SC1 London

Life Sciences Innovation District

Driving growth, unlocking potential

Understanding the potential scale and scope for life sciences employment, skills, and enterprise delivery in Lambeth and Southwark arising from SC1

FINAL REPORT

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pragmatix advisory

SC1 London Life Sciences Innovation District

Driving growth, unlocking potential

Nina Emmins, Paul Marshall, Rebecca Munro and Mark Pragnell

With Vicky Clark, Director at Irvine-Clark

pragmatix advisory

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Numbers in tables may not sum due to rounding.

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Pragmatix Advisory Limited. enquiries@pragmatixadvisory.com. 020 3880 8640. pragmatixadvisory.com
Registered in England number 12403422. Registered address: 146 New London Road, Chelmsford, Essex CM2 0AW. VAT Registration Number 340 8912 04

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Context

Pragmatix Advisory was commissioned by the London Boroughs of Lambeth and Southwark on behalf of the SC1 Board to explore the employment, skills and enterprise opportunities for residents arising from the SC1 innovation district. The aim was to arrive at a practical plan and priorities for SC1 to focus on and enable a more diverse, equity-driven life science workforce.

This section provides a background to Lambeth and Southwark and a summary of relevant life sciences skills and employment research.

A glossary can be found on page 60 and provides definitions of the technical terms used consistently within this report.

Opportunity to boost skills and growth locally

SC1 is a Life Sciences Innovation District in south central London that will be a world-recognised home for transformative innovation. Health equity is at the heart of SC1 which will foster public-private partnerships to develop solutions to society's complex health care challenges.

The communities of Lambeth and Southwark are young, highly diverse, and (on average) relatively high earners, but areas of significant deprivation exist demonstrating the wide inequalities that exist across the boroughs. The boroughs are well connected in terms of public transport and broadband access, but transport, digital and fuel poverty are challenges for many households who are unable to afford the connectivity on offer.

As it stands, unequal access and barriers to progression have led to persistent gender, race and disability gaps that effectively cap the ability of some residents to benefit from the boroughs' economic growth. **Therefore, without a dedicated comprehensive programme of activity disadvantaged residents are unlikely to benefit from the significant opportunity SC1 presents.**

	Lambeth	Southwark	London	England
Employees in health and life sciences employment	22%	8%	11%	12%
16-64 year olds with no qualifications	4%	6%	6%	6%
Average attainment 8 score for all KS4 pupils	46	53	52	49
Employment rate for population aged 16-24	82%	77%	76%	76%
Households living in fuel poverty	11%	11%	12%	13%
Non-white resident population	45%	49%	46%	19%
Median gross annual pay for full time workers	£35,600	£41,300	£35,600	£30,000
Premises with ultra fast broadband	76%	80%	80%	65%

Source: Office for National Statistics; Department for Education; Ofcom

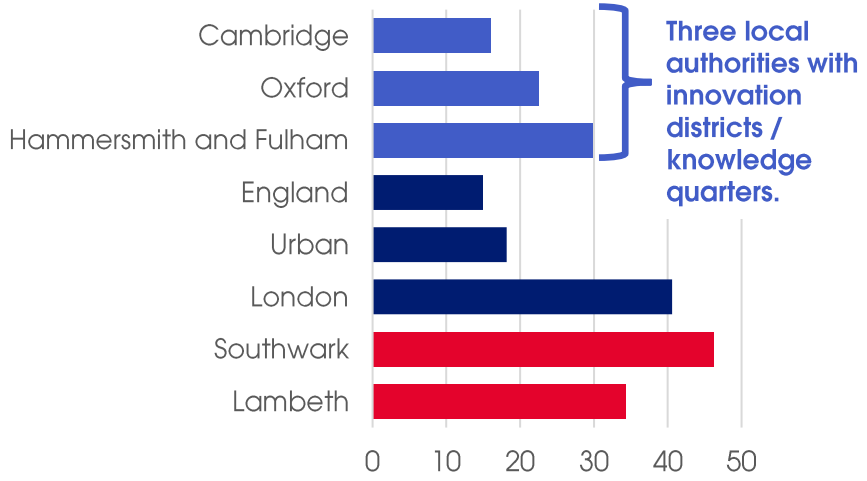
Residents are younger and more ethnically diverse

Both boroughs benefit from a relatively young population. Fewer than one in ten residents in Lambeth and Southwark are over the age of 65, compared to one in five in England overall. Residents are more ethnically diverse, too, with Southwark being one of the most diverse authorities in the country.

However, both boroughs are exhibiting net emigration. This is particularly acute in the highly economically active age range of 40-64, where increasing numbers of working age residents with their families and (often) young children are moving out of the boroughs due to the high costs of living. This has been an ongoing trend and likely to lead to lower demand for school and FE college places from young people and therefore some consolidation of educational institutions within the boroughs over time.

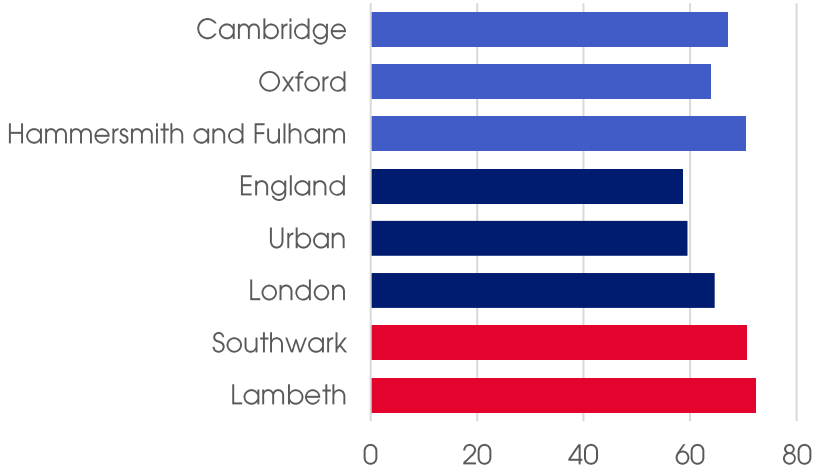
Proportion of usual resident population that are non-white

England, lower tier authorities, 2021, per cent



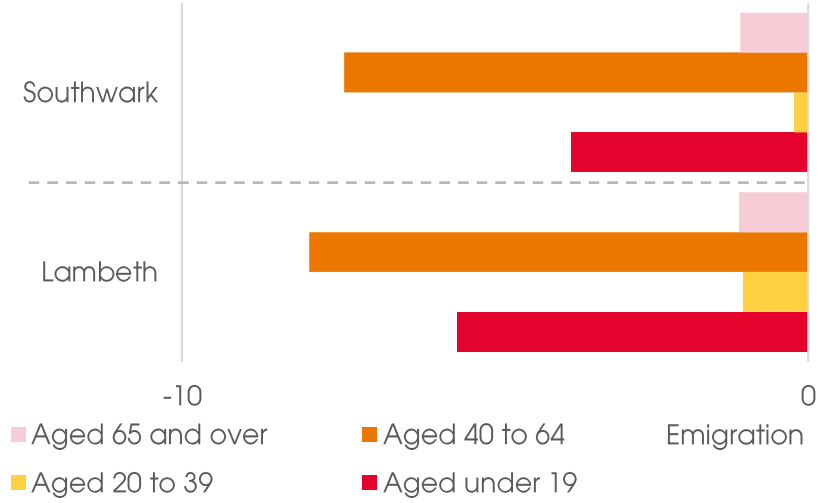
Proportion of usual resident population aged 20-64

England, lower tier authorities, 2021, per cent



Net migration

2021, per 1,000 residents



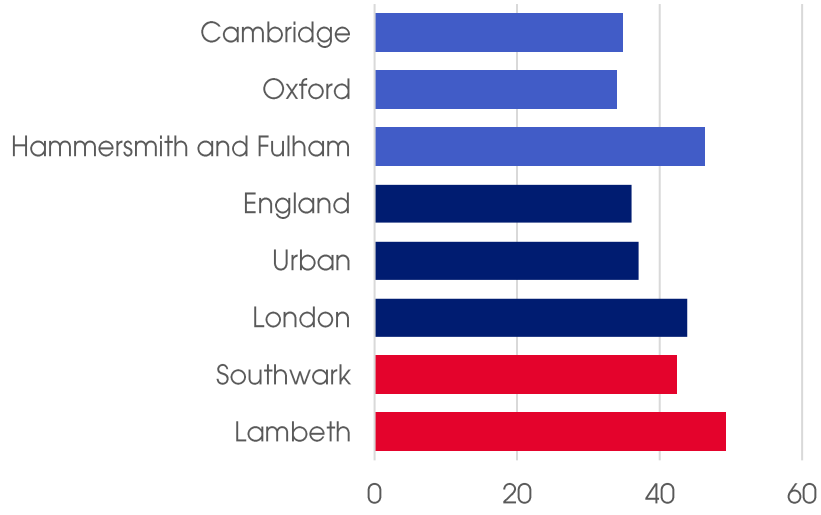
Source: Office for National Statistics

Boroughs are important economic contributors, but significant deprivation exists

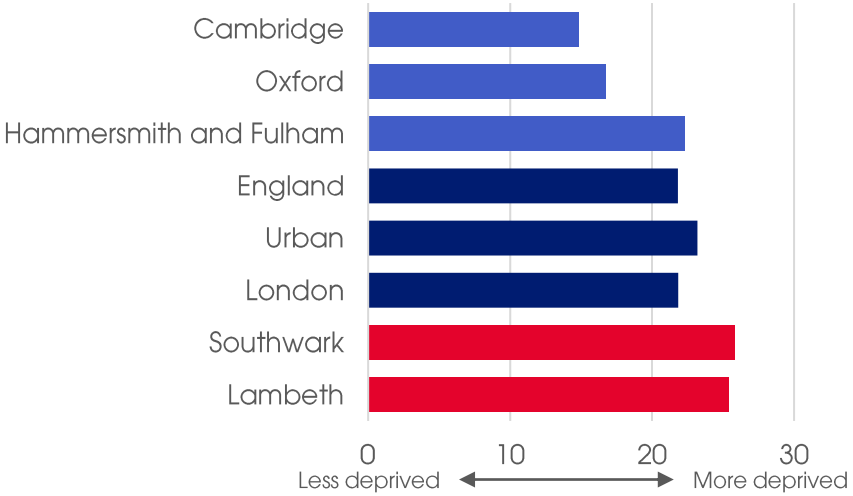
Productivity in Lambeth and Southwark is higher than the average for the South East and England as whole, with Lambeth having higher gross value added per hour worked than the London average, too.

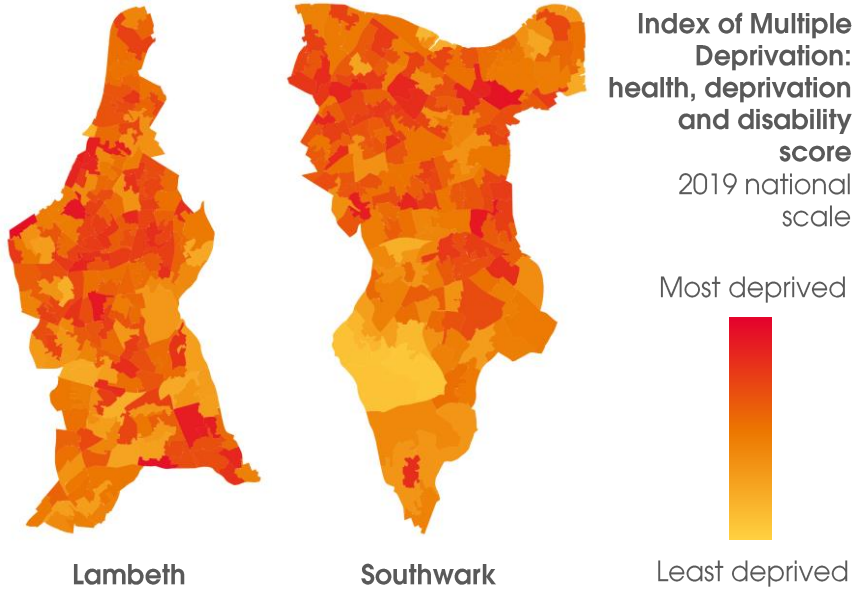
But on the government's deprivation metrics, both boroughs show significant levels of need. Lambeth and Southwark are rated more deprived on the indicators for income, crime, living environment, income deprivation affecting children and income deprivation affecting older people, in particular. The boroughs are judged to be less deprived, however, when it comes to the education and employment indicators. Some of the workers contributing to high-productivity are likely to be in-commuters to life science businesses, rather than being residents given the low levels of relevant skills within the boroughs.

Gross value added per hour worked, current prices
England, lower tier authorities, 2020, £



Index of Multiple Deprivation: overall score
England, lower tier authorities, 2019, average score for LSOAs in the district

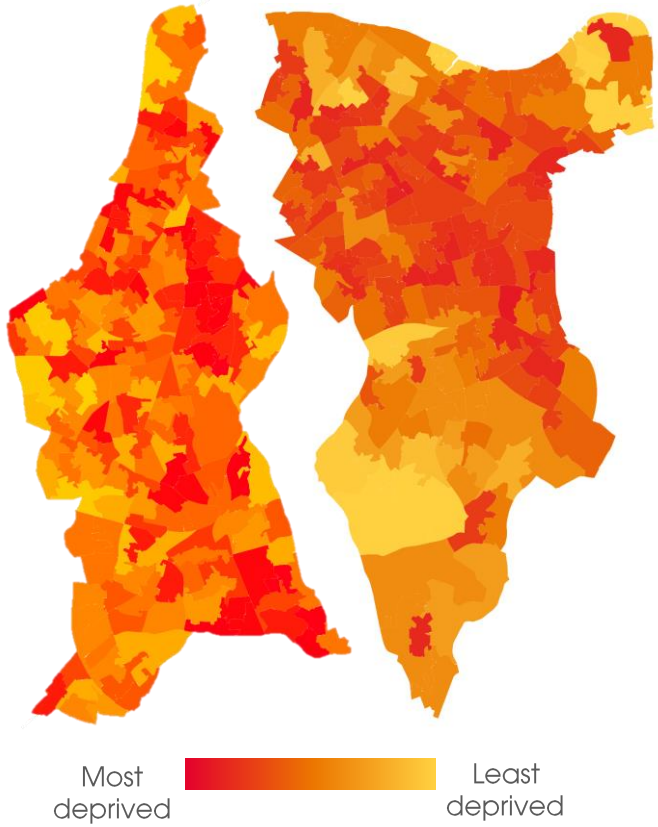




Source: Department for Levelling Up, Housing and Communities (top right and bottom left); Office for National Statistics (bottom right)

Opportunities from SC1 can be transformative

Index of Multiple Deprivation: employment score
Lambeth (left), Southwark (right), 2019 national scale



Increasing the number of jobs in Lambeth and Southwark through SC1 is not enough, more is needed to improve the quality of work.

Too many residents are working for wages below the London Living Wage or struggling with multiple insecure jobs. Raising the quality of employment is important, but also helps employers within the SC1 ecosystem, who gain the full benefit of a motivated, productive and committed workforce.

Collective action with employers, providers and communities can address the risks of unemployment, low skills and insecure work that entrenches disadvantage for some residents. Unequal access and barriers to progression, however, have led to persistent gender, race and disability gaps that effectively cap the ability of some residents to benefit from the boroughs' economic growth. Under representation of women and Black, Asian and minority ethnic groups in higher skilled and better paid jobs; a lack of flexible working opportunities; and limited affordable childcare provision for working parents narrows access to employment.

Ensuring that all young people in Lambeth and Southwark are supported to make an effective transition from school to further learning and work is essential. To do this, we need to improve information and broaden horizons to help young people, their parents and other influencers make better choices. Part of this should be the proactive mapping of pathways through education and training into employment, which can then be used to inform and advise young people.

SC1 and its constituent life science businesses, working in partnership with high-quality local education and training providers, can offer clear routes for people to be able to improve their qualification levels and therefore reduce inequalities that have pervasive economic and social consequences.

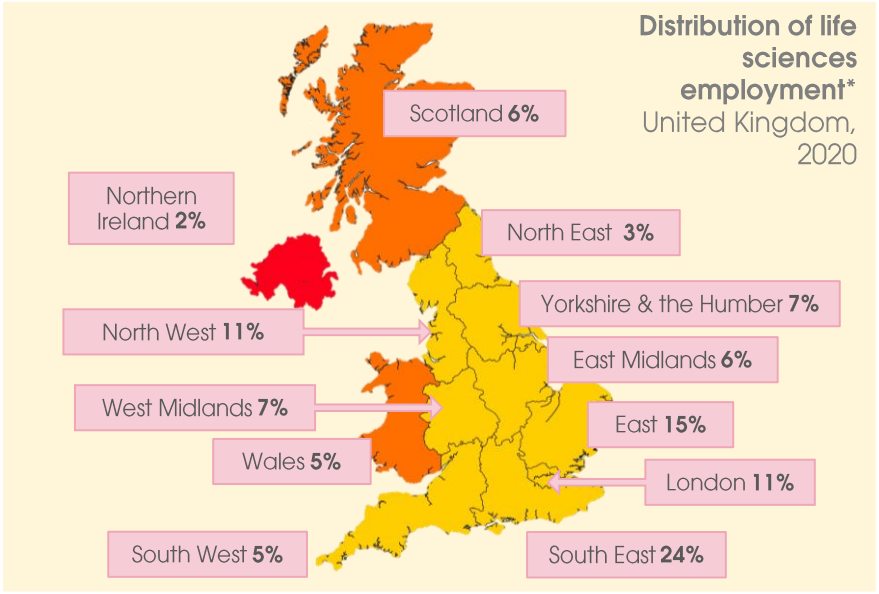
Source: Department for Levelling Up, Housing and Communities (left), Equality Impact Assessment for the Lambeth Skills and Employment Strategy 2020 to 2023 (right)

SC1 has an important role to play in boroughs' growth

SC1 follows a global tradition of creating urban innovation hubs - physically compact geographic areas where leading-edge anchor institutions and companies cluster and connect with start-ups, business incubators, and accelerators. Innovation districts provide a vehicle for revenue growth, a more efficient use of existing infrastructure and also offer the prospect of expanding employment, especially as the neighbouring regions of the East and South East have a greater share of life sciences employment than London. Innovation districts also enhance educational opportunities for disadvantaged populations.

In recent decades, advances in the life sciences have fundamentally improved the length and quality of life in the United Kingdom and around the world, and we stand on the cusp of an era in which new technologies make previously terminal disease treatable or curable. The United Kingdom government has set out its vision for capitalising on these advances in a way that it believes will enable the United Kingdom to become a leading global hub for the life sciences.

The value of life sciences
United Kingdom, 2020



Life sciences among the most valuable to the national economy

The life sciences sector is arguably among one the most valuable and strategically important in the United Kingdom economy, and has a significant role to play in the country's health, wealth, and resilience. In particular, the sector is seen as one of the great drivers of growth in the 21st century through the creation of high-skilled and high-paid jobs that will level up communities right across the country.

According to the most recent data from 2020, there are now more than 6,000 businesses working in the United Kingdom's life sciences sector across around 7,000 sites and employing over 268,000 people. The turnover of those companies is approaching £90 billion split approximately 69 per cent in biopharmaceuticals and 31 per cent in medical technology.

*total does not sum due to rounding; Source: HM Government Bioscience and Health Technology Sector Statistics 2020; Office for Life Sciences

Life science career options are varied with a range of pathways to entry and multiple different required skillsets.

Working in the life sciences is not only about working in laboratories or hospitals. Most roles available are non-clinical in nature and whilst a background and interest in science is often important, the highest level of qualification required to enter a particular career path is often either a bachelor's degree although many pathways can be entered at level 2 or level 3 through an apprenticeship.

Communicating knowledge and information

- Grants officer
- Science writer/ journalist
- Medical information scientist
- Regulatory affairs officer
- Medical writer
- Communications officer
- Editorial assistant
- Project Engagement Manager

Analysing and interpreting data and information

- Equity research analyst
- Data engineer
- Clinical bioinformatician
- Epidemiologist
- Patent attorney
- Project accountant
- Market researcher
- Biostatistician
- Computational Biologist
- Data scientist
- Verification and Validation Scientist
- Mathematical modeller
- Software developer
- Artificial intelligence engineer
- Machine learning engineer
- Health economist

Applying technical skills and methodologies

- Clinical trials assistant
- Manufacturing operative
- Research technician/assistant
- Clinical scientist
- Pharmaceutical formulation scientist
- Industrial pharmacist
- Biomedical engineer
- Biotechnologist
- Clinical pharmacologist
- Geneticist
- Bioprocess engineer
- Human factors engineer
- Industrial method engineer
- Operational quality specialist
- Logistics and supply chain specialist

Influencing behaviours or opinions of others

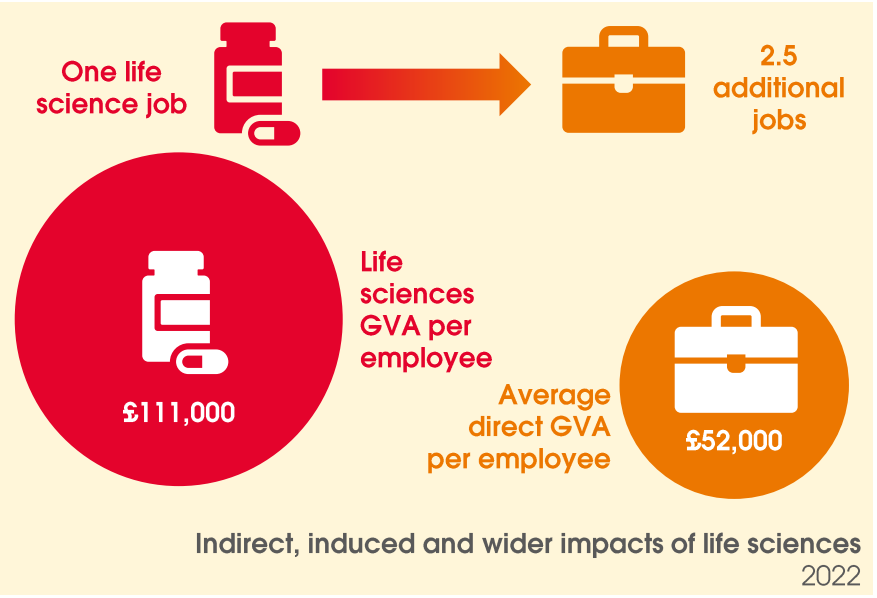
- Government affairs manager
- Policy and research officer
- Management consultant
- NHS graduate management trainee
- Health communications specialist
- Executive Sales Representative
- Specialist medical representative
- Field application scientist
- Marketing manager
- Market access strategy manager

Source: University College London; ABPI; Scottish Universities Life Sciences Association; GSK

Innovation districts can drive inclusive growth

When supported in the right way by local authorities and other community partners, innovation districts like SC1 can drive inclusive growth in local communities through enhanced placemaking, greater education and training opportunities and the creation of meaningful, high quality and diverse jobs by companies attracted to locate within a district.

These jobs are facilitated both through the direct employment of individuals by life science firms, or through the creation of indirect or induced jobs. Indirect jobs produce the goods and services needed by the workers with direct jobs. For example, accountants, patent lawyers, regulatory affairs managers. Induced jobs created by the additional personal spending (for example, eating at a restaurant) by both direct and indirect workers.



Indirect, induced and wider impacts of life sciences
2022

Placemaking	Gross value and job creation	Education and training
Leveraging opportunities through effective placemaking strategies, including: • Building design • Allocation of space to create dynamic interactions • Sustainability and net zero • Models for delivery of affordable space	• Booming sector with record investment into London Life Sciences, leading to creation of high-quality jobs • Life Sciences is a major contributor to jobs, taxes and GDP. • Mapping of job creation pathways is important to understand career progression routes, and how training, work placements and educational provision can support this.	• Local life science communities play a crucial role in bridging the gap between formal education and real-world skills, • The number of science-related apprenticeships has increased, providing valuable experience. • Mentoring programmes and schools' engagement are an effective way to upskill local members of the community.

Benefits of life science innovation clusters

Clusters benefit local communities

Innovation districts offer noteworthy opportunities for job creation in the wider local economy via induced and indirect job effects. For every life science job created, 2.5 additional jobs are formed in the wider economy.

This employment multiplier effect is significantly higher than the United Kingdom median of 1.66 for all industries. Indirect and induced impacts also offer a greater diverse mix of roles, both in the required skill range and in the nature of the jobs themselves.

Whilst 76 per cent of direct life science jobs are within large companies, induced and indirect jobs are mainly based in small to medium sized enterprises (SMEs), supporting local economic growth and local social cohesion.

Source: MedCity and Pragmatix Advisory

New skills needed in a range of areas

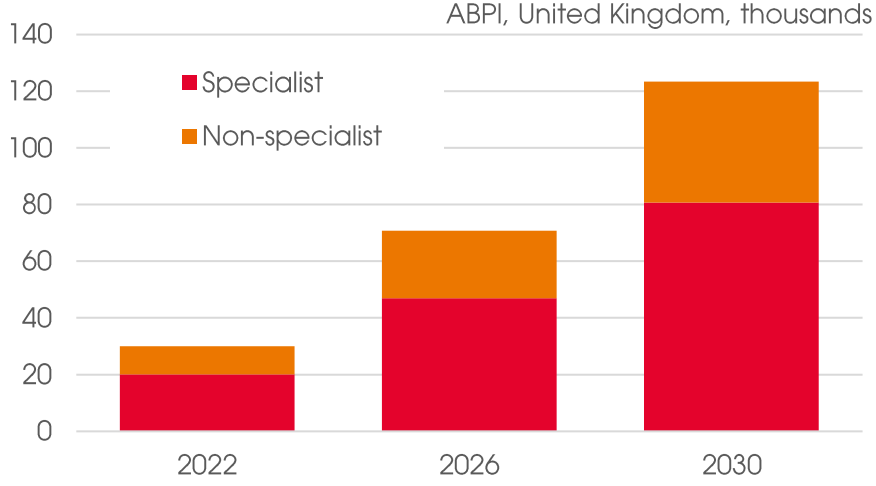
Across the United Kingdom, modelling by the Science Industry Partnership showed that the life sciences sector has the potential to create around 133,000 jobs in the period to 2030. Digital and computational skills, statistical literacy, leadership and inter-disciplinary working are essential to the sector's continued success, as will be an increase in relevant skills to resolve the identified pinch points within the life sciences.

The 2030 workplace will be a different landscape than the one we are currently used to. Beyond robotics and artificial intelligence, there will be a greater demand for integrating traditional life science skills with digital skills and this will necessitate a deeper collaboration between employers and educational providers. To remain competitive in an innovative and fast-paced sector, current employees will have to deepen their skills-base, especially if more tech-savvy individuals are being headhunted.

Biological sciences	Immunology and genomics
Clinical areas	Clinical pharmacology
Informatics, computational, mathematical and statistics areas	Pharmacokinetic/pharmacodynamics modelling, computational chemistry, chemoinformatics and chemometrics, biomedical imaging
Chemical sciences	Medicinal and synthetic organic chemistry
Regulatory areas	Regulatory affairs, qualified person (pharmacovigilance and quality assurance) – roles considered to be particularly affected by Brexit

Pinch points by occupation
United Kingdom, 2019

Projected employment inflow by role type based on a 63 years retirement age for life sciences in a high-growth scenario
ABPI, United Kingdom, thousands



Life sciences provides careers with social purpose

The life sciences sector is well positioned to respond to future generations' desire for careers with a social purpose because of the value added to job satisfaction through meaningful work within the sector. However, it needs to prepare for wider change and meet these new demands by developing a home-grown pipeline in order to unlock value and meet the significant recruitment demand heading towards 2030.

The life sciences sector is continuously evolving in terms of its needs. The *Life Sciences 2030 Skills Report* highlighted a range of gaps that existed within the sector, not least as a result of Brexit. As the United Kingdom's life sciences vision begins to gain traction then this should help alleviate these gaps, but concerted effort and training will also be needed to ensure the skills exist for a sustainable sector in the future.

Source: ABPI (2019) Bridging the Skills Gap; Science Industry Partnership

Apprenticeships are integral to talent strategies, but their funding needs improving

Apprenticeships have long been seen as an important way in which organisations can future-proof their workforce, but they are not without their challenges.

80 per cent of life science businesses are SMEs and they employ nearly a quarter of the workforce. Yet the inflexible funding available is not suitable for their business structure and agenda, given their size.

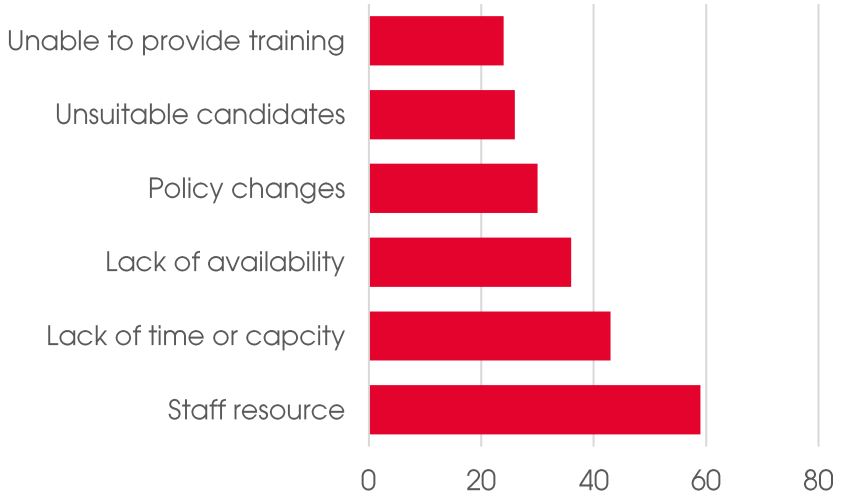
The current approach to levy funding offers no support for the salaries of apprentices, although SMEs can access funding to reduce the training costs to five per cent or lower. The provision of non-levy investment into apprenticeships will be important in attracting more SMEs to recruit younger people, especially those that feel the university route is not suitable for them.

Apprenticeships

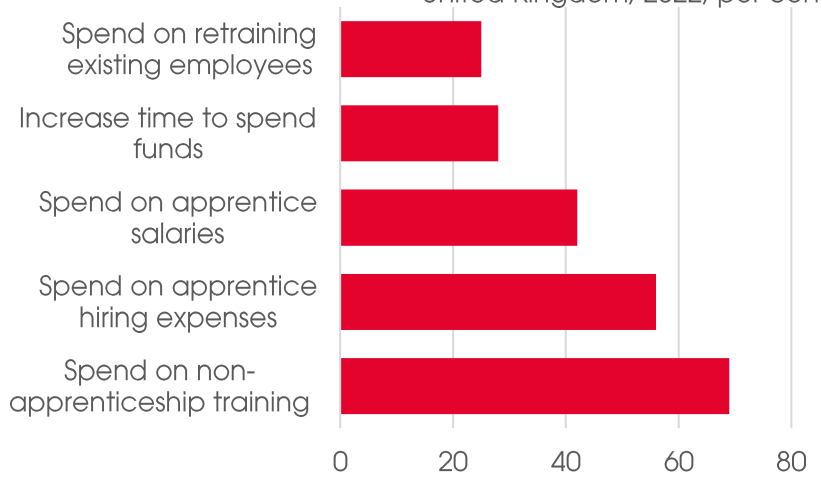
- Apprenticeship starts at science SMEs down 72 per cent since 2015/16
- Decline of 90 per cent in Level 2 science apprenticeship starts since 2015/16
- There were just 194 science apprenticeship starts in London in 2020/21
- Seven per cent of science employers registered an apprentice in 2020/21
- SME apprenticeship starts down 22 percentage points since 2015/16 to 33 per cent
- Level 3 science apprenticeship starts down 32 per cent since 2015/16
- Twelve percentage point drop in proportion of new starts from most deprived twenty per cent of areas to 15.5 per cent since 2015/16
- One in three new Level 2 apprenticeship starts are from most deprived areas
- Training spend down 28 per cent since 2005 to £1,530 per employee

Key apprenticeship statistics
United Kingdom, 2020/21

Challenges to expanding apprenticeships
United Kingdom, 2022, per cent



Ways in which respondents would like greater flexibility with the apprenticeship levy
United Kingdom, 2022, per cent



*no data available for United Kingdom employment in the manufacture of pharmaceuticals; Source: Science Industry Partnership

Equality and diversity

This subsection looks at existing recommendations for improving equality and diversity in the workplace. Given the underrepresentation of Black, Asian and minority ethnic groups within the life science sector, improving equality and diversity should be a key priority for SC1.

We also highlight the importance of 'science capital' in young people and their families as a key driver of progression into life science careers, and how informal science learning can support the development of this.

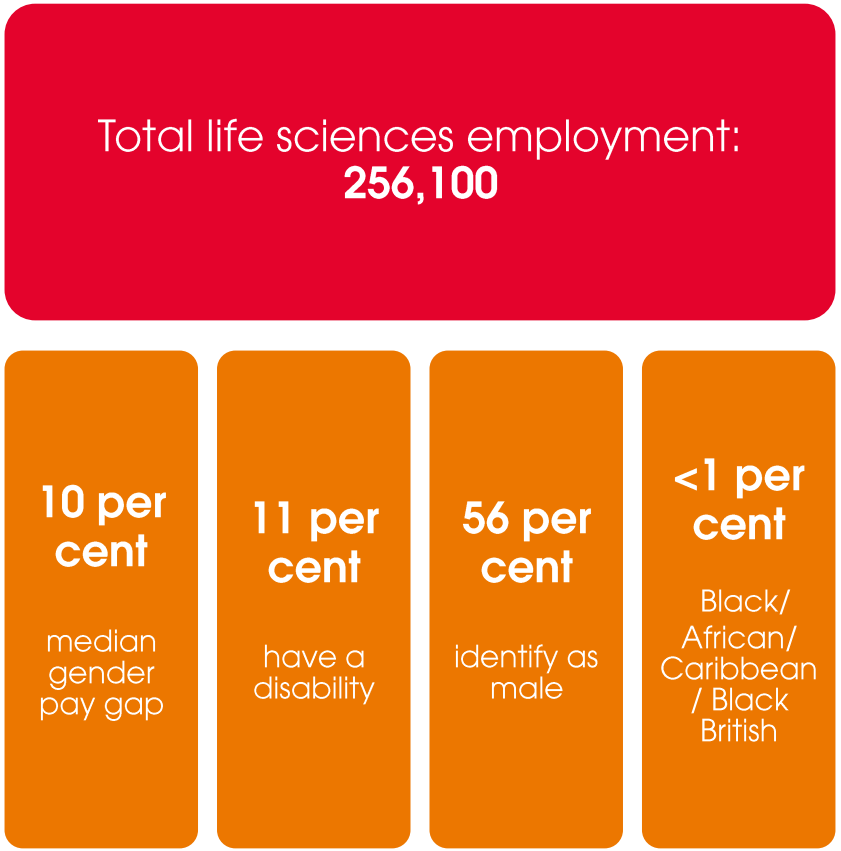
Equality and diversity is poor within life sciences

The life sciences sector needs to tackle its glaring inequalities in order to support future growth and development.

The success of the United Kingdom life sciences industry has always been dependent on highly talented people coming together, and greater workplace diversity serves to broaden the pool of available talent. The sector has made some progress towards attracting and developing an increasingly diverse workforce, but still has more to do. Addressing the key inequalities should be a priority for SC1.

The proportion of women has increased from 40 per cent to 44 per cent over the past five years, as has the representation of minority ethnic groups. But still, fewer than one per cent of those in life sciences employment are Black, the median gender pay gap stands at ten per cent, and only nine per cent of workers come from a working-class background. In order to maintain and deepen the progress that has been made, it is important to take stock of the areas that still need attention.

The Science Industry Partnership's 2021 report into equality and diversity within the life sciences' sector recommended that inequality could be addressed in two main areas: the attraction, perception and recruitment phase; and the career progression and retention phase. For example, it suggested that developing a diverse pool of internal mentors and role models could help new recruits after the recruitment process and hopefully throughout their careers. This could, in turn, lead to a virtuous cycle, whereby recent starters progress on to becoming mentors for the next round of successful recruits.



Key life science equality and diversity statistics
United Kingdom, 2021

Source: Science Industry Partnership

Attraction, perception and recruitment

1. Target candidates from outside traditional networks and from underrepresented groups.
2. Take steps to mitigate the impact of bias in recruitment process, such as blind recruitment practices and diverse interview panels.
3. Ensure candidate long and short lists are gender balanced and diverse.
4. Engage with Careers Outreach programmes aimed at underrepresented groups.
5. Conscious use of apprenticeships in supporting social mobility and increasing diversity.
6. Identify areas where lawful measures could be taken to encourage and train people from under-represented groups to help them overcome disadvantages in competing with other applicants.

Career progression and retention

1. Establish transparent processes around pay, training opportunities, and promotion, to ensure equal access.
2. Create career pathways with defined competency frameworks clarifying the requirements for advancement.
3. Develop a diverse pool of internal mentors and career role models.
4. Proactive succession planning by identifying and developing diverse future leaders.
5. Offer flexible working arrangements, where possible, to support a work-life balance.
6. Introduce an equal parental leave policy for all new parents.
7. Make workplaces welcoming and supportive to those returning from parental leave and career breaks.

Extract of recommendations arising from *"Life Sciences: Equality, Diversity and Inclusion Report"* 2021

Source: Science Industry Partnership

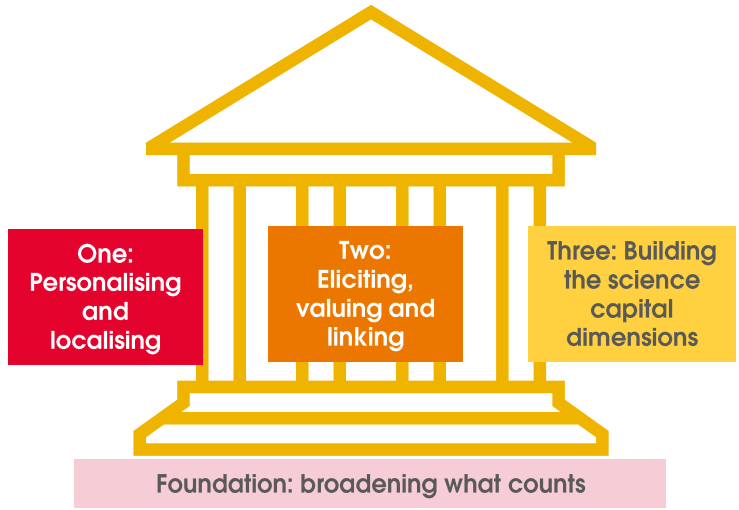
Boosting the science capital of young people would improve equality and diversity in life sciences

Science capital is a science-related form of social and cultural capital and is based on a set of resources that helps individuals engage and identify with science. It consists of eight dimensions broken down into four main categories: science-related knowledge, attitudes and values, experiences and activities, and contacts or connections.

Over a quarter of students have low science capital. Young people with higher levels of science capital are more likely to see science as 'for me' and to choose to study science subjects at a higher level. Studies have shown that students with 'low' science capital are four times less likely to be interested in a career in science than those with a 'high' science capital. In addition, there is a strong socio-economic link: in 2013, 93 per cent of science workers with a master's degree or doctorate and over 41 per cent working at the lowest level are in the two highest socio-economic groups.

Eight dimensions of science capital

1. Science literacy
2. Attitudes, values and dispositions
3. Knowledge about transferability
4. Science media consumption
5. Participation in out-of-school science learning contexts
6. Family science skills, knowledge and qualifications
7. Knowing people in science-related roles
8. Talking about science in everyday life



The science capital teaching approach
United Kingdom, 2015

Science capital is more than just science literacy

Science literacy covers a young person's knowledge and understanding about science and how it works, and their confidence in feeling that they know about science, but science capital is far more than that.

It includes the extent to which a young person sees science as relevant to everyday life; whether they have an understanding of the utility and broad application of science qualifications, knowledge and skills; the extent to which they consume science related media; how often they participate in science learning out of school; the extent to which their family members have science related skills, jobs and interests; if they know people in their wider social circle that works in a science-related role; and how often a young person talks about science outside of school with important people in their lives, and how much they are encouraged to pursue science.

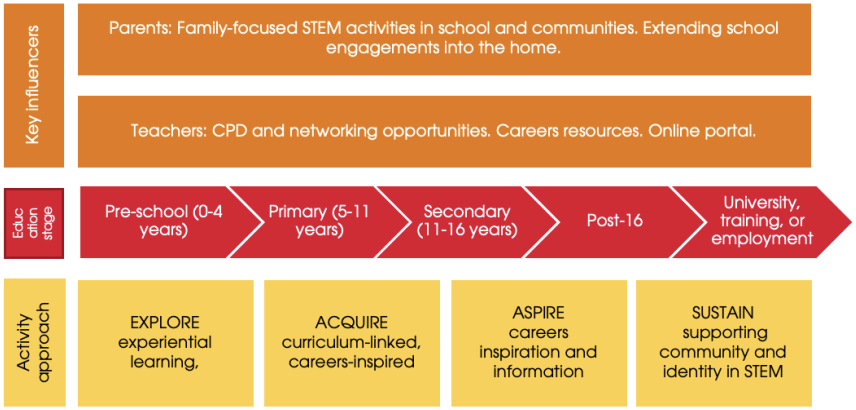
Source: I'm a Scientist; Diversity of the UK Scientific Workforce, Royal Society, 2013; Archer et al. (top); Enterprising Science (bottom)

Influence of teachers and parents is critical

From the age of five or six, children start making career-limiting decisions. Influencing factors include the perceived appropriateness of a career for their gender or race, the social level of careers and their concept of their own ability. Many children in primary schools are taught by teachers who might have limited or stereotypical views of science, technology, engineering and mathematics (STEM). They are also unlikely to have a post-GCSE science qualification and therefore potentially lack confidence in their science teaching.

Parents and community support groups are the most important influencers, but many with 'low' science capital are unlikely to promote or advocate careers in science or related conversations at home. Alongside the effects of negative science-related educational experiences or lack of confidence, conscious or unconscious bias can affect the level of educational support that parents provide, and the career aspirations that they may consider appropriate.

Critical factors in engaging young people
United Kingdom, 2019



A child's educational journey, their key influencers and the changing nature of activities over time
United Kingdom, 2020

Need to engage disadvantaged youth in science

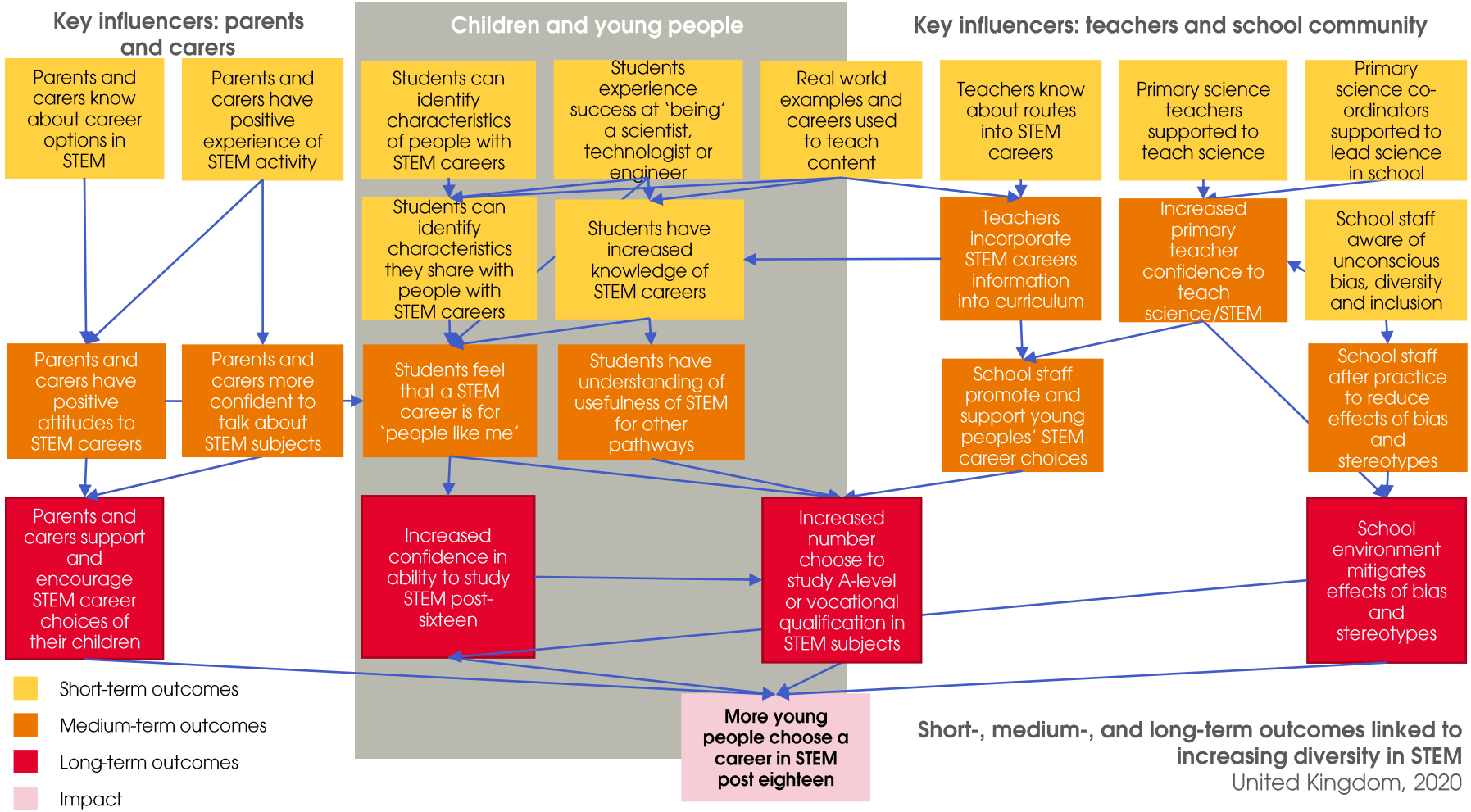
The approaches and skills needed to engage disadvantaged young people in science are not dissimilar to those needed to engage this group in any developmental activity. Several organisations report that, to varying extents and particularly where the science was explicit, young people had changed their perceptions and enjoyment of science when exposed to it.

This was down to four main factors. Doing activities and experiences that debunked the myths and stereotypes that young people often brought with them about what science was and who it was for; seeing the breadth of science, and showing the variety that it encompasses; making it different from science at school, not chalk and talk, not learning from a book – making it practical, hands-on and fun; being able to relate it to the young people's different interests and personal strengths and making it recognisable and relevant to them and their world.

Source: Davenport et al. (top); Bright Purpose (bottom)

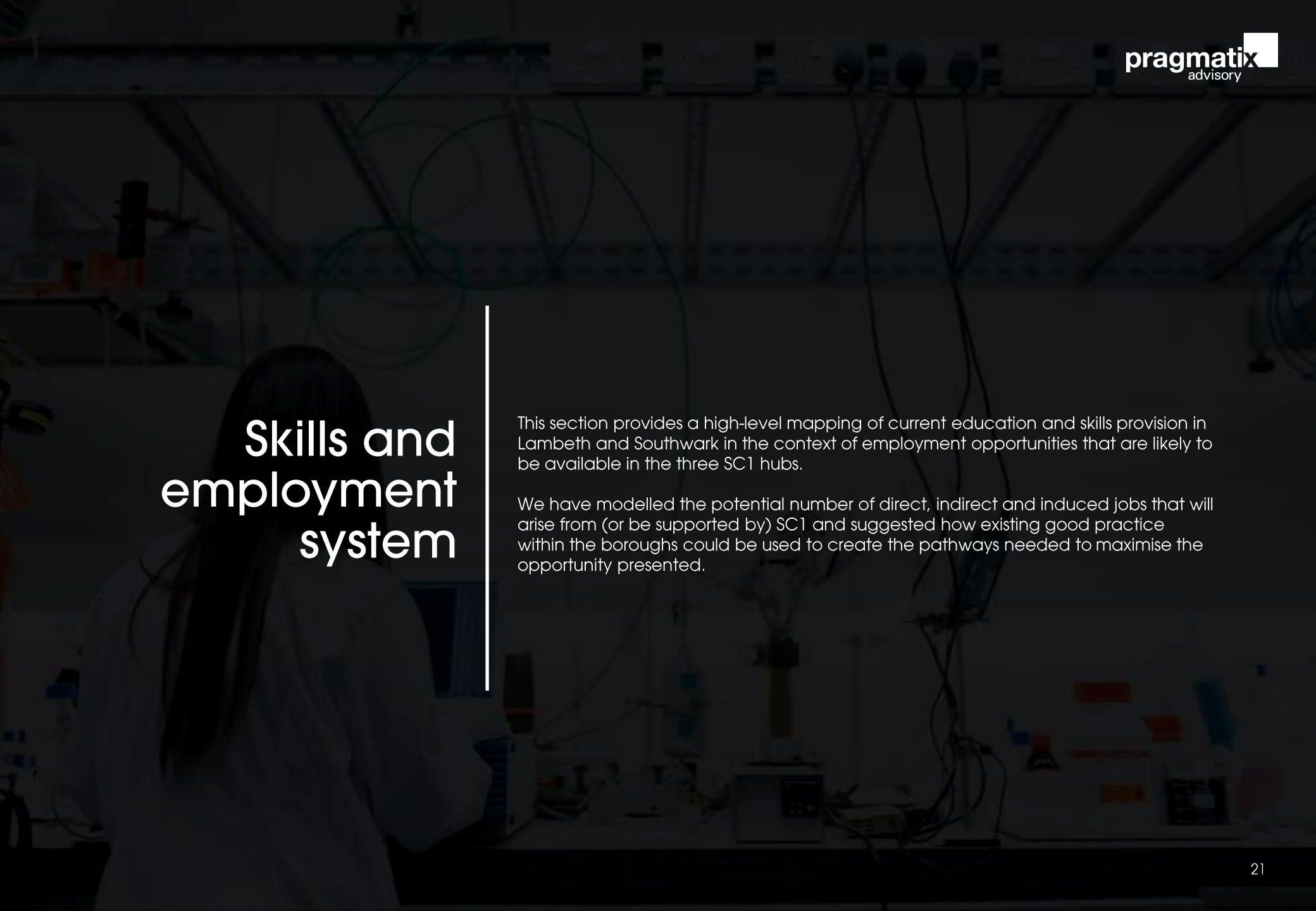
Enabling students to identify as scientists is critical to increasing diversity and widening access

In the long-term, increasing the number and diversity of young people interested in science, technology, engineering or maths (STEM) careers requires confidence building, supportive influencers, mitigating bias and stereotypes and offering both academic and vocational routes. Identifying the right short-term actions to help get students onto pathways that deliver these factors is even more important within the life sciences given its diversity challenges.



Short-, medium-, and long-term outcomes linked to increasing diversity in STEM
United Kingdom, 2020

Source: Davenport et al.



Skills and employment system

This section provides a high-level mapping of current education and skills provision in Lambeth and Southwark in the context of employment opportunities that are likely to be available in the three SC1 hubs.

We have modelled the potential number of direct, indirect and induced jobs that will arise from (or be supported by) SC1 and suggested how existing good practice within the boroughs could be used to create the pathways needed to maximise the opportunity presented.

Both boroughs already have significant numbers of jobs in health and science.

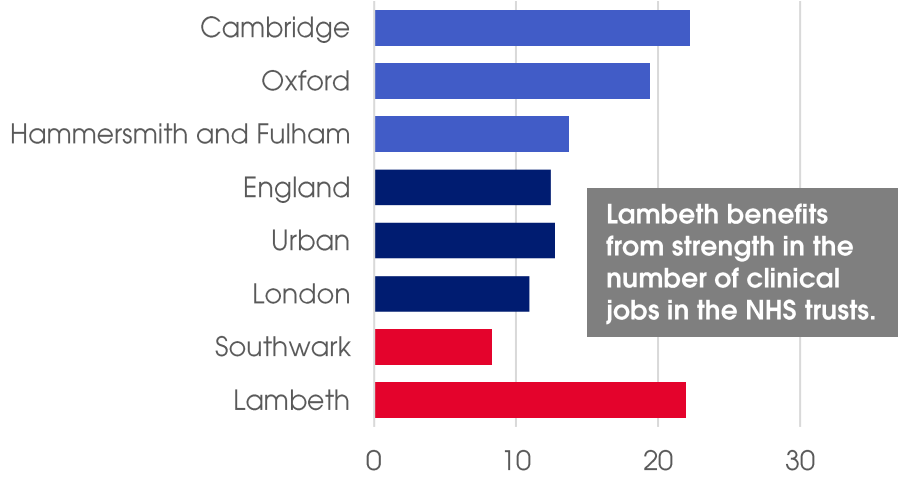
But these figures are skewed by the large NHS employers, professional services firms and universities that contribute a significant proportion of these roles. The spread of roles is therefore largely confined to only a handful of sites across the boroughs, which are not equally distributed.

Given the substantial travel poverty that exists within parts of the boroughs, it is important that access to opportunities are more evenly distributed geographically and that local residents are able to find out what opportunities are available in locations that are close to home and welcoming and familiar in nature.

Understanding how this could be achieved has been a key focus for our research.

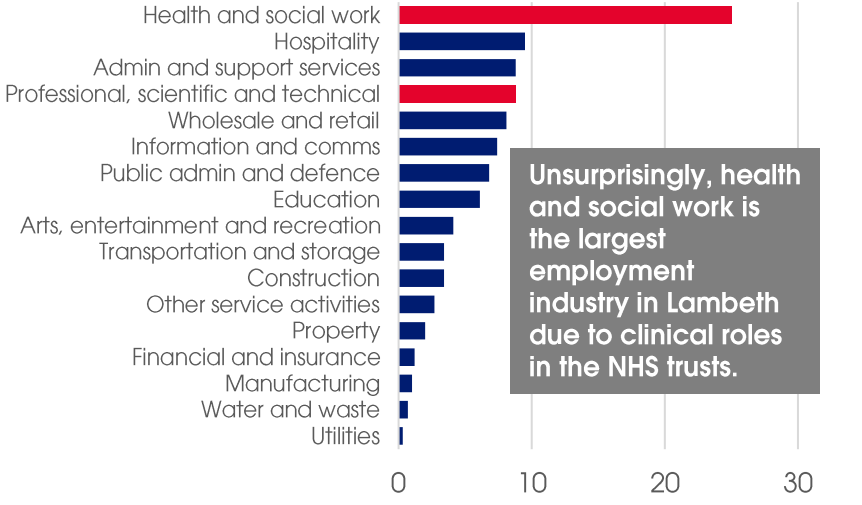
Proportion of employees in health and life sciences employment*

England, lower tier authorities, 2021, per cent



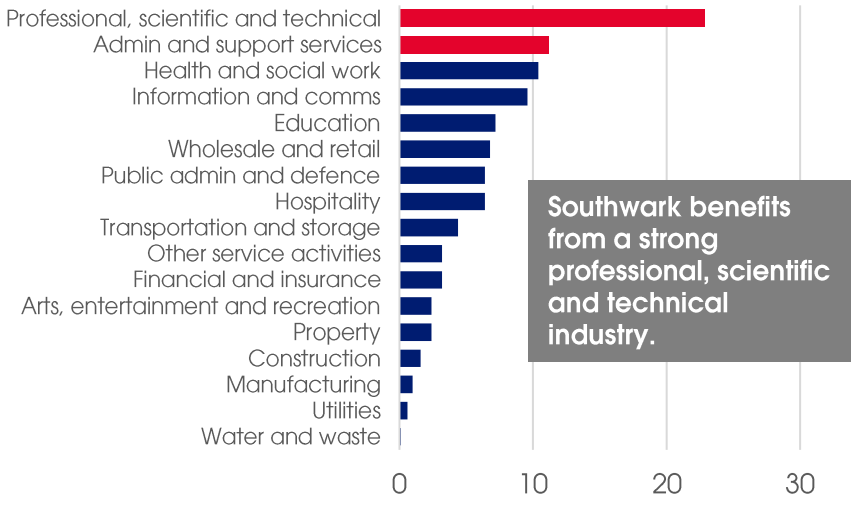
Employee jobs by industry

England, Lambeth, 2021, per cent



Employee jobs by industry

England, Southwark, 2021, per cent



*see *appendix* for list of industries and SIC codes classified as 'health and life sciences'; Source: Office for National Statistics

Unemployment rate is higher for ethnic minority residents.

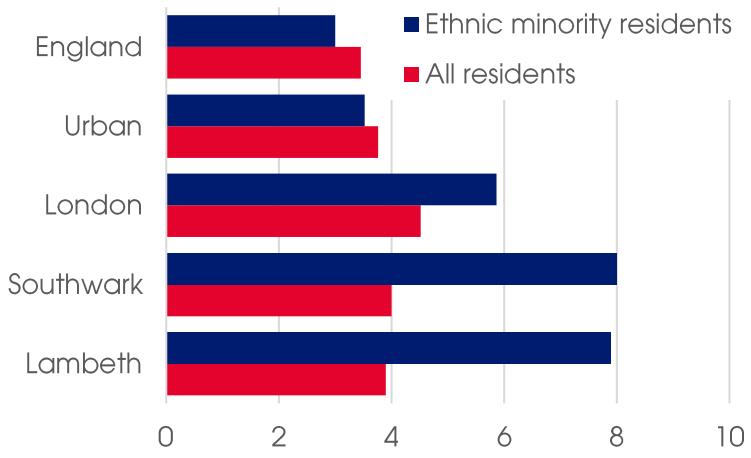
Both Lambeth and Southwark have unemployment rates lower than the London average, but ethnic minority residents within the boroughs are twice as likely to be unemployed than their white counterparts. The unemployment rate for ethnic minority residents is two percentage points higher in Lambeth and Southwark than across London as a whole.

Around half of all economically inactive residents in Southwark are students, significantly greater than the London and national averages. In Lambeth, around three in ten economically inactive residents who are classified as 'long-term sick'.

Any initiatives that are implemented to improve access to opportunities arising from SC1 need to ensure that they are focused on improving inclusion and widening diversity.

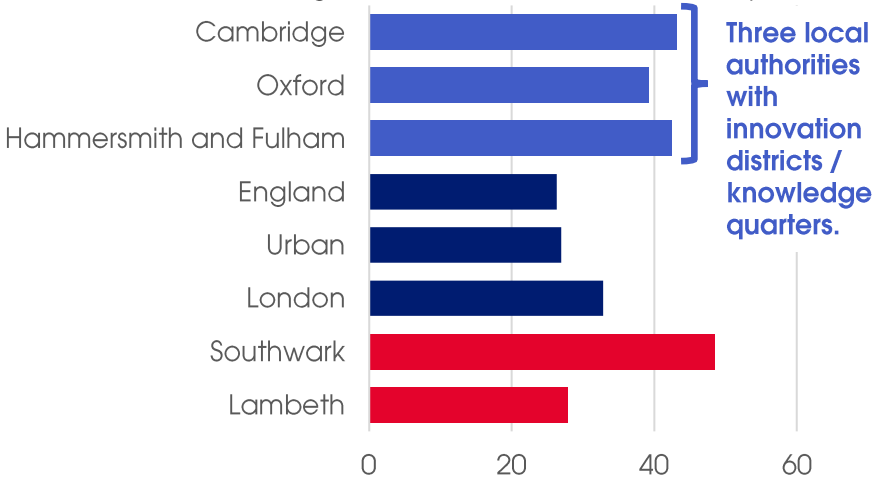
Unemployment rate of population aged sixteen and above

England, lower tier authorities, 2022, per cent



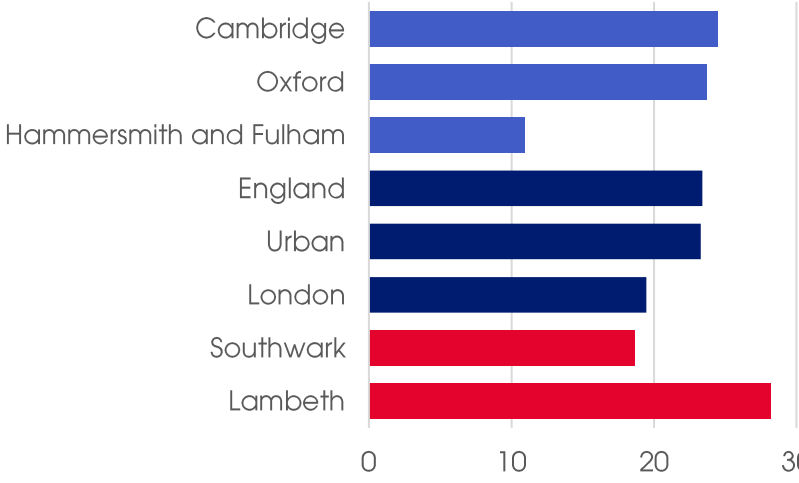
Proportion of those who are economically inactive that are students

England, lower tier authorities, 2022, per cent



Proportion of those who are economically inactive that are long-term sick

England, lower tier authorities, 2022, per cent



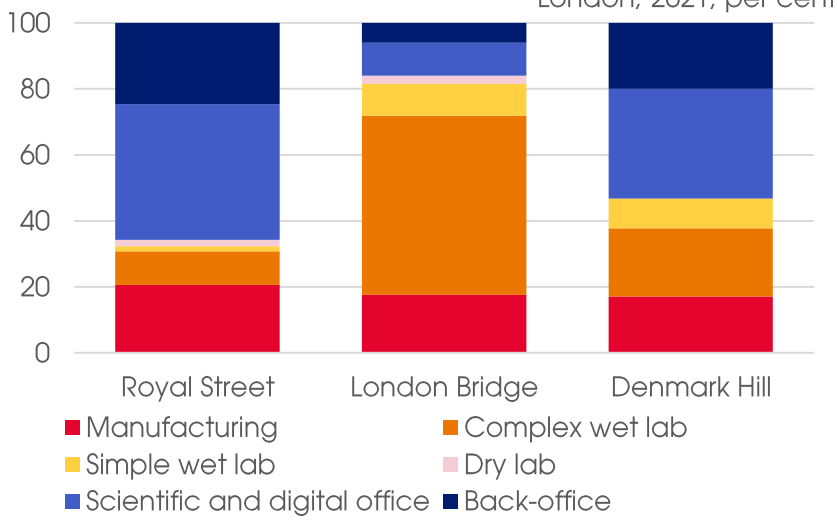
Source: Office for National Statistics

Our projections indicate that SC1 could create almost 10,000 direct jobs.

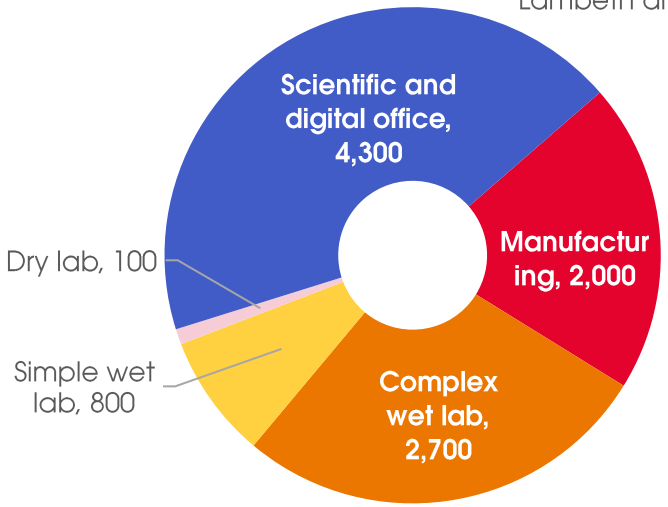
Our modelling suggests that SC1 could create almost 10,000 direct jobs in the life sciences at steady state within Lambeth and Southwark; with over 2,700 of those direct jobs created in first three years. These figures are based on a series of assumptions outlined in the appendix to this report and relate to the expected size and occupancy of the three hubs.

These figures are broadly in line with those outlined in the nationally-focused 2030 skills report by the Science Industry Partnership. In that report, it was forecast that there would be a total number of 133,000 additional direct and indirect life sciences jobs in the United Kingdom by 2030. Of those 133,000 jobs, 34,000 new direct and indirect jobs might be expected to be in London based on the growth seen over the last decade and will come through new innovation clusters like SC1 given its larger commercial development pipeline than other clusters.

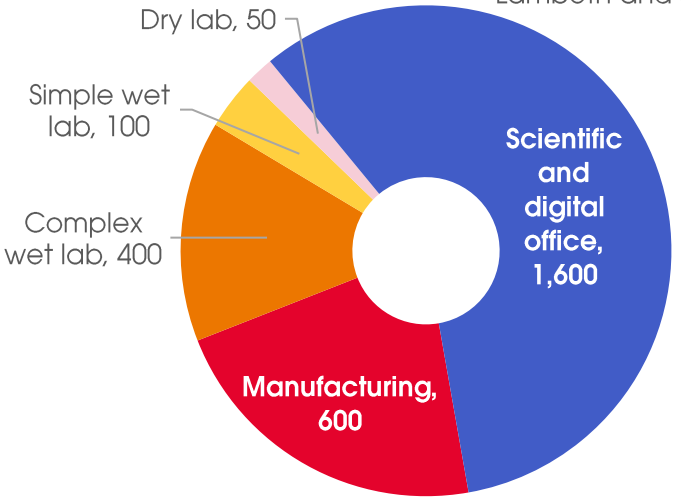
Modelled space proportions by SC1 Hub
London, 2021, per cent



Projected number of direct jobs created by SC1 at steady state
Lambeth and Southwark



Projected number of direct jobs created by SC1 by 2026
Lambeth and Southwark



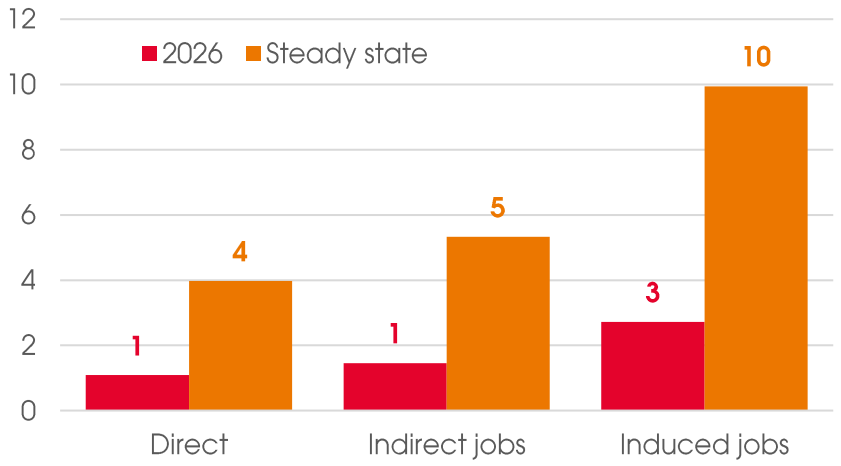
Source: Pragmatix Advisory analysis of Science Industry Partnership data

The economic multiplier effect could lead to an additional 23,000 jobs being created or supported by SC1.

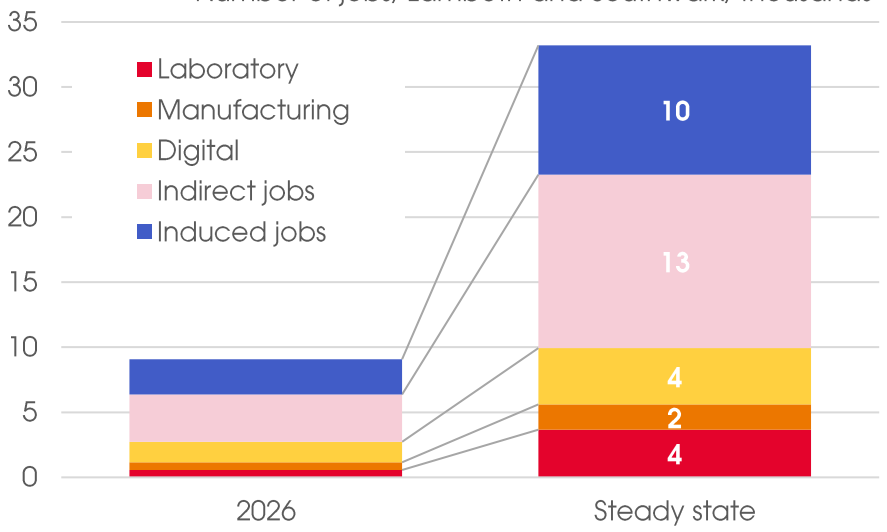
The multiplier effect of life science clusters could lead to 6,300 additional indirect and induced jobs being created in Lambeth and Southwark by 2026, and over 23,000 once the cluster reaches steady state. Indirect jobs are roles that support the scientific activity, in fields such as law, sales, and science communications; induced jobs are created by the additional personal spending by both direct and indirect workers.

Many are highly skilled roles, requiring qualifications at Level 6 or above. It is expected that SC1 will generate demand or provide support for over 3,500 and 17,000 such jobs by 2026 and at steady state, respectively. In total, this could lead to the gross value added from SC1 to the two boroughs equating to over £275 million per annum by 2026 and over £1 billion per annum at its steady state position.

Potential level 2 and 3 opportunities arising from SC1
Number of jobs, Lambeth and Southwark, thousands



Potential SC1 employment opportunities
Number of jobs, Lambeth and Southwark, thousands



Important to create high quality, entry-level roles

Whilst examining the number of potential roles is useful, it is also important to identify whether the roles will be highly skilled (requiring qualifications above Level 6) or lower skilled (requiring qualifications below Level 6). This is important given the relatively low skill levels within the boroughs and the need to ensure that SC1 creates high-quality, entry-level opportunities for local residents.

Based on the Science Industry Partnership's 2021 report looking at the skills needed to support growth in the life sciences industry by 2030, we have estimated that 40 per cent of the direct and indirect roles created by SC1 will require qualifications at Level 2 or 3. However, we have assumed that induced jobs, given the sectors in which they are found, are almost exclusively going to be roles requiring qualifications at Level 3 or below.

Source: Pragmatix Advisory analysis of Science Industry Partnership data

Education provision within Lambeth and Southwark

This subsection provides a high-level mapping of current education and skills provision in Lambeth and Southwark in the context of employment opportunities that are likely to be available in the three SC1 hubs.

Wide range of provision covering all learners

Further and higher education provision is strong within Lambeth and Southwark and there is a clear commitment to working in partnership for the benefit of local residents.

There are three exceptional higher education institutions within the boroughs: King's College London; London South Bank University and the University of the Arts, London's College of Communication. Each brings a set of complementary strengths that will be crucial for ensuring the opportunities presented by SC1 are realised.

In addition, there are four further education colleges: two that form the South Bank Colleges (Lambeth College and the London South Bank Technical College); Southwark College and Morley College.

The South Bank Colleges are an integral part of the London South Bank University Group and enable the group to offer guided learning pathways from the age of fourteen through to doctoral level study via the South Bank University Academy, the South Bank University Sixth Form, the two Colleges and LSBU itself. The impact of this structure is unequivocal in terms of the opportunities for real social mobility and reducing some of the systemic education-related inequalities within the boroughs.

KING'S College LONDON	KCL is a founding partner of SC1 and a major global research-intensive university with a world-class reputation in the medical and life sciences.
EST 1892 LSBU	LSBU has a heritage of transforming lives, communities, businesses and society through applied education and insight.
ual: london college of communication	Part of the University of Arts, London, the LCC is a pioneering world-leader in creative communications education.
SOUTH BANK COLLEGES Part of LSBU | GROUP	Lambeth College and the London South Bank Technical College form South Bank Colleges and provide further education pathways into local priority sector employment.
SOUTHWARK COLLEGE	Part of the NCG, Southwark College is a dynamic further education institution focused on developing the skills to succeed in modern enterprise.
MORLEY COLLEGE LONDON	Founded in 1889, Morley College London provides lifelong educational opportunities for diverse communities throughout London.

Further and higher education institutions in Lambeth and Southwark

Further education provision is a strong platform for future growth.

There are courses up to level 3 in life-science relevant subjects available at Lambeth and Southwark's further education colleges that cater for both adult and sixteen-to-eighteen learners. Coupled with the new facilities at London South Bank Technical College (part of the South Bank Colleges consortium), then there is a strong platform for growth within the boroughs.

Expansion within Morley College, with its strong heritage as an adult learning specialist provider in Southwark, perhaps offers a good opportunity to widen the options for learners in the two boroughs with its new STEM facilities at its newly upgraded Kensington and Chelsea campus.

South Bank Colleges

- Level 1 Certificate in Science
- Level 2 Pre-Access Diploma in Science
- Level 3 Access to HE Diploma: Medical Biosciences
- Level 3 T-Level in Science
- Level 4 HNC in Applied Sciences (Biology)
- Level 4 HNC in Applied Sciences (Chemistry)
- Level 4 Cert HE in Software Development

Science-based courses up to Level 4
South Bank Colleges, May 2023

Morley College

- Preparation for Study in the Sciences
- GCSE Science (Triple/Biology/Chemistry)
- Level 2 BTEC Award in Principles of Applied Science
- Level 2 BTEC First Extended Cert in Applied Science
- Level 3 Access to HE Diploma: Science
- Level 3 Access to HE Diploma: Medicine

Southwark College

- GCSE Science (Triple/Dual/Biology/Chemistry)
- Level 3 Access to HE Diploma: Computer Science
- Level 3 Access to HE Diploma: Science
- Level 3 BTEC Foundation Diploma in Applied Science

Science-based courses up to Level 3
Morley College and Southwark College, May 2023

Travelling for study and training linked to 'high' science capital

However, whilst there is a potential permeability to London's education system enabling cross-borough commuting to study or train. It is likely, though, that only those with high science capital will actively consider STEM-focused education and training opportunities outside of their home borough with most preferring to choose from the options available locally.

Adult learners are more likely to remain within their home boroughs, particularly those starting to re-engage with formalised education and training through, for example, Morley College's fusion skills courses. However, without undertaking a structured study on how far learners are able (or prepared) to travel it is difficult to assess the full range of science-related education and training opportunities available to local residents.

Source: College Websites

Much of the life sciences' undergraduate and postgraduate provision within Lambeth and Southwark is delivered at King's College London.

Underpinned by a critical mass of world-leading research in areas such as clinical medicine, allied health, pharmacy and neuroscience, the programmes delivered at King's offer students excellent graduate employment rates and the opportunity to work in state-of-the-art facilities within Europe's largest centre for medical and professional education.

Whilst the vast majority of the students reading for a degree at King's are not Lambeth and Southwark residents, and many are non-UK nationals, there is an opportunity through SC1 to increase the long-term retention of King's life sciences graduates within the boroughs as entrepreneurs or employees of businesses locating within the three hubs.

King's College London

- Applied Statistical Modelling & Health Informatics (MSc)
- Biochemistry
- Biomedical Engineering
- Biomedical Sciences
- Computer Science
- Medical Physiology
- Molecular Genetics
- Neuroscience
- Nutritional Sciences
- Pharmacology
- Pharmaceutical Sciences (MSc)
- Pharmacy

Undergraduate & postgraduate provision
LSBU and London College of Communication, May 2023

London South Bank University

- Anthroengineering (MSc)
- Applied Artificial Intelligence (MSc)
- Applied Science (MRes)
- Biomedical Sciences
- Computer Science
- Data Science (MSc)

London College of Communication

- Design for Data Visualisation (MA)
- Design Management (MA)
- Service Design
- User Experience Design

Undergraduate & postgraduate provision
LSBU and London College of Communication, May 2023

London South Bank University and the London College of Communication offer complementary provision to King's.

Non-clinical life sciences' related provision is more limited in scope than at King's with London South Bank University's strengths being within the area of computer science, and particularly the important fields of artificial intelligence and data science. There is also one of the world's first anthroengineering programmes run in conjunction with the Natural History Museum.

As might be expected, the London College of Communication's provision is largely design-related and therefore of particular use within a medtech environment, although skills in data visualisation are as relevant within a biopharma environment as they are within a medtech environment.

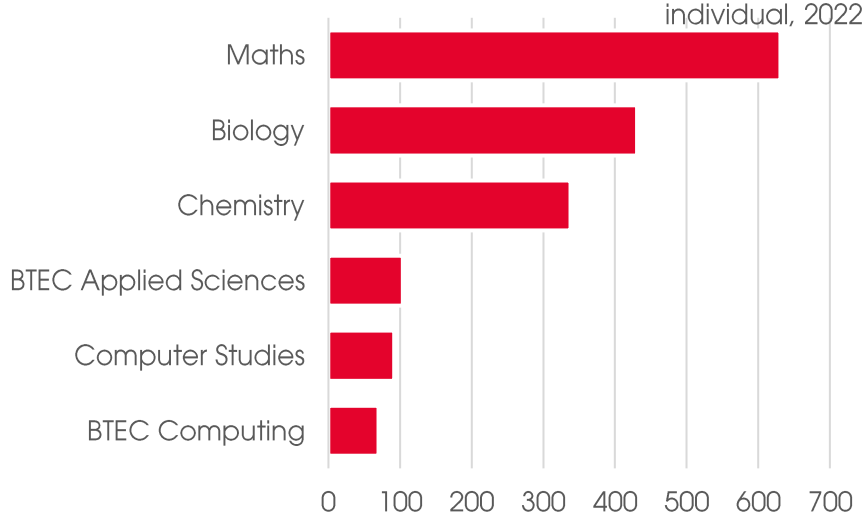
Source: University websites

Almost 6,000 non-clinical life science university students in Lambeth and Southwark

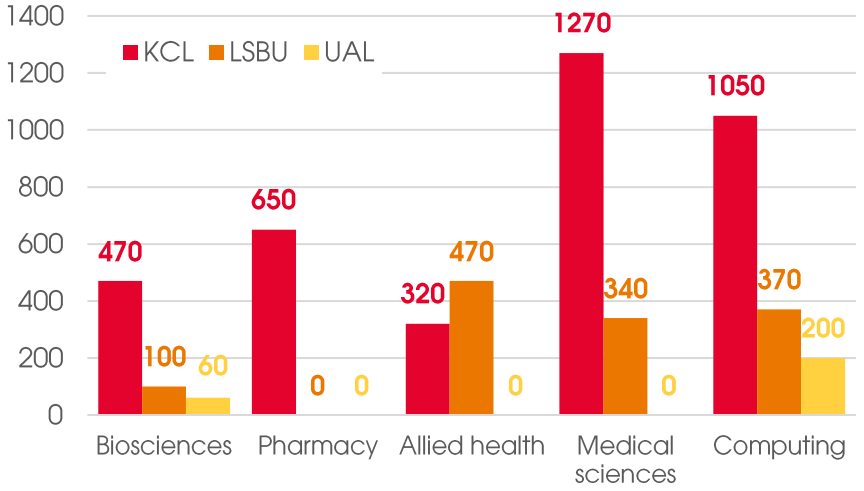
But the schools-based level 3 pipeline is weak, with only sixteen per cent of exam entries at Key Stage 5 being in Biology and a further four per cent in Applied Sciences. It is possible that the weakness is compounded through these subjects being combined with other, less cognate subjects that then make entering a Level 4 to 6 science-based qualification more difficult.

However, in 2020/21, there were over 4,500 undergraduate students studying life science-related degrees in Lambeth and Southwark and a further 1,200 postgraduates, excluding those studying medicine and nursing. There were also 1,600 undergraduates and 750 postgraduates on computing related courses. This shows that there are substantial numbers of graduates who could contribute to life science-driven economic growth if with the right opportunities existed.

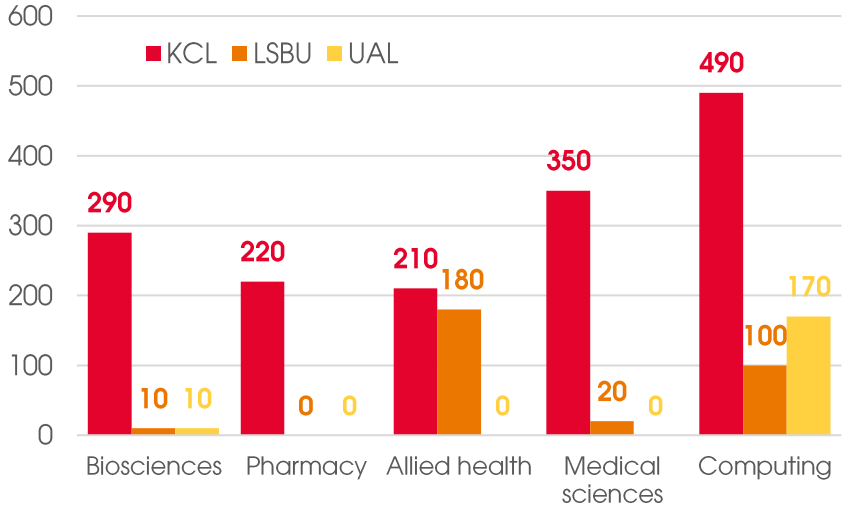
Exam entries by Level 3 qualification
Lambeth and Southwark, multiple entries per individual, 2022



Life sciences related undergraduate students*
Lambeth and Southwark, 2020/21



Life sciences related postgraduate students*
Lambeth and Southwark, 2020/21



*Note: excluding medicine and nursing. Source: Office for Students

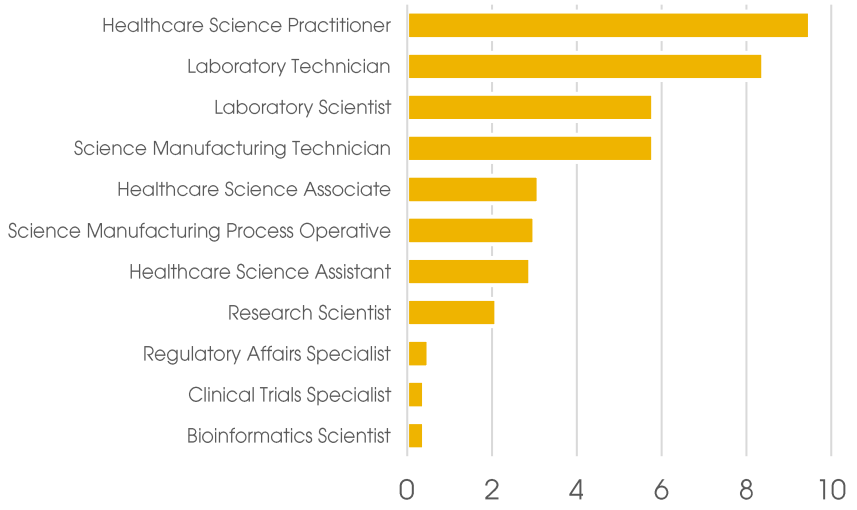
Vocational provision in science and laboratory-based subjects in the boroughs is limited but growing

The national picture for learner numbers on science and laboratory-based vocational qualifications is one of steep decline over the last five years with nineteen per cent fewer enrolments across all levels. It is unlikely that the picture in the boroughs is any more positive, although the growth and investment at London South Bank Technical College provides opportunities to reverse this in the future.

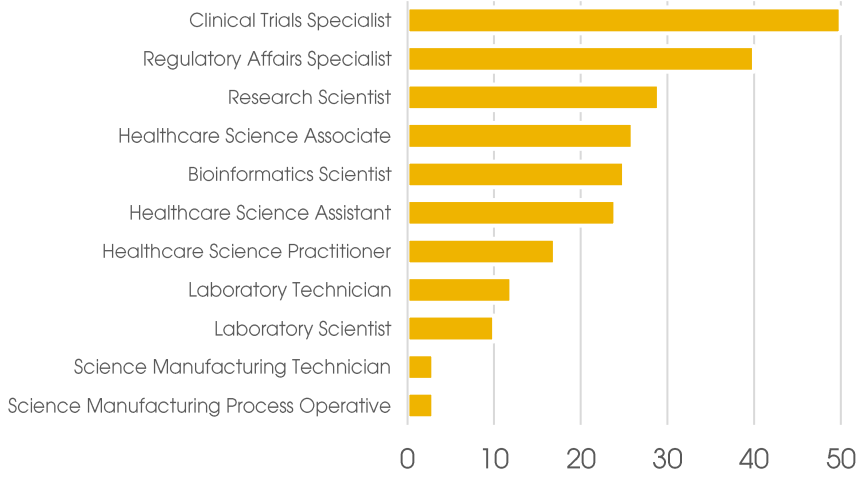
Only fifteen per cent of life sciences apprenticeship enrolments in England are from communities of colour, demonstrating a weak pipeline for improving diversity in the sector through this route. In Lambeth and Southwark, none of the standards are offered by local providers, which will be a significant barrier to increasing access to the sector for local residents wanting to enter the life sciences at Level 2 or 3 and should be addressed.

	Life science apprenticeship standards	
Level 2	Health science assistant	Science manufacturing process operative
Level 3	Laboratory technician	Science manufacturing technician
Level 4	Healthcare science associate	
Level 5	Technical scientist	
Level 6	Clinical trials scientist	Bioinformatics scientist
	Healthcare science practitioner	
Level 7	Clinical scientist	Medical statistician
	Regulatory affairs specialist	Research scientist
	Health and care intelligence specialist	

Life Science Apprenticeship Enrolments
England, 2021/22, Hundreds



Black, Asian and Minority Ethnic Science Apprenticeship Enrolments
England, 2021/22, per cent

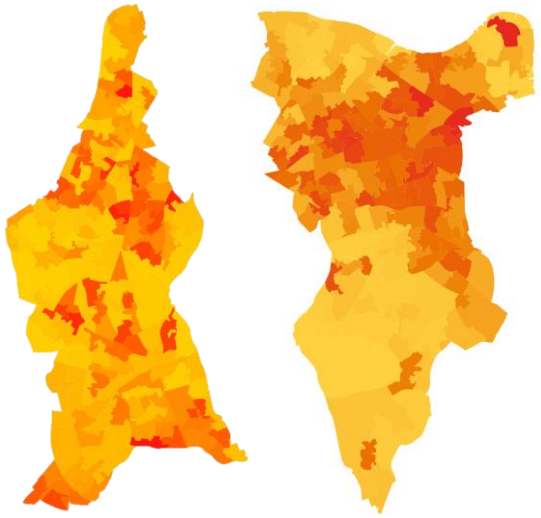


Source: Department for Education

Reskilling and upskilling adult learners will be critical gateways into the life sciences for local residents.

Whilst the traditional, formal education pathways exist within both boroughs to support young residents access good quality, highly-skilled opportunities provided by, or catalysed by, SC1 there is a need to ensure that adult learners are not left behind.

In 2020, there were almost 40 per cent of adults in Lambeth without a Level 3 qualification, and over 30 per cent of adults in Southwark: providing pathways for these groups to access entry level roles within the SC1 hubs will be an important marker of the success of SC1's ability to deliver inclusive growth. There is already good practice being undertaken through programmes such as ELEVATE and STRIDE for the eighteen-to-30 adult population in the boroughs, but these should be extended and continued in ways that support access to the life sciences.



Lambeth Southwark

Index of Multiple Deprivation: adult skills score
2019 national scale

More deprived

Less deprived

Funding body	Earnings threshold
West Midlands Combined Authority	£30,000
Tees Valley Combined Authority	£27,040
Greater London Authority	£21,548
Liverpool City Region Authority	£21,255
Cambridge & Peterborough CA	£21,000
West Yorkshire Combined Authority	£19,305
Non-Devolved Areas	£18,525

Low wage thresholds for access to subsidies
Adult Education Budget funding rules, 2022/23

Funding will be needed to support learners reskill and upskill in areas relevant for the life science

Changing the definition of 'low wage' within the boroughs and thereby increasing access to funding from the Greater London Authority's adult education budget could offer one way of doing this. The Tees Valley and West Midlands Combined Authorities have recently raised their thresholds to the median full-time earnings in their areas to help incentivise an increase in uptake of opportunities related to priority economic sectors.

If the 'low wage' criterion for fully-funded life-science-related courses was relaxed in Lambeth and Southwark to £30,000 (or the equivalent of the 40th earnings percentile in both boroughs, based on 2022 data) from the current definition of the London living wage, then this would help incentivise existing partially skilled workers transition into the sector.

Source: Trust for London Poverty and Inequality Indicators 2020; FE Week; Annual Survey of Hours and Earnings, 2022.

Existing good practice initiatives

In this section, we outline a number of existing initiatives in the area of employment and skills pathways that are underway either by the SC1founding partners or other relevant organisations.

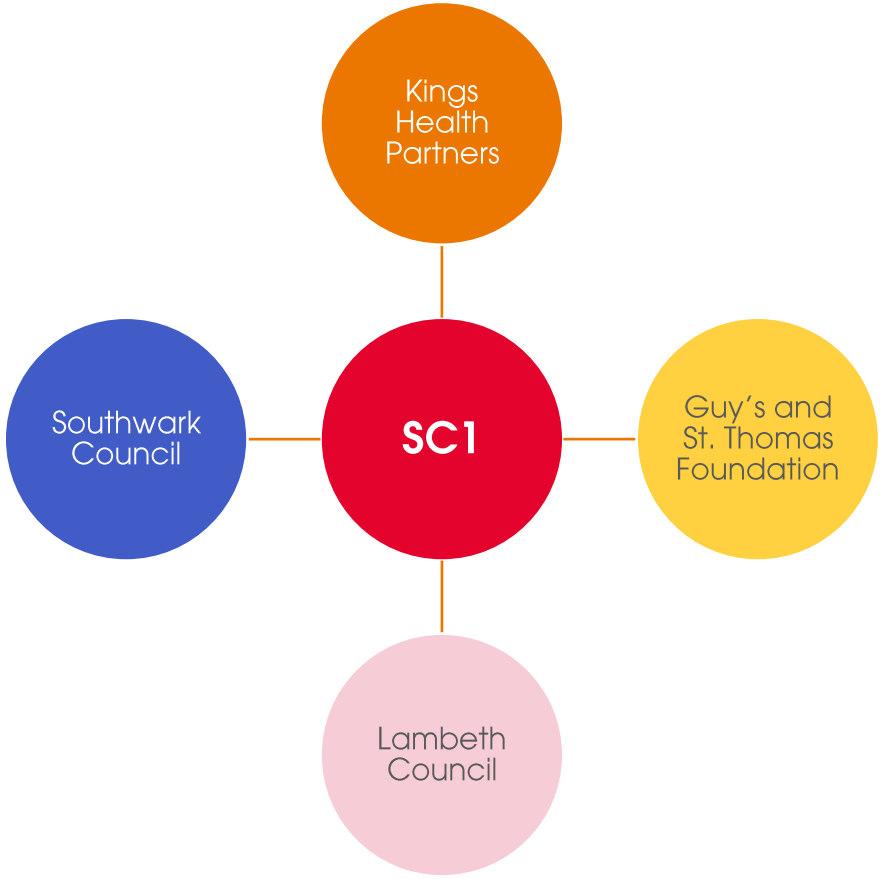
Considerable efforts already being undertaken

Work to build effective employment and skills pathways within Lambeth and Southwark is not starting with a blank sheet of paper.

Each of the SC1 partners has a rich heritage and history of widening access to education or employment opportunities within their organisations or for their communities. Much of the existing work being undertaken is effective for the needs and aims of each partner: activity within the NHS trusts, for example, tends to be related to reducing clinical vacancies; activity within King's College London is effective at raising aspirations of students to go to university; Lambeth and Southwark's work in skills and employment is aimed at reducing economic inequalities and drive inclusive growth.

There is therefore the opportunity to harness the experience and expertise of the teams within the partners to drive forward the innovation required to both ensure the right education and skills provision is available to learners at all levels and stages within Lambeth and Southwark. This provision will require 'wrap-around' and effective information, advice and guidance support from partners' careers experts who have a depth of understanding of the life sciences, the broad range of opportunities available and the variety of routes into the sector.

Investment may also be required to expand the capacity available to establish and maintain the activity required to meet the needs of a sector not an organisation. In this way, the benefits arising from SC1 will be greater than the sum of their individual parts.



Existing initiatives at the local NHS trusts and universities

This subsection provides visibility of the existing good practice currently being undertaken within the NHS Foundation Trusts and the universities located within Lambeth and Southwark.

Guy's and St. Thomas NHS Foundation Trust

The Trust is at the vanguard of widening participation into healthcare within London and considerable work has been undertaken by the Outreach team to raise the profile of the variety of careers that exist within the sector.

There has been a focus on improving the diversity of band 6 and above roles through work to influence who joins relevant programmes so they can create a suitable pipeline of diverse talent.

In addition to the two case studies noted, the Trust has recently embarked on a pilot programme funded by the Guy's and St. Thomas Foundation to intervene and provide opportunities for students with potential but who are at risk of disengaging in formal education. There is also a supported internship programme with extended work placements for neurodiverse students.

Healthcare Sector Work-based Academy

Sector work-based academies help prepare those receiving unemployment benefits to apply for jobs in a different area of work and are administered by Jobcentre Plus. Placements last for up to six weeks and include pre-employment training, work experience and a guaranteed job interview.

The Trust has used a Healthcare SWAP to reduce vacancy rates within a range of roles, including entry-level, non-clinical roles. Open to any London resident, and with good progression rates into roles within the Trust, the SWAP includes:

- Level 1 Award in Preparing to Work in Health and Social Care
- Level 2 Award in Understanding Infection Prevention
- Level 2 Award in Equality and Diversity
- Employability training modules, plus pre-employment sessions
- Guaranteed interview

Prince's Trust Pathways into Healthcare Programme

The Prince's Trust is a youth charity which helps disadvantaged young people gain the skills and confidence they need to find a job or begin training.

Guy's and St. Thomas' NHS Trust has partnered with the Prince's Trust to provide a route into the NHS workforce for young people in Lambeth and Southwark aged sixteen to 30, thereby reducing vacancy rates in a range of entry-level, non-clinical roles.

The programme is a three week introductory course with class-based learning and work placements delivered by the Prince's Trust and co-created with Guy's and St. Thomas' NHS Trust. As part of the programme there is a recruitment event and, once employed, The Prince's Trust provides mentoring and pastoral care for the first six months.

Apprenticeship standards

- Level 2 Healthcare science
- Level 3 Business Administration
- Level 3 Dental Nursing
- Level 3 Pharmacy
- Level 6 Healthcare science practitioner
- Level 6 Operating department practitioner
- Hospitality
- Electrical engineering
- Mechanical engineering
- Project management (capital development)

Currently offered apprenticeship standards
Guy's & St. Thomas' NHS Foundation Trust, 2022/23

Source: Guy's and St. Thomas NHS Foundation Trust

King's College Hospital NHS Foundation Trust

King's College Hospital's 2021-2026 strategy was underpinned by a renewed commitment to its role as an anchor institution within Lambeth and Southwark. Coupled with its commitment to apprenticeships, King's is offering a range of innovative solutions to supporting inclusive growth within the boroughs.

Working with organisations like Centric Community Research, the Trust has started to overcome the significant challenges with engaging the local community in both clinical research projects and attempts to improve the diversity of the Trust's talent pipeline.

This work has been reported to have led to an improvement in community engagement and particularly on helping reduce distrust and mistrust of medical institutions within the Black community in South London.

DFN Project SEARCH

The programme provides real life work experience combined with opportunities to develop life skills to help young people with learning difficulties and autism make successful transitions from school to adult life. The interns will gain a year's worth of experience in different departments of the hospital, including clinical areas, clinical support services and corporate services. The placements they undertake are assigned based on their skills, abilities and interests.

Each Kings College Hospital intern will spend 10 to 12 weeks in each of their three placements before graduating in Juy 2023. A member of King's staff will provide mentorship to each intern. The mentor will work alongside them during their placement, providing training and guidance. The interns also receive support to complete their final year of education from their on-site job coach and tutor.

Apprenticeship 500

Apprenticeship 500 is a flagship programme at King's College Hospital that, simply, has the aim of recruiting 500 apprentices within the Trust by the end of 2024. Through the programme, there has been increased awareness of the potential and benefits of apprentices within the trust both through the internal and external marketing, but also through the impact the apprentices have had within the Trust.

There are currently around 260 apprentices, of which about 70 are new to the Trust, and cover a mix of leadership-related apprenticeships that have been put in place to meet strategic demand and lower-level standards such as business administration and project management. The programme is aiming to expand significantly in the next year or so through a major push on upskilling Healthcare Assistants through the provision of relevant apprenticeship standards.

Lambeth Health & Wellbeing Bus

- King's EDI and Research Teams worked with Lambeth Council to support the Health and Wellbeing Bus programme, designed in response to the low COVID-19 vaccination uptake in local communities. This direct engagement has helped to build trust within South East London communities, supported the development of King's plans to tackle health inequalities and increase diversity in clinical research participation.

Future Leaders

- King's EDI Team held an `Experience the NHS Day' to enable 40 students from under-represented backgrounds to find out more about the many career opportunities in the NHS and to support their applications to university. Sessions included a skills lab, interaction from Trust departments. The students were also given a tour of King's Denmark Hill site and had a session on writing university applications and personal statements.

Example Initiatives to improve diversity and inclusion
King's College Hospital, 2022/23

South London & Maudsley NHS Foundation Trust

South London and Maudsley NHS Trust is the UK leader in the provision of NHS mental health services, with a global reputation for its wide-ranging capabilities working with mental illness.

Maudsley Learning is the education and training arm of the Trust. Its mission is to produce the highest quality mental health and wellbeing education and training products. Their courses are delivered by renowned mental health experts at the Trust and the Institute of Psychiatry, Psychology and Neuroscience (IoPPN) at King's College London.

However, there is also a significant apprenticeship offer within the Trust's internal organization development team as well as commitments to improving work experience opportunities and T-level placements, and create entry-level routes through the Kickstart scheme and with the Prince's Trust.

Who do you trust?

- An ongoing research project on Covid19 vaccine hesitancy and trust-building in local communities. The project responded creatively to a 2021 in-depth piece of research into the causality of Covid19 vaccine hesitancy in Tower Hamlets.

Breast Cancer Awareness Campaign

- Students on the BA Hons Animation programme collaborated with NHS Southeast London Clinical Commissioning Group and Southwark Cultural Health and Wellbeing Partnership on a campaign tackling breast cancer screening awareness amongst Black, Asian and minority ethnic women in Southwark.

Example health communications projects
London College of Communication, 2022/23

Actively managed pathways into nursing

South London and Maudsley has a long tradition of apprenticeship provision, and it current has almost 250 apprentices on programme, of which between 80 and 90 were recruited externally. A core part of the provision is the managed approach to nurse training pathways. Level 2 Healthcare Support Workers are actively recruited and then supported where appropriate to undertake the Level 5 Nursing Associate and then the Level 6 Registered Nurse apprenticeships.

Whilst the overheads are comparatively significant, there is a substantial benefit to the Trust through a perceived improvement in quality of tnurses given the vocational route and layers of experience gained. It also opens up nursing routes to those from under-represented groups who could not afford to go to university or whose life commitments would preclude full-time study.

London College of Communication

Out of all six UAL Colleges, the London College of Communication has the largest number of students joining from the local area, as well as the most diverse student body. This richness of skills, ideas and experiences makes the College perfectly placed to collaborate with local communities and work together to tackle society's big challenges.

The College has emerging research expertise in the area of Health Communications focusing on engaging hard-to-reach and under-represented communities. Successful projects have led to reductions in health inequalities, spread awareness and eliminated stigma around mental health.

There is also expertise in the areas of data visualization, service design and user experience design: all of which could be important for filling skills gaps within the life sciences industry.

Source: South London and Maudsley NHS Foundation Trust (top); London College of Communication (bottom)

King's College London

Kings College London is widely regarded as the leading Russell Group University for outreach, particularly for school-age students. The Faculty of Natural, Mathematical and Engineering Sciences, for example, runs open access labs and summer schools, work experience and extracurricular activities. They also run a series of free lectures such as the Christmas Lectures, Daniell Lectures and Annual Higgs Lecture.

There are three outreach initiatives in particular that could be adapted or widened through the SC1 partnership for a direct impact on local young people entering life science careers: Parent Power, Kings Scholars and GamePlan. In addition, for some applicants from disadvantaged backgrounds there is a standard two-grade reduction in their offer from KCL that can aid access to the world-class science education provided.

Parent Power

The Parent Power model, originally created by King's College London and Citizens UK, brings together local parents and carers and facilitates one-to-one and group meetings led by a local Community Organiser. Through advice and guidance on accessing higher education, and developing skills in community organising, Parent Power empowers parents and carers to make change in their children's future.

The parents themselves decide what activities will benefit their communities and children; Parent Power chapters across the UK have arranged tailored university trips, received training on student finances and secured bursary places at summer schools.

Since its formation in 2017, South London and Oldham Parent Power chapters have collectively engaged over 350 parents/carers.

Kings Scholars

Over three years, King's Scholar students learn about university life, explore a diverse range of subjects, and discover the different career paths available after university. Throughout pupils are taught how to supercharge their learning through metacognition. Pupils are given tools to increase their sense of wellbeing empowerment.

King's Scholars has been co-created with eight partner secondary schools in Lambeth, Southwark, and Westminster. Pupils learn important skills essential for learning and participate in activities such as:

- In-school sessions delivered by King's student ambassadors
- Trips to the university's campuses
- Remote activities, KS connect and KS challenges.

GamePlan

Designed by King's College London, gameplan.ac.uk is a free games-based website that allows 10-14 year olds and their parents to explore university. Using games, videos and animations, the site offers pupils interactive advice and guidance on how to access top universities.

Designed to be used either in short sessions as a stand-alone site, or in a more structured lesson based format with accompanying lesson plans, the site can be accessed both at home and at school.

Parents too are provided with a wide range of information, expert advice and crucial hints and tips, enabling them to effectively support their child.

Source: King's College London

London South Bank University Group

The Sutton Trust and Institute for Fiscal Studies recently rated the University third in England for enabling disadvantaged students access jobs in the top 20% of incomes by the time they are 30. It is ranked fifth in the world for its contribution to Reducing Inequalities (SDG 10).

In recent years, they have coupled this success and know-how with the creation of an integrated group structure that includes Lambeth College, London South Bank Technical College, the South Bank University Academy and South Bank University Sixth Form. In doing so, it has looked to support the local community by forming identifiable pathways using Standard Occupational Classifications (SOC) analysis to align course offers (including apprenticeship programmes) at the College and University into clear career pathways..

London South Bank University Green Skills Hub

The Hub is part of the Mayor's Academies Programme, which was setup to support Londoners into good work in critical sectors as part of the London Recovery Programme.

It aims to lead on the move to the green economy and net zero with a focus on the skills needs of the residents and businesses of the local tri-boroughs (Lambeth, Lewisham & Southwark). There is a particular focus on green skills growth and enabling access to roles in line with the good work standard.

There is also a comprehensive embedded diversity offer focused on a minimum of 50% Black and Minority Ethnic, women, unemployed and economically inactive people, those earning less than London Living Wage, 16-25-year-olds, over-50s, lone parents, carers, and disabled people.

Southwark Health Skills Centre

The Southwark Health Skills Centre was created by London South Bank University in partnership with Guy's and St Thomas' NHS Foundation Trust and Health Education England.

It provides the people of Southwark and surrounding boroughs with access to career pathways in health and social care, whatever their age or educational starting point. Its aim is both to educate and train new recruits and to upskill existing staff.

The Centre, through South Bank Colleges, offers a range of health and social care entry programmes. These include pre-apprenticeship programmes in English, maths, ESOL and digital skills to enable current and prospective Guy's and St Thomas' staff to embark on advanced and higher apprenticeships.

London South Bank Technical College

The £100million investment into the new London South Bank Technical College exemplifies this by offering an immersive work-based education and learning across key STEAM areas. The courses are designed to fast-track students onto degrees and degree apprenticeships through their co-creation with businesses across London.

By 2026, the College aims to have over 10,000 young people and adults enrolled. The curriculum has been designed to provide clear progression routes for young people and adults to access high quality technical education from Level 1 to Level 4 though part-time, full-time, work based (apprenticeship) and employer-sponsored programmes. There are also Level 3 Access to HE programmes, which provide a fast track into higher education for adult learners.

Source: London South Bank University Group

Lambeth Council has seen particular success in driving inclusive growth in the digital and creative sectors through the ELEVATE programme.

ELEVATE reflects Lambeth's mission to open up the creative and cultural sector to every young person in the borough. It was established in response to the ongoing shifts in Lambeth's economy towards an increasing focus on the digital and creative industries both as emerging sectors and the greater need for digital and creative skills in traditional employment roles within the borough.

Using three strands, the underlying aim is to reverse the decline in employment in the creative and digital industries within the Borough and take advantage of the higher gross value added that this sector has been shown to offer.

ELEVATE Education

ELEVATE Education ignites Lambeth schools with an unmissable arts education offer for students. Cultural organisations and teachers work together to achieve this through Lambeth's Cultural Education Partnership (LCEP). ELEVATE shares creative activities for young people to get involved with.

For example, young residents could join the Art Assassins and develop new skills in event planning and management, communication and marketing, curating & exhibition making, public speaking and teamwork whilst learning about careers in the creative industry at the South London Gallery.

Or they could take part in the Kinetika Bloco holiday workshop gives young people the opportunity to learn drums, woodwind, brass and steel pan and create a live music performance together with 60 other young people.

ELEVATE Neighbourhoods

ELEVATE Neighbourhoods gives Lambeth's young people the chance to collaborate on new creative, out of school projects. Local arts organisations collaborate with community partners across the borough.

ELEVATE Neighbourhoods is led by the Elevators, ELEVATE's youth advisory group. In 2020, and following an open call and online briefing hosted by the Elevators, seven projects were each awarded £7,000 to deliver activities such as:

- Creating a film and online archive on Black British identity
- Workshops in creative self-expression leading to an exhibition
- A development programme connecting local talent to career opportunities
- Using specially designed kits to create games, completing them through a 48 hour online game jam.

ELEVATE Careers

The careers strand offers fresh opportunities for Lambeth based young people seeking a career in the creative industries, with Lambeth's leading art institutions.

For example, in partnership with Get Set, ELEVATE was able to offer one-to-one support and advice from a specialist advisor to creative 16-24 year olds not in education, training or employment interested in starting a creative career. The support also included interview techniques, confidence building workshops, and a range of functional support covering budgeting and housing.

Work experience, taster sessions, internship , development programmes and apprenticeship opportunities are also offered through ELEVATE in conjunction with local creative institutions.

Source: ELEVATE

Southwark Council is driving inclusive growth in a range of priority sectors.

Health, the life sciences, the digital and creative industries and green skills are all priority areas for highly-skilled employment within the borough, but there is also importance given to supporting entrepreneurs in a wide range of industries and providing facilities to help incubate new micro and small businesses.

Supporting local residents access these opportunities is paramount and the council are working to create over 5,000 apprenticeship and training opportunities that can open up high skilled, high-quality roles and careers. By doing so, a greater proportion of the wealth created within the borough will remain in it, thereby leading to improvements to both the quality of life for residents and the life chances for the borough's young people.

Southwark Works

Southwark Works is the council's longstanding employment support programme, commencing almost twenty years ago. It provides both general support and support tailored to the needs of residents furthest from the labour market, such as vulnerable young people including those that have left care, those with learning difficulties and disabilities and those with mental health needs.

This model aims to ensure that there is expertise available locally to deal with the range of issues that affect residents' ability to gain and sustain employment. As the employment support service for all residents, it is a gateway to other provision and programmes of support, like the Sector Work-based Academy Programme at Southwark College and the Construction Skills Centre.

Southwark Construction Skills Centre

The Southwark Construction Skills Centre is a shared strategic and developmental partnership created to provide a world class training facility tailored to deliver an innovative 'real life' construction experience with a focus on those who live and work in Southwark, as well as the wider tri-borough (Lambeth, Lewisham, Southwark) area and beyond.

Its main aim is to increase employment and training opportunities in the construction sector for local people by providing a complete service for on- and off-site training that guarantees a high-quality learner experience.

School engagement is a particular priority, and it runs a range of activities and events designed to inspire young people. Indeed, over 450 children have been engaged in the last year from Lambeth, Southwark and Lewisham.

The Passmore Centre

Part funded through a £5m grant from Southwark Council, and developed in partnership with LSBU, the Passmore Centre is the home for LSBU's Institute for Technical and Professional Education. The Centre provides a gateway for learners into higher professional and technical education, supporting Southwark residents to achieve quality, high level apprenticeships. This is helping equip Southwark residents with the skills required to take up the jobs demanded in the future.

The Passmore Centre also serves the local community by being a central point for independent careers advice and guidance for those considering access to professional and technical programmes (Levels 3-6) including school and FE pupils and the wider community. This includes insight for young people into the kinds of jobs available in the borough and encouraging people into the most suitable courses.

Source: Southwark Council; Open College Network

Other relevant initiatives within London

This subsection provides visibility of a number of additional and relevant initiatives driving inclusive growth, creating highly skilled employment opportunities or supporting entrepreneurs within London.

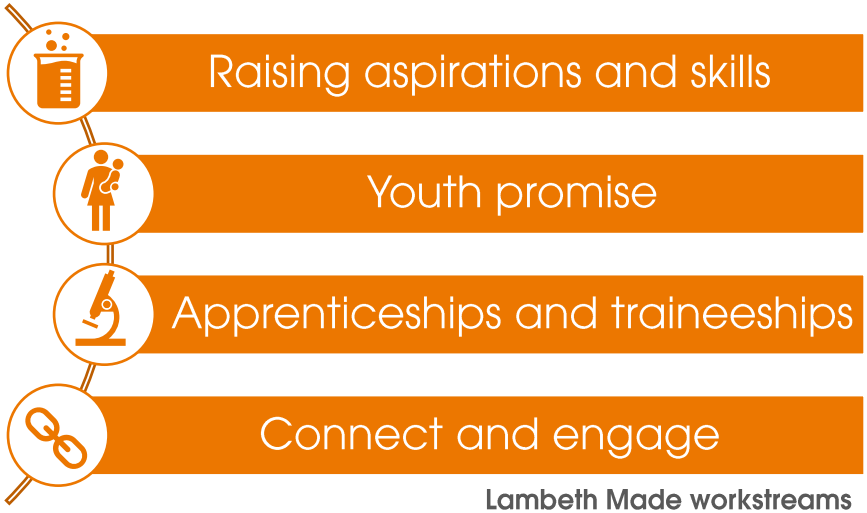
STRIDE has helped drive an inclusive creative and digital economy in South London.

Using an £8 million grant from the Corporation of London in 2019, the STRIDE project has been delivering a range of projects that have helped to nurture innovation, empower talent and encourage enterprise. An ongoing focus has been on ensuring that at least half of the programme's beneficiaries were women or from a minority ethnic background. Indeed, over 80 per cent of beneficiaries have come from these backgrounds, demonstrating the programme's success.

In particular, STRIDE has been successful in helping beneficiaries overcome barriers to access such as ensuring the timing of events is convenient to care-givers and ensuring that funding was available to alleviate the endemic travel poverty within South London.

Affordable workspace	13 new workspace projects come to life within the growing creative clusters found in Battersea, Brixton, Peckham, New Cross and beyond.
Talent development	Building partnerships that expand our reach, increase access to opportunity, and help young people across South London reach their potential.
Knowledge exchange	Building networks that inspire imaginations, encourage collaboration and the exchange of knowledge.
Business support	Being at the forefront of supporting entrepreneurship and job creation, powered by people from all backgrounds.

STRIDE priority areas
2020 onwards



Lambeth Made workstreams
2022/23

Lambeth Made Education Skills and Employment supports young people achieve their full potential.

Lambeth Made is a transformative programme that has the aim of supporting young people (aged eleven to 30) stay in education, ensure they understand the opportunities available to them and have their aspirations raised. Through the four Youth Promise Hubs, young people can access a variety of guidance, mentorship, and exclusive opportunities across Lambeth, skilled employment and welfare advisors.

As a model programme supporting those on the periphery of education and employment there is considerable value in exploring how its workstreams could be adapted to increase routes into the life sciences, particularly for those medium ability young people with low science capital, irrespective of their background or circumstances.

Source: STRIDE, Lambeth Made

Whilst increasing access to opportunity in the creative and digital sectors has had investment, there has been limited focus on science.

Both STRIDE and ELEVATE have been trailblazing programmes for increasing entrepreneurialism, access to opportunity and the diversity of the digital and creative sectors in South London. There is not a similar programme for science within South London, although the science, technology, engineering, arts and maths (STEAM) programme in Camden offers a model of good practice.

The STEAM programme brings opportunities in the digital, scientific and creative industries to life for Camden's young people. It is designed to inspire young people, particularly those from under-represented backgrounds, by offering STEAM opportunities and helping prepare them for the world of work in local STEAM industries.

STEAM helps connect young people, schools and employers to enable local opportunities to be better understood and demystified, whilst driving collaboration on new opportunities. There are currently 51 STEAM employers working across Camden and over 200 volunteer STEAM ambassdors working directly with young people in local schools.

This model could easily be applied with a life sciences focus within Lambeth and Southwark under the leadership of SC1, which could also act as the hub. Securing meaningful pledges from relevant occupants to provide ambassadors and work experience for local young people would be particularly impactful.

STEAM ambassadors	•STEAM Ambassadors are our network of employee volunteers in Camden primary and secondary schools. Camden STEAM trains and supports STEAM Ambassadors and brokers activities that have a real impact for young people.
Work experience	•Welcome young people on work experience to enable every 16-18 year old young person in Camden to access a placement. •Host a group of young people during Camden's STEAM Work Experience week each July or commit places on your existing programme to Camden state school students.
Apprenticeships	•Work with us to create a Camden STEAM Apprenticeship route in your organisation and recruit local young people, or offer roles on your existing STEAM apprenticeship route to Camden young people
STEAM hub	•The STEAM Hub brings teachers and employers together to co-design curriculum projects – from single lessons to six-week projects. This embeds authentic industry expertise in the curriculum and is a powerful way for young people, teachers and employers to work with and learn from each other.

Camden STEAM pledge
2022/23

Source: Camden STEAM Pledge Flyer

Imperial College Invention Rooms

The Invention Rooms in White City is a space for the local community and Imperial College to come together in cutting edge facilities to collaborate on innovative and creative projects. Beyond the physical space, the Invention Rooms offers science pop-ups and events in the community using students and staff to engage and inspire local residents.

The idea behind the Invention Rooms is to inspire the next generation of inventors and entrepreneurs from within the local area. There are three unique immersive spaces, each with a different area of focus matched to the Invention Rooms' values:

- Make: The Dangoor Reach Out Makerspace
- Invent: Advanced Hackspace
- Community: The Interaction Zone

The Dangoor Reach Out Makespace

The Reach Out Makerspace is an innovative educational centre, dedicated to hands-on activities that engage students creatively in STEM. It has a variety of tools such as 3D printers, scanners, laser cutters, woodworking equipment and much more. This unique immersive environment provides young people with a space to experiment, design and innovate. Over 500 young people have engaged with the space since 2017.

The Maker Challenge programme utilizes this space through the year for a non-residential opportunity to develop and idea and see it through to creation. Participants gain a range of skills covering both technical skills in how to use the equipment and soft-skills such as product development, teamwork, presenting and communicating. Priority is given to those young people local to White City. At the end of the programme, students display their project for their friends, teachers and families to see.

Advanced Hackspace

Available to current Imperial College students and staff, the Advanced Hackspace brings together inventive minds from all backgrounds, disciplines and levels of expertise to collaborate, experiment and innovate.

There are three purpose designed prototyping and fabrication spaces developed to complement each other and accelerate multi-disciplinary prototyping, making and collaboration:

- Electronics and Digital Manufacturing Workshop
- Biochemistry Lab
- Mechanical Workshop

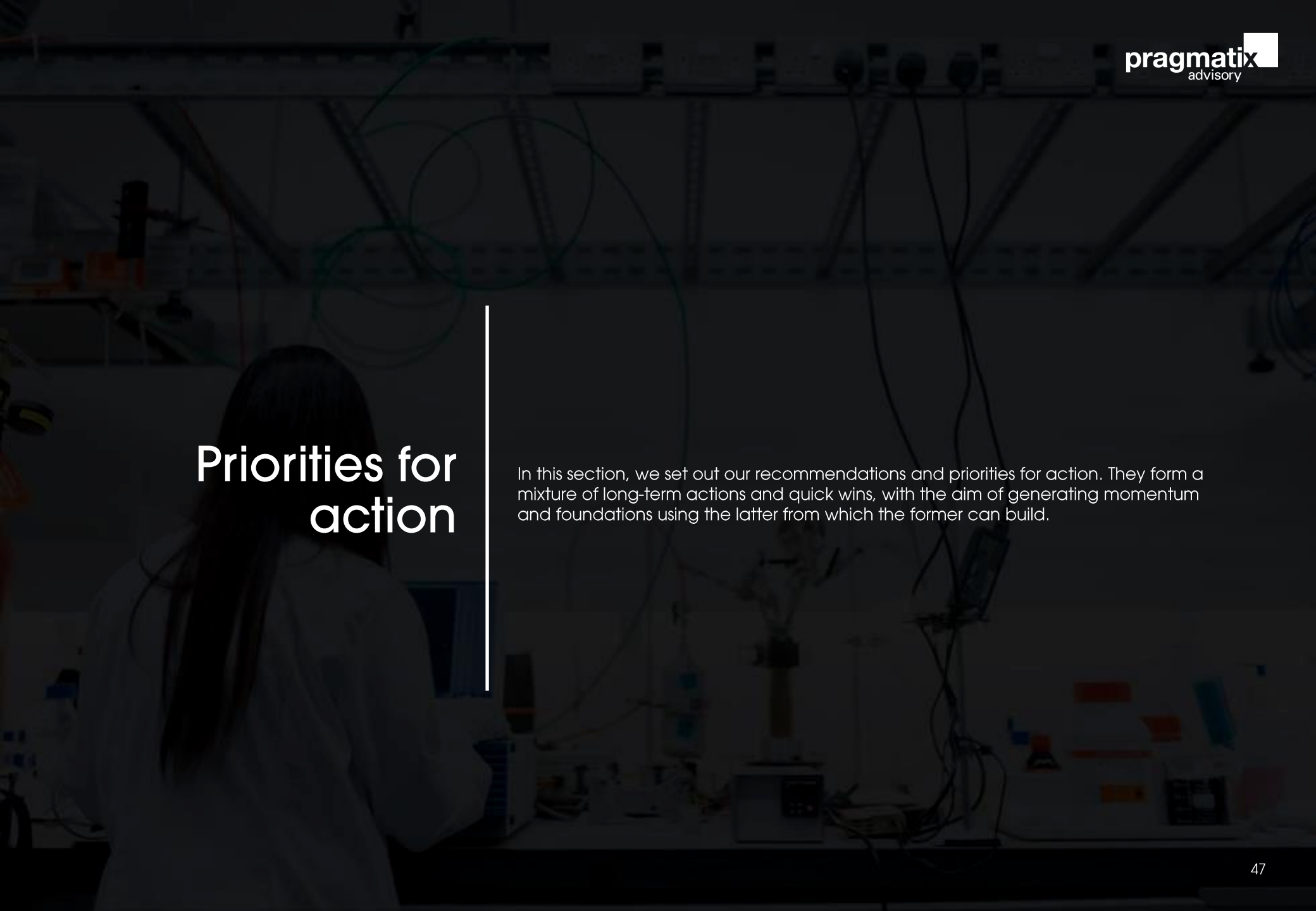
The Interaction Zone

The Interaction Zone is an event space within The Invention Rooms that hosts community and college projects across the year, for local families, organisations and authorities as well as Imperial College departments, staff and students.

The space is available to book for events and activities designed to engage the public around our core research areas of science, engineering, medicine and business.

Priority is given to the events run by Imperial College's community engagement team and offers two meeting rooms (both with Teams/Zoom capability), free wif-fi and complimentary hot drinks. The facilities also include a community garden, a café and space for exhibitions, displays and events.

Source: Imperial College Invention Rooms



Priorities for action

In this section, we set out our recommendations and priorities for action. They form a mixture of long-term actions and quick wins, with the aim of generating momentum and foundations using the latter from which the former can build.

Effective collaboration will drive success

	Recommendation	Priority
	Re-energise the work of the SC1 employment and skills strategy group as a delivery vehicle for these recommendations.	High
	Partnership working to increase levels of science capital amongst the local community	High
	Explore establishing an SC1-led flexi-job apprenticeship agency	High
	Facilitate the creation of 'model' career pathways with associated qualification requirements	High
	SC1 should create a community-employer engagement function drawing in expertise from its partners	Medium
	Preparation and delivery of a local engagement and outreach programme	Medium
	Careers leads and advisors should be upskilled on the routes into a life science-based career	Medium
	Ensure the three hubs balance the need for a world-class life sciences environment with psychological safety for local residents	Medium
	A 'Life Science Pledge' from businesses occupying the three hubs, along with those already part of the SC1 ecosystem	Low

Recommendation 1

Re-energise the work of the SC1 employment and skills strategy group as a delivery vehicle for these recommendations

A group for action not discussion

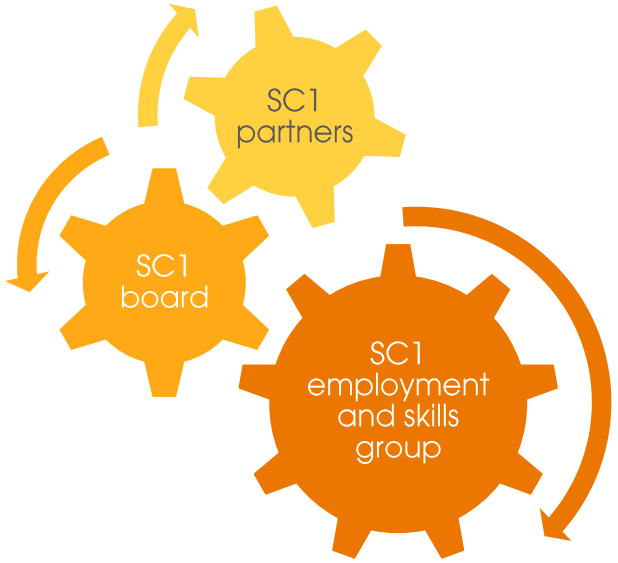
The first recommendation helps create a collaborative touch-point for the main participants in the employment and skills system in Lambeth and Southwark.

Re-energising the SC1 employment and skills strategy group will provide a focal point for implementing the recommendations in this report as part of a wider strategy for how SC1 can catalyse good quality, highly-skilled opportunities within the life sciences in South London.

The group's work would be action-orientated and ensure that the necessary actions were being taken. By dove-tailing into existing groups within Lambeth and Southwark, it would ensure that initiatives were joined up and sequenced appropriately in ways that matched the boroughs' priorities.

Develop	Develop the overarching strategy and delivery plan for SC1-catalysed employment and skills
Implement	Coordinate the programmes and agree the resources required to implement the plan in light of partner priorities
Evolve	Monitor progress of each programme and their benefits as part of a process of continual review and evolution of the plan

Proposed Responsibilities of the SC1 Employment and Skills Strategy Group



Recommendation 2

SC1 should work with Lambeth and Southwark Councils alongside expert organisations such as the Science Museum Group to increase levels of science capital amongst the local community.

Increasing science capital in young residents will transform access to opportunities presented by SC1

Not enough children and young people consider science as an attractive or viable career option because they believe that science is something for people unlike them. The pervasive association with 'cleverness' and (white) 'masculinity', and the persistent notion that being good at science is based on 'natural talent' (or having a 'science brain'), is highly detrimental.

Using informal science learning techniques within youth work and working with organisations like the Science Museum Group and the London College of Communication, these perceptions young people have can be challenged and changed. SC1 has a crucial role here to provide the support, access, knowledge and resources through its partners that are needed within schools and the community to enable this to happen.

Informal science learning in youth work

Many youth workers are self-confessed informal learners, having shied away from formal and academic routes to work in contexts like community and youth work. Their choice of subject-matter is steered by the potential to engage young people and help them achieve one or more of their youth work objectives. Activities that have obvious practical application and provide young people with real-world skills are often favoured. In doing so, many youth workers are already using STEM in their work but doing it by stealth so young people are not explicitly aware they are learning anything.

By making the link explicit after an activity completes, the self-confidence of young people in their science-related abilities can be boosted as they start to realise that they are grasping complex concepts which makes deeper engagement less intimidating.

In2Science UK Work Placement Programme

The programme involves a two-week placement working alongside STEM professionals and researchers to gain insights into STEM careers and research in addition to inspiring workshops and skills days giving young people high quality information on university and careers access as well as employability skills. Public engagement competitions support young people to develop their creative and literacy skills.

Areas of increased confidence cited in an evaluation of the programme included:

- Their capacity to communicate with others about STEM topics.
- Their ability to get into university.
- Their ability to work in a STEM job.
- Feeling that more opportunities were open to them

Bay Area STEM Ecosystem Summer Series

The Bay Area STEM Ecosystem is a partnership of private and public organisations which aims to increase equity and access to STEM learning opportunities in underserved communities. One of its key priorities is to make it easier for families to engage with and access informal STEM opportunities.

As one of their first actionable goals, the Ecosystem chose to complement other STEM education efforts in the region and support a free summer STEM series to meet the need for high-quality, engaging STEM programmes in South San Francisco. The series was advertised for families with children ages 3-13 years.

Thirteen organisations (including corporate sector) designed and hosted two-hour sessions for young people and families on consecutive Saturday mornings. All the sessions were held in a centrally-located, easily accessible location in the community.

School Science Club

Challenges faced by schools include how to make science interesting, relevant and engaging for their pupils. A consortium of eight schools was approached by the researchers at Cardiff University and a Science Club was established for year 6 pupils that complemented the schools' science curriculum.

The activities were centred on two, three-hour school visits covering The Body and Bugs, and The Skin, Brain and Drugs. facilitated by a university lead. A final 'showcase' university visit by all pupils taking part encompassing a tour of the facilities, several interactive activities, and talks by current PhD students regarding their area of research and how they became a scientist.

Outcomes were overwhelmingly positive and helped improve view of contemporary scientists and what their jobs entail.

I'm a Scientist, Get Me Out of Here

I'm a Scientist, Get Me Out of Here is a student-led, online science enrichment activity where students interact with scientists. One of its main aims is to encourage students to engage and identify with science, supporting the development of aspirations in science and coming to see it as 'for me'.

I'm a Scientist provides support for similar outcomes to knowing people in science-related jobs — understanding what it's like to work in those jobs and, even more importantly, coming to see scientists as 'normal' people. Research shows that this understanding — which is abundant in young people who have friends or family working in science — facilitates a sense that science is 'for me' and makes it more likely that an individual can envisage being a scientist as a 'possible self'.

Girls' STEM club

Researchers at UCL's Institute for Education observed a weekly afterschool STEM club run by a social enterprise in London working with young women (aged 11-14) from working class and minority ethnic groups under the Youth Equity and STEM project.

In addition to weekly club sessions, the girls took part in two off-site whole day sessions—a coding development day trip hosted at a global consultancy firm and a Saturday coding day held at a global bank. The club sessions followed a common format each time, beginning with a focus on a female STEM professional, such as celebrated mathematicians, computer scientists, and engineers. This was followed by a choice of two activities—either a making (creative) activity or an exploring activity, in which the young women would research a topic further on the internet and then present their findings back to the group.

Recommendation 3

SC1 should explore establishing a flexi-job apprenticeship agency working with the two councils and local education providers to create an integrated, local approach to apprenticeships.

Phase 1 – Initial standards linked to the Royal Street MedTech Hub

- Level 2 Healthcare science assistant
- Level 2 Science manufacturing process operative
- Level 3 Laboratory technician
- Level 3 Science manufacturing technician
- Level 3 Business administration

Phase 2 – Additional standards linked to London Bridge BioPharma Hub

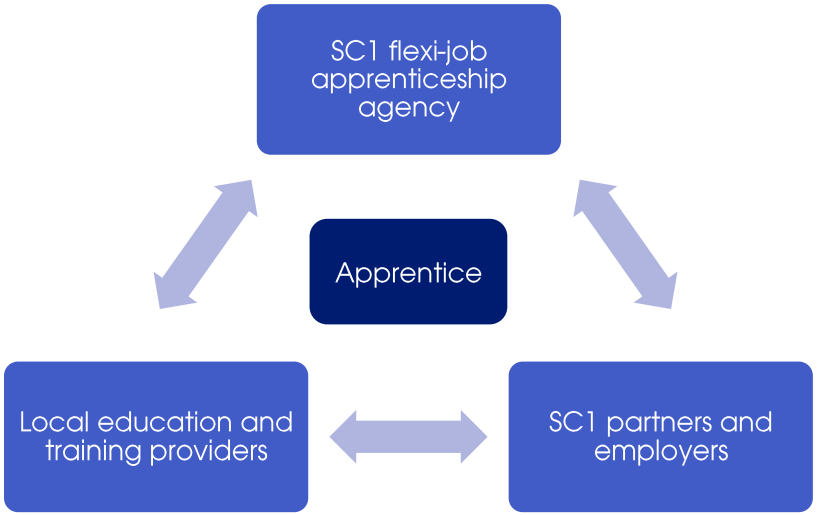
- Level 4 Healthcare science associate
- Level 5 Technical scientist

First tranche of proposed apprenticeship standards to support SC1 Hub developments

Shared labs support centralised training opportunities

The likelihood of a majority SME business occupancy for the hubs and the subsequent desire for shared lab space gives an opportunity to centralise apprenticeship training. Apprenticeships offer organisations the opportunity to grow their own future talent pipelines and enable local residents to have access to high quality, entry-level roles. However, the costs and bureaucracy can be off-putting for small companies, which predominate in the life sciences.

Creating a central SC1 apprenticeship team that works across the three hubs with key borough-based partners such as Southwark Works would alleviate some of the bureaucracy and enable small companies to access apprentices without needing to commit to the full training period. Such an agency could also engage with the London Progression Collaboration in helping larger companies share unspent levy monies with SMEs.



Recommendation 4

SC1 should facilitate the creation of 'model' career pathways with associated qualification requirements.

Creating personas is more effective than flow charts

One of the biggest challenges our research has identified is that there is an insufficient understanding amongst a range of stakeholders of what careers fall into the life sciences, what are the opportunities within those careers and how people enter those pathways.

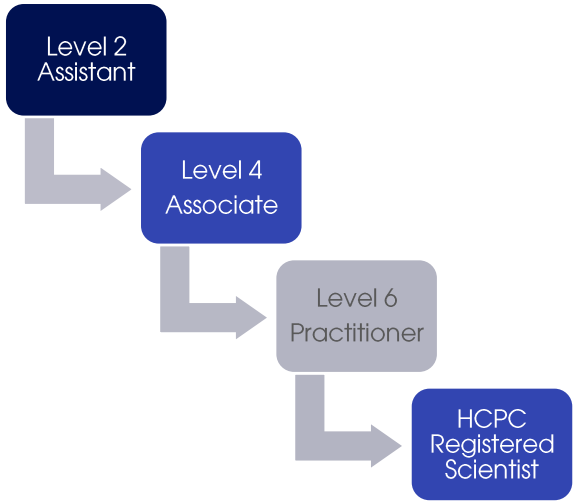
We recommend that a selection of career pathways should be chosen to highlight realistic but hypothetical training and employment routes in SC1-relevant careers covering a wide range of skill levels.

These can then be used to both inspire and inform local residents on the opportunities available by brining the routes to life, and support the development of training pathways for local providers to create qualifications against.

David, Future Biomedical Scientist

David is a 16 year-old from Peckham. He was never particularly interested in school as the subjects never seemed to cover anything relevant to his life and he was better at learning by doing things than in a classroom. His Mum has spent a lot of her working life in low-paid insecure roles and he expects the same will happen to himself. However, he enjoyed science at school as it was more practical but never considered that he could do it for a job as he believed that being a scientist is for people from posh backgrounds who were far brainier than him.

Having gained a grade 4 in science and maths at GCSE and noting his preferred learning style and interests his careers advisor has suggested he look at a level 2 apprenticeship as a Healthcare Science Assistant, which sounds interesting but David wants to understand where it might lead him.



David's potential route to a professional role in Biomedical Science
Estimated time: 7 years

Recommendation 5

SC1 should create a community-employer engagement function within a new hub that allows easy access to and from partners and employers.

Simmons and Simmons Young Talent programme

Simmons and Simmons has been committed to social mobility for over a decade, with its award-winning initiative, the Young Talent Programme celebrating its ten-year anniversary this year. Developed in collaboration with Frederick Bremer School, in Walthamstow, the programme is designed to raise students' aspirations through a series of ongoing, longer-term initiatives that provide access to the legal profession and wider work opportunities.

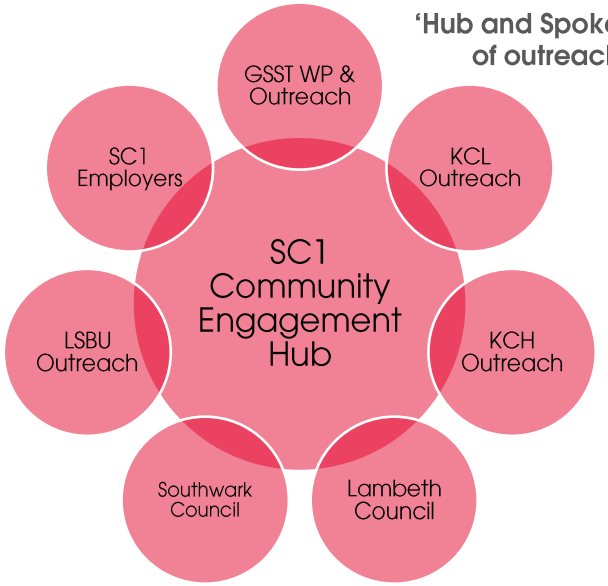
There are currently 100 students on the programme. Each cohort is supported for seven years, during which they return to the firm every year to participate in a range of activities including work experience, skills sessions, paid internships, and group mentoring. Thirteen students have also been awarded the Simmons and Simmons bursary to assist them through university.

SC1 can act as a link between employers, educators and communities

Employers want to engage in the community, but don't know how; the community wants inclusive growth but doesn't know how to secure employer support. There is a unique opportunity for SC1 to act as a gateway into the life sciences for local education and community organisations who want to establish the employment and skills pathways needed for residents to access good quality, higher-skilled opportunities. Borrowing practice from other sectors, such as Simmons and Simmons' talent programme, could benefit SC1.

Each SC1 partner already has a range of successful community engagement activities, and SC1 could establish a hub where this knowledge and experience could be used to support employer engagement. Access activities would then be co-designed with employers and partners to deliver the maximum benefit, with engagement from stakeholders being coordinated by the hub to ensure an efficient use of resources.

'Hub and Spoke' model of outreach for SC1



Recommendation 6

SC1 should work with Lambeth and Southwark Councils to prepare and deliver a comprehensive local engagement and outreach programme.

British Science Week Community Grants

LPF Kiddies Club is a non-profit out of school club based in South East London which works with African and Caribbean children aged 5-14 and their families.

The Club received British Science Association Community Grants in 2016 and 2018. In 2016, the Club ran a science fair with activities including recycling materials into toys, mini-blogging, creating paper planes and comparing their distance and speed of travel, and calculating and the sugar and salt content of their packed lunches. The aim of the fair was to show the young people that science is for them, and they could possibly have a career in STEM in the future. In 2018, the Grant funded activities focused on identity, with the aim to connect the children with scientists who look and sound like them and have a similar background. This was to help children see that they can pursue careers in STEM, regardless of race, gender and class.

If SC1 is to influence inclusive growth, it needs to be seen as beneficial for all.

The current positioning of the benefits arising from SC1 for local residents appear to be largely health-related with the economic benefits through access to good quality, highly-skilled opportunities being secondary. It is therefore perceived to be more about outsiders coming in to use the boroughs as labs rather than supporting the local population to flourish and thrive.

SC1 should therefore work with the councils and relevant community organisations on a comprehensive engagement and outreach plan that enables local residents to feel that SC1 is part of their community. This programme will combine a range of activities such as science fairs and shows and guest teaching in schools and colleges, as well as visits to promote awareness of the hubs. It should therefore be delivered in the community at venues that local residents already use or are familiar with such as local schools, or community centres.

SC1 community engagement activities

- Pop-up science demonstrations at existing community events and festivals
- Dedicated programme of activities in the community during British Science Week
- Co-created and co-led community research projects focusing on the health and life sciences
- School visits for events in the three SC1 hubs and the Life Sciences Incubator led by the tenants
- SC1 support for community wellbeing initiatives
- Talks on popular science topics to community and youth groups by students and SC1 employers
- Support and sponsorship for community wellbeing initiatives for both adults and young people

Recommendation 7

Careers Leads and Advisors should be upskilled on the routes into a life science-based career.

Effective careers guidance would positively influence views of life science pathways

Gaps in information, advice and guidance are preventing young residents from accessing careers in the life sciences. Quite simply, for many young residents they do not have access to the information or guidance needed to positively influence their view of a career in the life sciences. This has been reported as being due to careers leads being uninformed about the range of relevant options available at post-sixteen.

Effective careers advice and guidance would enable more young people to see how their interests and skills map across to multiple opportunities within life sciences' employers within SC1 or elsewhere within London or the United Kingdom. SC1 could catalyse this through the provision of forums and events for teachers and careers leads, as well as the provision of materials and access to life science employers.

- Stable careers programme
- Learning from career and labour market information
- Addressing the needs of each pupil
- Linking curriculum learning to careers
- Encounters with employers and employees
- Experiences of workplaces
- Encounters with further and higher education
- Personal guidance

Personal guidance

- Equip Careers Advisers with life sciences careers posters, flyers and resources and ensure these are available in any careers areas.
- Check that Careers Advisers are aware of the local STEM Ambassador Hub Network and has access to STEM volunteers to support with careers interventions.
- Where possible, invite your Careers Adviser to join trips to life science employers, further education and higher education providers. This will help them to gain first-hand experience of local opportunities.
- Provide Careers Advisers with a record of the life science careers activities available so that they can be signposted as part of personal guidance sessions.
- Where possible, Careers Advisers should attend local careers networking meetings and life science-specific careers events

Recommendation 8

SC1 should work with developers and community organisations to ensure the three hubs feel psychologically safe for local residents whilst retaining a world-class life sciences work environment.

Actions for SC1 to improve psychological safety

- Improving representation of under-represented groups in computer generated images of new buildings and spaces
- Active engagement with under-represented groups in the design process
- Reflect the local community through artwork, role model stories and room naming
- Involve architects and/or designers from local communities of colour
- Involve specialist organisations like *Beyond the Box*
- Include subtle and inconspicuous experiences of people of colour in all their diversity

Psychological safety, in this context, means that people feel comfortable, accepted and respected

Data shows that roles in the life sciences are predominantly occupied by white, upper middle-class males who create work environments that reflect their values, attitudes and previous work experiences. Whilst many spaces will reflect an international workforce, and therefore have some degree of cultural diversity, the kind of pristine, glass-fronted, airy buildings that signify a world-class working environment amongst such a demographic are often alien to those from disadvantaged communities of colour.

If SC1 is going to be successful in attracting local residents into careers within the hubs then the look and feel of those environments needs to reflect their lived experiences. The programme proposed under recommendation six will help, but the design of the spaces will be crucial to engagement.

Reclaiming our Science Centre

Educators at Impression 5 Science Center in Lansing, Michigan partnered with young people and with University of Michigan researchers to re-think and re-design the Center. Well-designed science learning spaces can create important opportunities for positive, meaningful engagement. However, science learning spaces can be unwelcoming through how they are organized. Images, text, and the design and flow of exhibits all send messages about who belongs or is welcomed in the space.

The project explored how spaces can contain a collision of histories, lives, and cultures, and how white male imaginations tend to dominate in science centers. The young people's justice-oriented response, which was grounded in their lived experiences, led to renaming and redesigning spaces to become inclusive of groups that had been excluded, invisible, and/or unheard in STEM.

Recommendation 9

Lambeth and Southwark should secure a `Life Science Pledge' from businesses occupying the three hubs, along with those already part of the SC1 ecosystem.

A 'Life science pledge' could enhance business engagement as outlined in recommendation five.

The 'STEAM Pledge' has been used successfully to support young people in Camden schools with inspiring career insights and opportunities. Using four dimensions (ambassadors, work experience, apprenticeships and a knowledge hub) the pledge has enabled greater business engagement and support for a more inclusive workforce and economy within the borough. We recommend that a similar pledge is used within Lambeth and Southwark.

The pledge should be made by businesses as part of their contractual commitments to SC1 and could, for example, come with a council-led reduction in business rates or rental costs. This would need to be monitored, however, to ensure that businesses were actively engaging in the ways promised.

Camden STEAM Commission

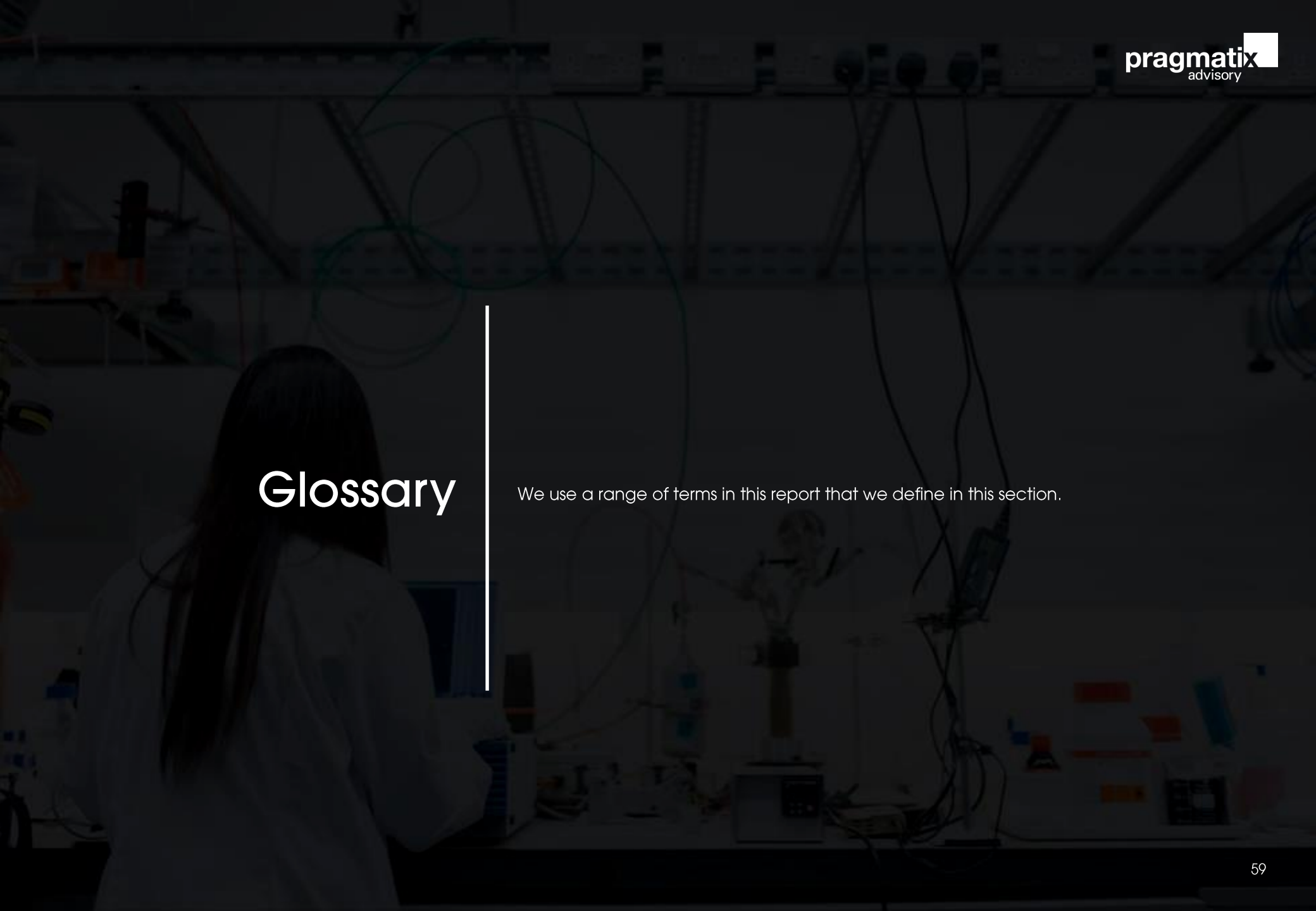
In 2016, Camden launched the STEAM Commission to celebrate its unique creative, digital and scientific economy, highlight the outstanding education offer available to students locally and make sure all its young people could access the opportunities it offers by building stronger links between schools, FE and businesses.

Its ambition is to link them strongly to deliver the 21st Century Talent the borough needs and to guarantee the best opportunities and futures for all its young people.

The Commission tasked itself with developing recommendations for mainstream education and youth services covering primary, secondary and post-16 age groups. This includes alternative provision and Camden's pupil referral units, as well as the borough's 16-19 college, Capital City College Group.

Main Commission recommendations

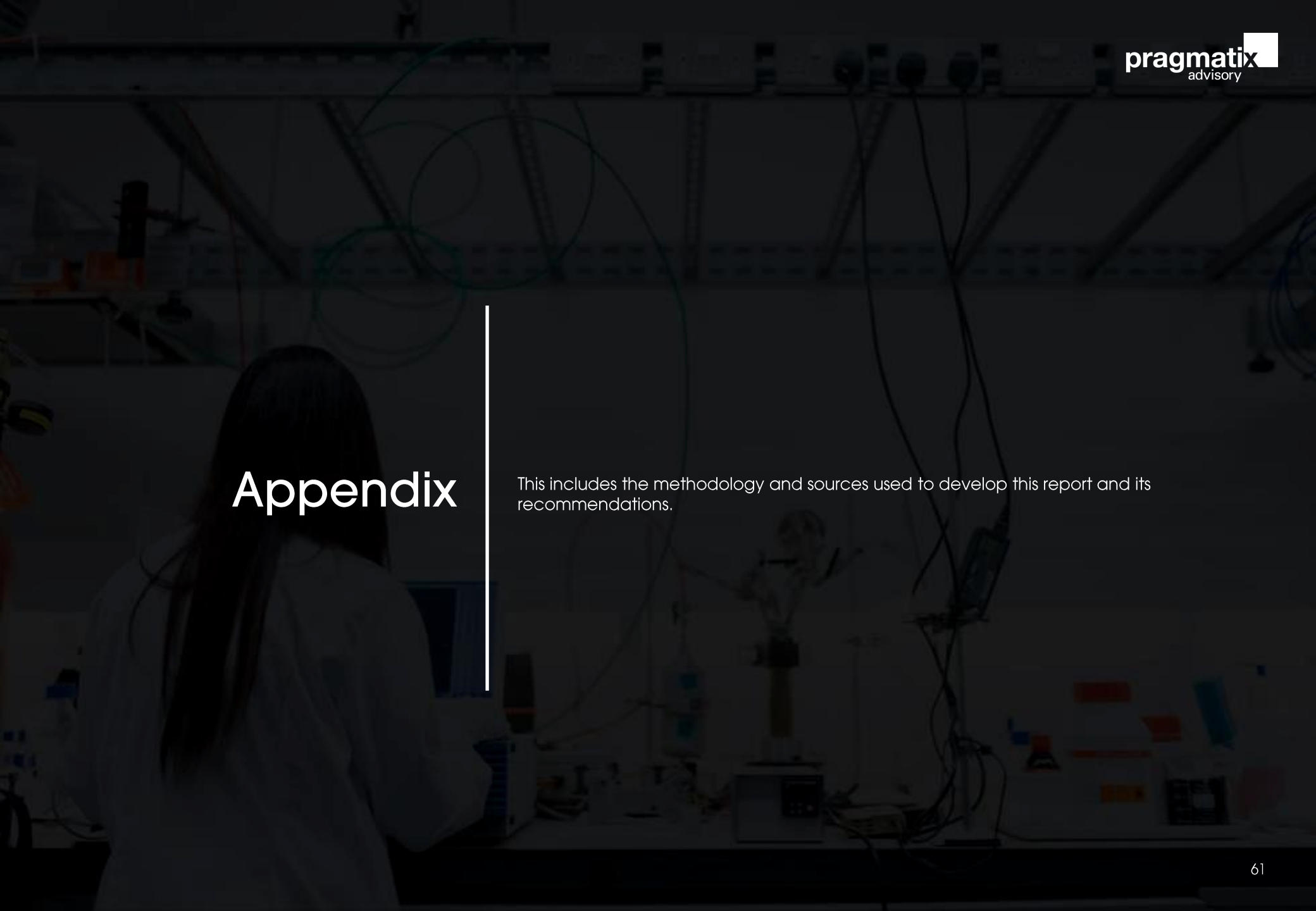
- Every Governing Body should include a governor with industry experience and supported by a network of STEAM Ambassadors drawn from business.
- A network should be developed of youth STEAM champions within schools, FE and alumni, providing accessible and inspiring role models.
- A STEAM hub should be created to act as a focal point for the above activities and facilitate a more connected curriculum and greater intelligence on career opportunities.
- Businesses should contribute to a range of activities targeted at improving the equality of opportunities for career insight, work experience and apprenticeships
- The quality and visibility of the borough's STEAM apprenticeships and technical education offer is improved.



Glossary

We use a range of terms in this report that we define in this section.

Term	Definition
Apprenticeship	An apprenticeship is a paid job where the employee learns and gains valuable experiences. Alongside on-the-job training, apprentices spend at least twenty per cent of their time completing learning which leads to a nationally recognised qualification.
Apprenticeship Levy	Apprenticeship Levy is an amount paid at a rate of 0.5 per cent of an employer's annual pay bill for those employers with an annual play bill of more than £3 million. Employers can reduce their bill by spending their funds on their own apprenticeship training and assessment costs.
Apprenticeship Levy Transfer	Employers can transfer unused funds in their account to any number of other employers, for any number of apprenticeships with each, up to the annual maximum of 25 per cent of funds entering the account.
Direct jobs	This is a job created to fulfill the demand for a product or service. For example, lab technician, research scientist, clinical bioinformatician.
Flexi-job apprenticeship	Enables employers to commit to a minimum three-month apprenticeship contract as opposed to the usual twelve months and allows apprentices to undertake a series of shorter contracts with a number of employers while completing their training in preparation for end-point assessment.
Flexi-job apprenticeship agency	An organization that employs an apprentice directly for the duration of their apprenticeship but arranges placements for the apprentice with host businesses.
Index of Multiple Deprivation	This shows relative levels of social and economic deprivation across the counties of England at a LSOA-level using indices covering income, employment, health, education, housing, living environment and crime.
Indirect jobs	This is a job that exists to produce the goods and services needed by the workers with direct jobs. For example, accountants, patent lawyers, regulatory affairs managers.
Induced jobs	This is a job created by the additional personal spending (for example, eating at a restaurant) by both direct and indirect workers.
Level 2	Equivalent to General Certificate of Secondary Education (GCSE)
Level 3	Equivalent to A-Level or BTEC
Levels 4 to 6	Equivalent to undergraduate study with level 4 being first year study or Certificate of Higher Education and level 6 being a Bachelor with Honours degree.
Level 7	Equivalent to a Masters. Level 8 is doctoral level study.
Life Sciences industry	Comprises companies operating in the research, development and manufacturing of pharmaceuticals, biotechnology-based food and medicines, medical devices, biomedical technologies and other products that improve the lives of organisms.
LSOA	Lower Super Output Area, which were developed from the Census 2001 geographical output areas and are smaller than wards and cover a minimum of 1000 people and 400 households.
Steady state	A future point in time where a development moves beyond its growth and expansion phase into a sustainable period of evolution and renewal.
STEM/STEAM	Science, technology, engineering and maths. STEAM includes 'arts', which is usually used as a synonym for 'creativity'.



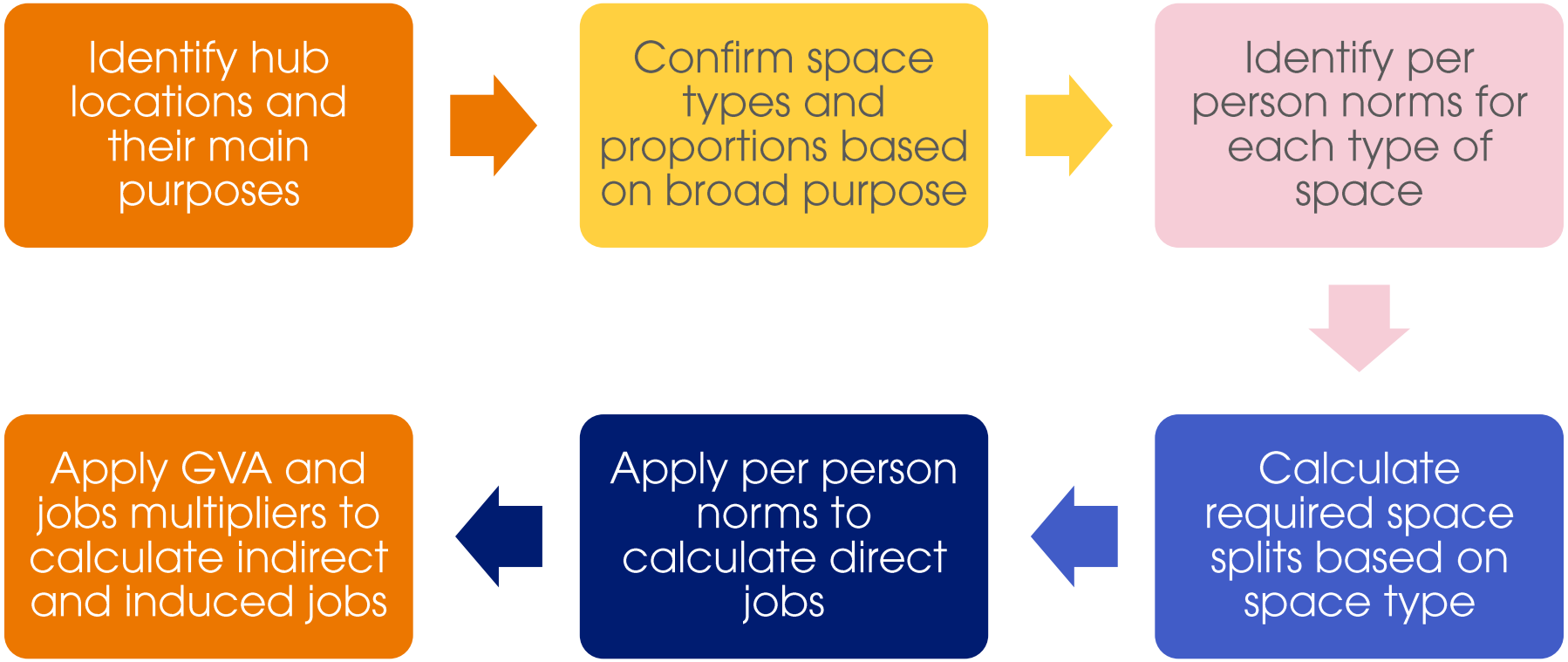
Appendix

This includes the methodology and sources used to develop this report and its recommendations.

Approach to the project and timeline

Inception and immersion	• Identify any gaps and agree full specification • Agree final list of interview participants
Horizon scanning and literature review	• Review research and literature from across the UK and internationally on how innovation districts similar to SC1 drive local economic regeneration through the provision of employment and skills opportunities.
Stakeholder interviews	• Consultation and structured discussions with senior managers / education and skills leaders to capture views and expertise, and acquire evidence on the current and future employment and skills opportunities arising from or likely to be catalysed by SC1 • In-depth interviews with relevant stakeholders.
Scenario planning	• Mapping out skills and employment support already available • Creating at least two high-level scenarios for future employment opportunities arising from or catalysed by SC1 • Comparing the available support to potential future needs and identifying priority areas requiring collaboration from the SC1 partners
Synthesis and report-writing	• Synthesis of literature review, desk research, data and interview analysis
Iterative approach	• Regular internal review, reflection and recalibration

Summary methodology for jobs modelling



Detailed methodology for jobs modelling

Identify hub locations and their main purposes

- Broad purpose and focus of potential occupants of the three hubs identified through desktop research:
  - **Royal Street** – MedTech
  - **London Bridge** – BioPharma
  - **Denmark Hill** – Translational Medicine

Confirm space types and proportions based on broad purpose

- 'Real Estate Demand Report 2021' provides percentage splits of space types based on primary use.
- Based on industry survey of life sciences businesses.

Identify per person norms for each type of space

- Additional desktop research provides 'per person' square footage norms for each space type.
- Complex wet lab = 165 square feet
- Simple Wet Lab = 165 square feet
- Dry Lab = 135 square feet
- Advanced Manufacturing = 200 square feet
- Office = 75 square feet

Calculate required space splits based on space type

- 'Real Estate Demand Report 2021' outlines expected total GIA square feet of each hub.
- Data given for 2026 and on completion ('steady state').
- London Bridge data confirmed with Reef Group.
- Assumed fifteen per cent of GIA is communal space (for example, corridors and kitchens).

Apply per person norms to calculate direct jobs

- Calculated square feet for each space type then divided by 'per person' norms.
- Calculated number assumes no hot-desking or remote working.
- Proportion requiring non-degree skills calculated based on 'Life Sciences 2030 Skills' report.

Apply GVA and jobs multipliers to calculate indirect and induced jobs

- GVA and indirect/induced job multipliers taken from 2015 PwC report 'Economic Contribution of the Life Sciences'.
- Multipliers adjusted for 2022 GVA data.
- Proportion requiring non-degree skills calculated based on 'Life Sciences 2030 Skills' report.

Author	Year	Document
2CV Research	2017	Science and the youth sector
ABPI	2021	Apprenticeships in the life sciences sector
Blaxland et al.	2021	Development of a School Science Club at Cardiff University
BrightPurpose	2019	The role of informal science in youth work – Findings from Curiosity round one
Davenport et al.	2020	A Theory of Change for Improving Children's Perceptions, Aspirations and Uptake of STEM Careers
Hatch Regeneris	2020	London Borough of Lambeth: Sector Analyis
HM Government	2020	Bioscience and Health Technology Statistics
HM Government	2021	Life Sciences Vision
HM Government	2022	Life Sciences Competitive Indicators
Impact on Urban Health/Good People	2021	Overcoming the barriers to good work for jobseekers with Long Term Conditions
In2ScienceUK	2019	Evaluation of the In2Science UK Work Placement Programme
King's College London	2020	Access and Participation Plan 2020/21-2024/25
Lambeth Citizens/King's College London	2020	Building Better Futures: Enabling young people in Lambeth to thrive
London Borough of Lambeth	2018	Lambeth Education & Learning Strategy 2018-2022
London Borough of Lambeth	2020	Skills & Employment Strategy 2020-2023
London Borough of Lambeth	2020	Skills & Employment Strategy 2020-2023: Equality Impact Assessment
London Borough of Lambeth	2022	Economic Resilience Strategy
London Borough of Lambeth	2022	Economic Strategy: Draft
London Borough of Lambeth	2022	Skills & Employment Strategy 2020-2023: Mid-term Evaluation
London Borough of Southwark	2015	Narrowing the Achievement Gap report

Author	Year	Document
London Borough of Southwark	2018	Southwark Skills Strategy 2018-2022
London Borough of Southwark	2020	Southwark Stands Together: Feedback to Participants
London Chamber of Commerce and Industry	2022	London Skills Survey: Q3 2022
London College of Communication	2023	Health Communication Prospectus
Louise Archer et al.	2015	``Science Capital'': A Conceptual, Methodological, and Empirical Argument for Extending Bourdieusian Notions of Capital Beyond the Arts
Louise Archer et al.	2020	Changing the field: A Bourdieusian analysis of educational practices that support equitable outcomes among minoritized youth on two informal science learning programs
Mangorolla CIC	2019	I'm a Scientist: Supporting Science Capital - Evaulation Report
Martin Archer et al.	2021	Going beyond the one-off: How can STEM engagement programmes with young people have real lasting impact?
MedCity	2021	Impact Report
MedCity	2021	London life sciences real estate demand report
MedCity	2022	Community & Cluster Dynamics
Micaela Balzer et al.	2021	Reclaiming our science center: Youth co-design of the Dr. Katherine Johnson Room
Partnering Regeneration Development Ltd	2022	Southwark Economic Evidence Base
PwC	2015	The economic contribution of the UK Life Sciences industry
Rocket Science	2022	Labour Market Review: London Borough of Southwark
Rocket Science	2022	Southwark Works: Final Report
Science Industry Partnership	2020	Life Sciences 2030 Skills Strategy
Science Industry Partnership	2021	Life Sciences: Equality, Diversity and Inclusion Report

List of sources and documents used (continued)

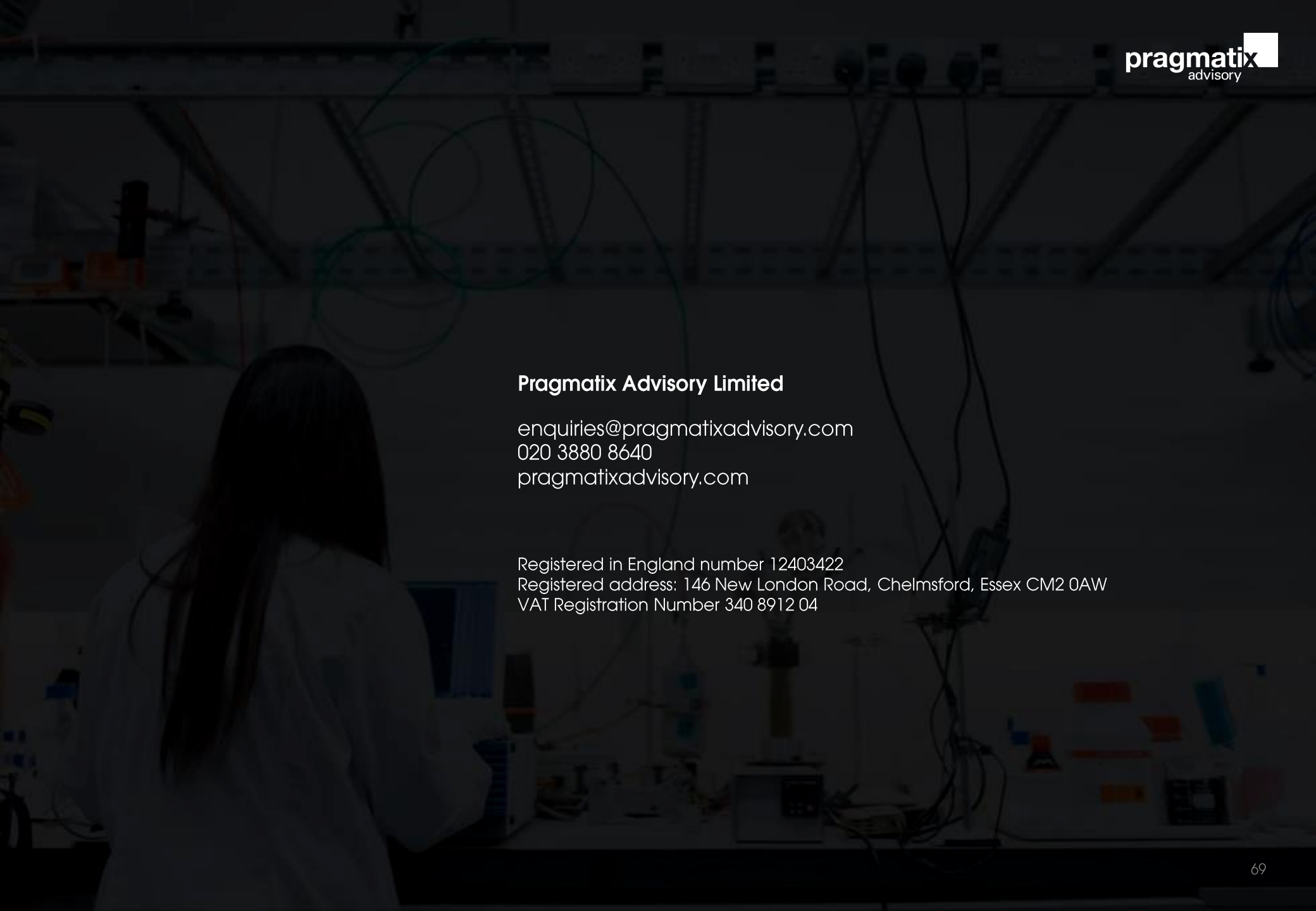
Author	Year	Document
Science Industry Partnership	2023	Building tomorrow's workforce
STEMNext Opportunity Fund	2019	Early Wins and Lessons Learned: How the Bay Area STEM Ecosystem Engages Families
Substance	2022	The Curiosity Programme – Year 2 Executive Report
The Careers and Enterprise Company	2020	STEM Careers Toolkit
The Royal Society	2014	A picture of the UK scientific workforce
Various	2017	Boston & Philadelphia Life Science Cluster Visit Notes

List of sources and documents used (continued)

SIC code	Industry
3250	Manufacture of medical and dental instruments and supplies
7211	Research and experimental development on biotechnology
7219	Other research and experimental development on natural sciences and engineering
2110	Manufacture of basic pharmaceutical products
2120	Manufacture of pharmaceutical preparations
2660	Manufacture of irradiation, electromedical and electrotherapeutic equipment
2670	Manufacture of optical instruments and photographic equipment
8710	Residential nursing care activities
8720	Residential care activities for learning disabilities, mental health and substance abuse
8730	Residential care activities for the elderly and disabled
8790	Other residential care activities
8610	Hospital activities
8621	General medical practice activities
8622	Specialist medical practice activities
8623	Dental practice activities
8690	Other human health activities
86102	Medical nursing home activities
87200	Residential care activities for learning disabilities, mental health and substance abuse

Health and life science industry SIC codes

Source: Office for National Statistics, Annual Population Survey



Pragmatix Advisory Limited

enquiries@pragmatixadvisory.com
020 3880 8640
pragmatixadvisory.com

Registered in England number 12403422
Registered address: 146 New London Road, Chelmsford, Essex CM2 0AW
VAT Registration Number 340 8912 04