified at NVQ3 or below. This inequality contributes to a widening existing skills gap, despite the evidence that those in mid-skilled roles receive a higher wage boost from training.[24]

6. CONCLUSION AND RECOMMENDATIONS

6.1 Conclusion

The factors affecting participation in digital tech employment are multi-layered and often interrelated. Some issues are uncovered through this research: Skills and qualifications gaps, gender, ethnicity and class barriers, little or no access to digital skills training opportunities, jobs are not clearly defined in these fast-moving sectors, lack of understanding and guidance about potential career paths, lack of social capital and networks to find opportunities. Further, the local digital tech businesses are often small and operating on a contract or project basis - making it less likely that they offer apprenticeships, in-house training or in-work progression.

6.2 Recommendations

Build a more profound, local understanding of barriers and gaps by taking evidence from communities with experience of skills and employment barriers and consider what services are available and the changes to services, practice and policy needed to support them.

[24] GLA, Local Skills Report, London, 2020