

Written by Kasper de Graaf

Additional research by Itua Omokhomion, Alice Magagnin and Elena Ware

This Report has been produced in partnership with the Research, Enterprise and Innovation Directorate of London South Bank University as a discussion document for stakeholders.

Kasper de Graaf MCIL FRSA is a director of Images&Co and of Design Manchester and a Steering Group member of the UK Design Action Plan.

Images&Co is an innovation consultancy and design practice specialising in cities, public spaces, arts and culture, education, technology and communications.

Thanks are due to all stakeholders who have given their time, information and encouragement in the preparation of this report; particularly Gurpreet Jagpal, the Director of Research, Enterprise and Innovation at London South Bank University, for his vision of collaborative partnership, and Adrian Tindall of the Clarence Centre for Enterprise & Innovation for – unceasingly – making felicitous connections.

Iteration 2.5, July 2018

IMAGES&Co

Clarence Centre for Enterprise & Innovation, 6 St George's Circus, London SE1 6FE
www.images.co.uk | @imagesco



Creative Commons attribution Images&Co 2018

CONTENTS

5	Introduction
6	Executive summary
8	South London: the back story
19	The South Bank Corridor
37	Vision
38	Next Steps
40	References
41	Appendix 1: Innovation and Research Funding
51	Appendix 2: Higher Education Institutions Income
52	Appendix 3: Average Private Sector Rents
53	Appendix 4: London Plan Opportunity Areas
54	Appendix 4: Innovation Assets

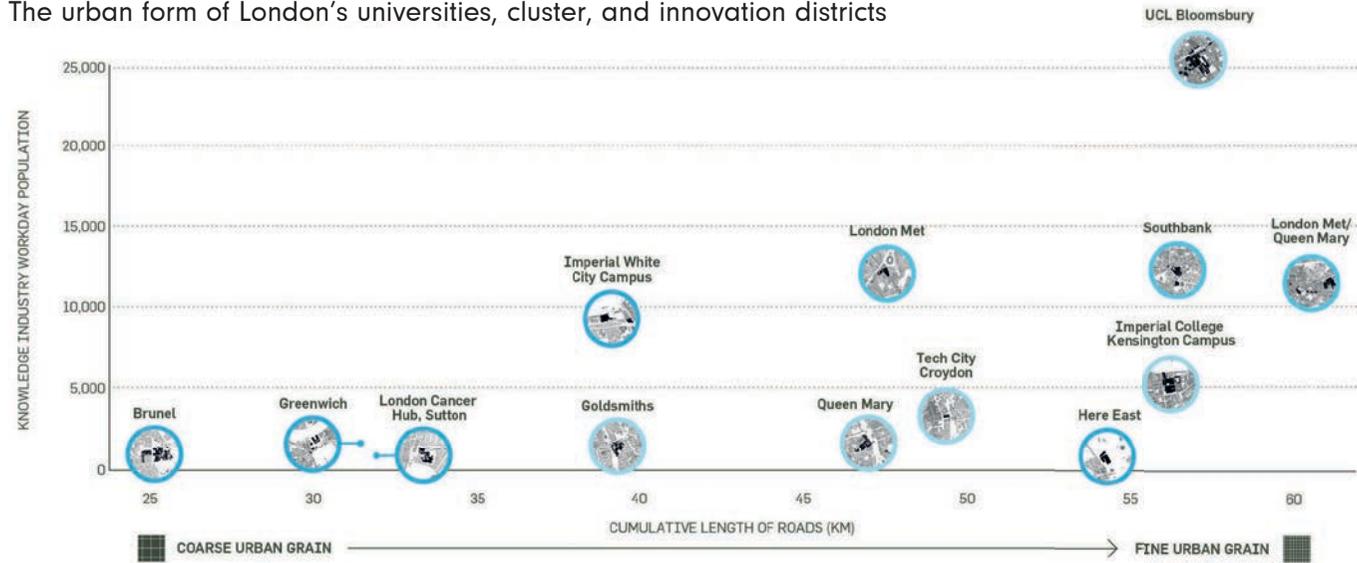
Figs. 1 and 2. These diagrams from 'Spaces to Think' indicate the permeability and physical connectivity of selected HEI clusters in London.

Fig. 1 shows the total length of streets, cycle- and footpaths in a half-mile radius from the site (calculated from OS data) on the horizontal, and the number of people employed in the knowledge economy (2011 Census data).

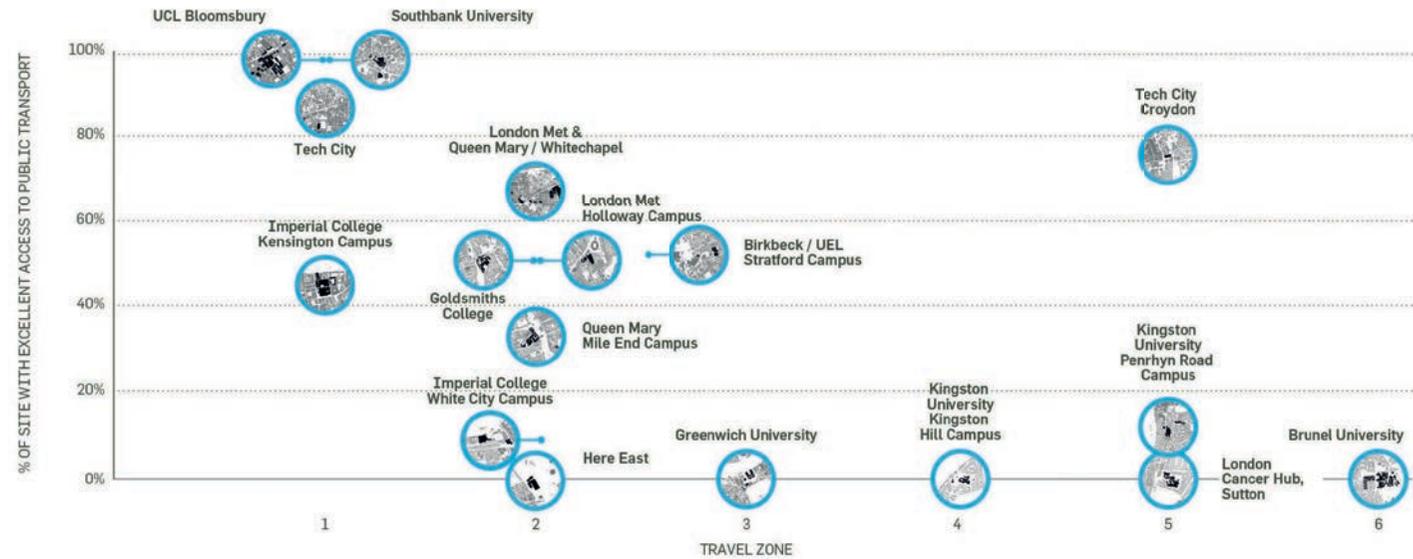
Fig. 2 shows proximity to the transport network against location by TfL travel zone (Zones 1-3 being best connected by transit).

Source: Hanna 2016.

The urban form of London's universities, cluster, and innovation districts



The location and connectivity of London's universities, clusters and innovation districts



INTRODUCTION

In 'The Rise of Innovation Districts', Bruce Katz and Julie Wagner traced the emergence of innovation districts in the United States, defining them as "geographic areas where leading-edge anchor institutions and companies cluster and connect with start-ups, business incubators, and accelerators... physically compact, transit-accessible and technically-wired, (offering) mixed-use housing, and retail." They pointed to benefits including a "unique potential" to spur productive, inclusive and sustainable economic development through cross-sector fertilisation, and the prospect of more jobs and educational opportunities for disadvantaged sections of the population "given that many districts are close to low-and moderate-income neighbourhoods" (Katz and Wagner 2014).

Taking that Brookings Institution study - which focused on the United States - as her cue, Kat Hanna conducted an in-depth analysis of the potential for innovation districts in the UK capital, based on economic, physical and networking 'innovation assets', in the Centre for London's 'Spaces to Think'. This timely study indicated that in addition to the known hotspots around King's Cross, White City and Tech City, there was considerable promise South of the river Thames as well, particularly around Elephant & Castle and New Cross (Hanna 2016).

This provided an impetus to look in more detail at the potential for innovation-led growth in South London, not to replicate models created elsewhere - both studies emphasise there is no formula for innovation districts - but to explore the distinctive offer of the area.

In examining this, we have been conscious too of the wider social impact of urban regeneration, and of innovation districts in particular. In 'The Roots of the New Urban Crisis', Richard Florida - the man who had popularised creative urban clusters fifteen years earlier - warned of the "lopsided, unequal urbanism" of creating superstar cities and elite neighbourhoods, observing that "the very same force that drives the growth of our cities and economy, also generates the divides that separate us and the contradictions that hold us back" (Florida 2017).

Finally, our understanding of the potential form that innovation districts may take is shaped by Michael Batty's understanding of cities as flows and networks, more than places and spaces - as "actions, interactions and transactions that... generate (social and economic) wealth" (Batty 2014).

Our focus in this study of South London, therefore, is on the existence of networks and relationships, and on fostering a balanced economy across the wider metropolis, as much as it is on identifying distinctive assets and strengths.

EXECUTIVE SUMMARY

This report, the result of an evaluation of the potential for innovation-led growth in South London, identifies an opportunity for a dynamic innovation partnership on the South Bank, working in tandem with neighbouring and wider networks to create an enduring ecology for inward investment and deliver wider benefits for the whole of South London.

Overall, South London is historically disadvantaged in terms of transport connectivity and investment, and has suffered from ill-founded perceptions of not being at the heart of the action.

The political case for a balanced economy, reflected in the UK Industrial Strategy, has in part been fuelled by an awareness of disparity between London and the rest of the country in terms of government investment. This has given rise to initiatives such as the Northern Powerhouse, the Midlands Engine and the city devolution settlements. Research carried out for this report, however, shows that in terms of public funding for research and innovation from all seven Research Councils and Innovate UK combined, over the five years from 2012 to 2016, the stand-out beneficiary (both in absolute terms and per head of the population) is North London, while South London has actually fared worse than Greater Manchester.

This is reflected in some measures of lower productivity. In the Mayor's London Plan, the projected growth in jobs and housing over the next decade is significantly lower per head of the population in the South than the North. If this imbalance could even partly be redressed, it would help tackle some of the capital's most pressing problems.

Yet South London has some very distinctive strengths. Economically and on most other measures, Southwark has long been one of London's top three boroughs alongside Westminster and Camden. In terms of knowledge economy jobs, Lambeth and Lewisham have also risen to the top tier.

The corridor between Vauxhall and the Millenium Dome along the South Bank is extraordinarily rich in innovation assets, with eight higher education institutions and research centres, three academic hospitals and dozens of cultural institutions with seven global leaders among them. It has a well distributed and connected network of accelerators, incubators and coworking spaces, and a strong presence of specialist and industrial innovation businesses in construction, architecture, energy, transport, communications, technology, media and more.

This ecology is supported and connected by a network of more than half a dozen community and business organisations and four collaborating borough authorities.

The sector and discipline strengths within this cluster include arts and culture, media and creative technologies, medicine and healthcare, transport and mobility, built environment, energy and engineering, education and skills.

There is a promising foundation for fostering an innovation partnership in that corridor from Vauxhall to the Dome, down to Lewisham and across to Brixton. In addition to the innovation assets already present in this cluster, the corridor has eight Opportunity Areas in the Mayor's London Plan, six of which are active and projected to deliver 57,000 new homes and 38,000 new jobs between them by 2036. The proposed extension of the Bakerloo Line runs right through the centre of the corridor to Lewisham and two new tunnels are planned. Together with the Northern Line, the Jubilee Line, the DLR and overground services, this part of the capital is already well connected and will be significantly more so in the coming years.

The aim of an innovation partnership is to attract inward investment with a sustainable long term proposition. We believe this is best achieved by building on acknowledged strengths with a vision that does not constrain future development. It would be wrong in this location to focus on one sector, such as Medicine, or Engineering, or Media, at the expense of others. There is great potential for cross-sector innovation between all of them in a way that adds up to an attractive ecology for inward investment. We conclude therefore by defining the vision as smart innovation within and across all the areas of excellence: SouthBank IQ, smart innovation in London.

This is in our view best developed through a focused but flexible partnership mechanism that supports and does not seek to replicate the work of any of the partners, encouraging contact, looking for connections and overlaps that have the promise of propositions worthy of investment.

SOUTH LONDON: THE BACK STORY

*Opposite:
Fig. 3 and 4. Today's London Underground Map (left) is still based on the iconic diagram designed by Harry Beck in 1931. Right: the 1978 version. Copyright © Transport for London.*

Invited to give a lecture at London College of Communication on the topic of South London, the Royal Designer Malcolm Garrett – creative director of Images&Co – opened by saying: “The notion that ‘nothing happens’ south of the river Thames is so deeprooted that one could be forgiven for not realising that Elephant & Castle is the geographic centre point of the London metropolis.”

Garrett’s proposition is that any actual disadvantages the South has suffered historically in terms of the transport network are dwarfed by the image of the capital in the popular mind, aggravated by the power of design.

The tube map designed by Harry Beck in 1931 represents that image to visitors and many Londoners alike. The 1978 version, before the Jubilee Line was built, makes Elephant & Castle look as if it’s somewhere in Kent, and the Isle of Dogs does not feature at all. Things are improving somewhat in the current version showing the Jubilee Line, Docklands Light Railway and (Overground) East London Line, but the North remains in a different league all together (Fig. 3 and 4).

Innovation heritage

Perception is certainly a factor, yet South London has an impressive innovation heritage on which to build.

The Tabard Inn on Borough High Street, from which Chaucer’s Pilgrims set off on their journey in the 14th century, is often called the birthplace of English literature. Fast forward 150 years to 1501 and St George’s Circus, where the obelisk now looms over the Clarence Centre for Enterprise & Innovation, is where ten-year-old Henry, Duke of York, fetched up with a large retinue to welcome the youngest daughter of the King and Queen of Spain, and accompany her across the river to St Paul’s Cathedral to marry the Prince of Wales. Catherine of Aragon, then 15, was also a daughter of Castile and it is one of South London’s rich tapestry of disputed legends that an anglicised rendition of the popular princess’s royal title of Infanta de Castilla inspired the name of this part of London: Elephant & Castle.

Henry VIII, as he became, spent much of his life in South London at the palaces of Greenwich, where he and his daughters “Bloody” Mary and Elizabeth I were born, and Richmond. He was without doubt one of the most transformative innovators this country has known; one who allowed little to stand in the way of what he saw as progress.

Zoom on another 174 years. In 1675, Charles II founded the Royal Observatory, a focus for innovation and science that made Greenwich the ultimate arbiter of time and – with the zero longitude meridian – the continuing global centre of space and time today. Maritime Greenwich may now be better known as a World Heritage Site than a shaper of the future, but innovation continues in the borough, not only at the University of Greenwich (noted for developing an artificial cow that kills tsetse flies), but also in the Greenwich Peninsula, home to the Millennium Dome, Ravensbourne and the Digital Greenwich Accelerator.

Britain's greatest innovators

Up in Islington, the Knowledge Transfer Network has named the seven meeting rooms and workshops at its head office after Britain's most influential innovators. No fewer than four of them have strong South London roots.

Edward Jenner, who developed the world's first vaccine (against smallpox, by injecting pus from the blisters on a milkmaid's hand into the arm of an eight-year-old boy in 1796), was trained at St George's, University of London, at Tooting, where the hide of the cow that infected the milkmaid still hangs.

South Londoner Michael Faraday's contribution to science and the digital revolution can hardly be overstated: his 1821 development of a motor using electromagnetic rotation led to electricity becoming practical for use in technology. Faraday is still celebrated in Southwark today by the stainless steel Michael Faraday Memorial at Elephant & Castle, the Faraday Building at King's College Hospital in Camberwell, and the Faraday Wing at London South Bank University.

In 1860, Florence Nightingale – whose dedication to tending the wounded in the Crimean war overshadows an illustrious career as an innovator in nursing, public health and data visualisation – laid the foundations for professional nursing education by establishing the world's first secular nursing school at St Thomas' Hospital in South London, which remains an important centre for training and professional development in healthcare.

The world's first commercial movie theatre, at the Chicago World's Fair in 1893, was created by Eadweard Muybridge of Kingston-upon-Thames, using his revolutionary zoopraxiscope projector, which can be seen in Kingston's Museum and History Centre.

Another hugely influential movie innovator – as yet unblest with a meeting room named in his honour at KTN – was Walworth-born Charlie Chaplin, the son of impoverished music hall entertainers. At the age of seven, Charlie was sent to the Lambeth Workhouse – now the Cinema Museum in Dugard Way – and later he went to Norwood School for destitute children.

A balanced economy

For all that heritage, there is a sense that South London has found itself outside the charmed circle when it comes to funding and inward investment. In the last decade there has been a growing acceptance that the UK would benefit from a more balanced economy, stimulating growth in all parts of the country. Driven by awareness that London is disproportionately favoured not only in terms of private sector investment but also in government funding – reflected in reports such as those of the City Growth Commission (2014) – this has fuelled the drive towards City Devolution settlements and initiatives such as the Northern Powerhouse, the Midlands Engine and the Cambridge-Milton Keynes-Oxford Corridor.

Research undertaken for this study has shown that South London suffers from similar, and in some instances starker, disparities. That this, though unsurprising to South Londoners, has largely remained invisible is partly due to the fact that in statistical analysis, South London is not ‘a thing’. Economic data is widely analysed by London, inner or outer London, or borough. Only the last of these is useful if we want to obtain a picture of South vs North, but the borough attribute is absent from much national statistical data.

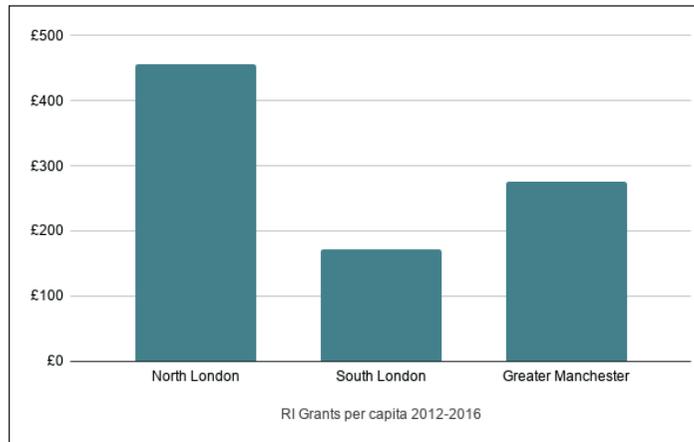
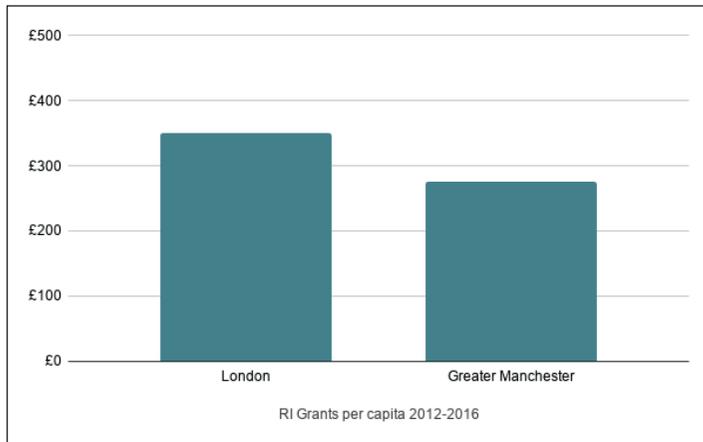
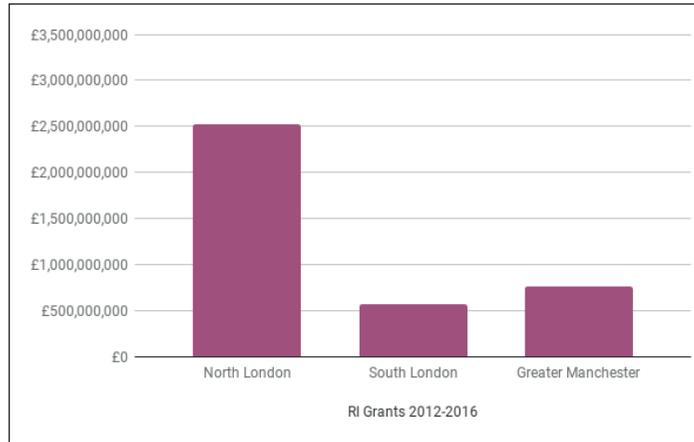
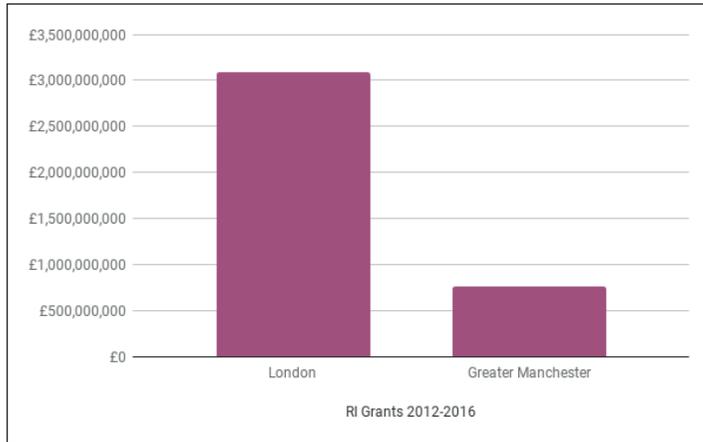
Analysing grants awarded instead by postcode (see Appendix 1) across the UK’s seven Research Councils and Innovate UK as the most reliable indicator of research and innovation funding overall reveals some notable disparities.

Per head of the population, the funding that flowed from the Arts & Humanities Research Council (AHRC) to Greater London over the five-year period 2012–2016 was £7 and to Greater Manchester £5. Separating the two parts of London, the North received £8 and the South was pegged with Greater Manchester at £5 (Figs. 11a-d, Appendix 1). The greater disparity evident in funding from the Biotechnology and Biological Sciences Research Council (BBSRC) reflects the eminence of the University of Manchester in those disciplines, with £39 flowing to Greater

Manchester compared to just £25 to London. In this case the sub-regional difference is even starker, with £33 going to North London against just £10 to the South (Figs. 12a-d, Appendix 1). Engineering is an area in which South London has strength, and one in which government funding is more significant. But in the awards made through the Engineering & Physical Sciences Research Council (EPSRC), South London received just £17 per capita against £135 for Greater Manchester and £162 for North London (Figs. 13a-d, Appendix 1). The Economic & Social Research Council (ESRC) spent £8 per person in South London, £12 in Greater Manchester and £37 in North London (Figs. 14a-d, Appendix 1). London North and South, and Manchester all have excellence to offer in medical science and there is some reflection of this in funding from the Medical Research Council (MRC), which spent £65 in London compared with £35 in Manchester, the North/South London split working out at £82 against £38 and so putting South London and Greater Manchester almost at parity (Figs. 15a-d, Appendix 1). South London fares badly in funding from the Natural Environment Research Council (NERC) and the Science and Technology Facilities Council (STFC), netting £2 and £1 respectively against £11 and £19 for Greater Manchester, and £14 and £20 for North London. (Figs 16a-d and 17a-d, Appendix 1)

On the face of it, South London gets the fairest crack of the whip from Innovate UK, which spent £97 per person in South London against £100 North of the river Thames, so almost equal. The same cannot be said for Greater Manchester, which received a relatively sorry £19 a head in the period (Figs. 18a-d). That positive picture for South London does not survive very close scrutiny, however, when we see that 56% of all the Innovate UK funding during the period went to one beneficiary – the undoubtedly deserving Cell & Gene Therapy Catapult situated in Guy’s Hospital at London Bridge – and a further 27% to another whose application address may be in South London but whose operational centre is in Islington, North London – the Future Cities Catapult. Excluding these leaves a per capita spend of £15, leaving much room for improvement.

Taking all these agencies together to form an overview of public research and innovation funding shows that in this period Greater Manchester had a 20% disadvantage against Greater London, receiving £276 per head of the population against London’s £350. That disparity almost doubles to 39.5% against North London, which received £456. In this overview of the funding landscape, South London is considerably worse off than Greater Manchester, netting just £173 – a disadvantage of more than 60% (Figs. 5a-d, opposite).



UKRI

Fig.5a and 5b. Grants Awarded by all UK Research Councils and Innovate UK Combined, 2012-2016 (absolute value)
 Fig.5c and 5d (below) Grants Awarded by all UK Research Councils and Innovate UK Combined, 2012-2016 (per head of the population)
 See notes Appendix 1.

The underlying reality this points to is reinforced by examining the corresponding Innovate UK grants awarded over the preceding five-year period from 2007-2011 – before the Catapult Centres came on stream – when North London received £35 per head against £8 for Greater Manchester and £4 for South London, a 77.5% disparity for Greater Manchester and 88.5% for South London (Fig. 19a-d, Appendix 1).

Such statistics must be treated with caution. How accurate a reflection is this of innovation activity taking place in South London? Is it anything more than an indication of the projects that were submitted and worth investing in?

The example of Future Cities Catapult, counted in Southwark but headquartered in Clerkenwell, shows that there are anomalies. The same flaws, however, are inherent in the government's published breakdowns of regional data, including that of Innovate UK and the Research Councils, so overall this is the best available indication of regional performance.

If we look at the total income reported by Higher Education Institutions in North London and South London over the period 2012-2016 inclusive, we see that in this belt-tightening period North London maintained its income growth both in Research and Teaching income, while South London stayed level on Teaching income and saw a significant decline in Research (Fig. 20a-c, Appendix 2). In this area too, there are opportunities for HEIs to drive improvement by targeting performance trends closer to those achieved by North London.

Real Estate

With 37.2% of the capital's population, South London has disproportionately low business floorspace (25.8%) and specifically office space (15.9%) of the total in London, pointing both to development potential and competitive advantage as rates and rents are correspondingly lower. Overall, North London has 51.2m m² available business floorspace with an average rateable value of £57/m². Of this, 21.9m m² is office floorspace. The corresponding data in South London is 17.8m m² business floorspace with rateable value of £40/m², and 4.2m m² offices (Valuation Office Agency Administrative Data 2017).

Social need and projected growth

While Lambeth, Southwark, Lewisham and Greenwich offer some of the greatest strengths for innovation, they also demonstrate the most urgent need, being among the boroughs with most neighbourhoods in the top deprived nationally (Hanna 2016).

The Mayor's Plan for London anticipates that South London will be less productive than North London in the coming decades. While in part this can be ascribed to the disparities in transport and infrastructure, it is set to become even more pronounced in the coming years on present reckoning notwithstanding planned transport investments.

If South London could deliver new jobs and homes at the same per capita rate as North London, this would produce 98,000 more new jobs by 2036 than currently projected (Table 1), and an extra 20,000 new homes by 2025 (Table 2) than the Mayor is targeting for the capital as a whole (Mayor of London 2016).

Opportunity Areas

The key proactive instruments used to deliver the targets and projections in the Mayor's plans are 'Opportunity Areas', defined as "areas with significant brownfield land and capacity for housing or commercial development, with existing or potentially improved public transport access", of which there are 14 in South London. On average, each of these areas is expected to deliver 5,000 jobs and 2,500 houses with supporting facilities and infrastructure (Table 3) (ibid.).

How can South London best address these evident challenges and opportunities?

Table 1. Projected jobs growth 2011-2036

New jobs South London	257,000
New jobs London overall	861,000
Top 5 growth boroughs South London	Lewisham, Greenwich, Wandsworth, Southwark, Croydon
Greatest absolute growth:	Southwark (62,000)
Top 3 growth boroughs London overall	Westminster, Camden, Southwark
% population in South London	37.2
% new jobs South London	29.8
South London new jobs pp	0.078
North London new jobs pp	0.108

If South London could deliver new jobs at the same rate as North London is projected to do, this would produce 355,298 jobs for South London, an increase of 98,298 jobs overall for the capital.
(Mayor of London 2016)

Table 2. Projected housing growth 2011-2036

New homes South London	144,311
New homes London overall	423,887
Top 5 growth boroughs South London	Southwark, Greenwich, Wandsworth, Lambeth, Croydon
Greatest absolute growth:	Southwark (27,362)
Top 3 growth boroughs London overall	Tower Hamlets, Southwark, Greenwich
% population in South London	37.2
% new homes South London	34.0
South London new homes pp	0.04
North London new jobs pp	0.05

If South London could deliver new homes at the same rate as North London is targeted to do, this would produce 164,490 jobs for South London, an increase of 20,000 homes overall for the capital.
(Mayor of London 2016)

**Table 3. Opportunity Areas:
South London targets 2016–2031**

New jobs in OAs:	116,500
New homes in OAs:	87,000
Top 3 boroughs creating new homes (together >70%)	Greenwich, Lambeth and Southwark
Top 3 boroughs creating new jobs (together >77%)	Lambeth, Southwark and Greenwich

Cross-borough OAs allocated 50/50 to host boroughs
(Mayor of London 2014)

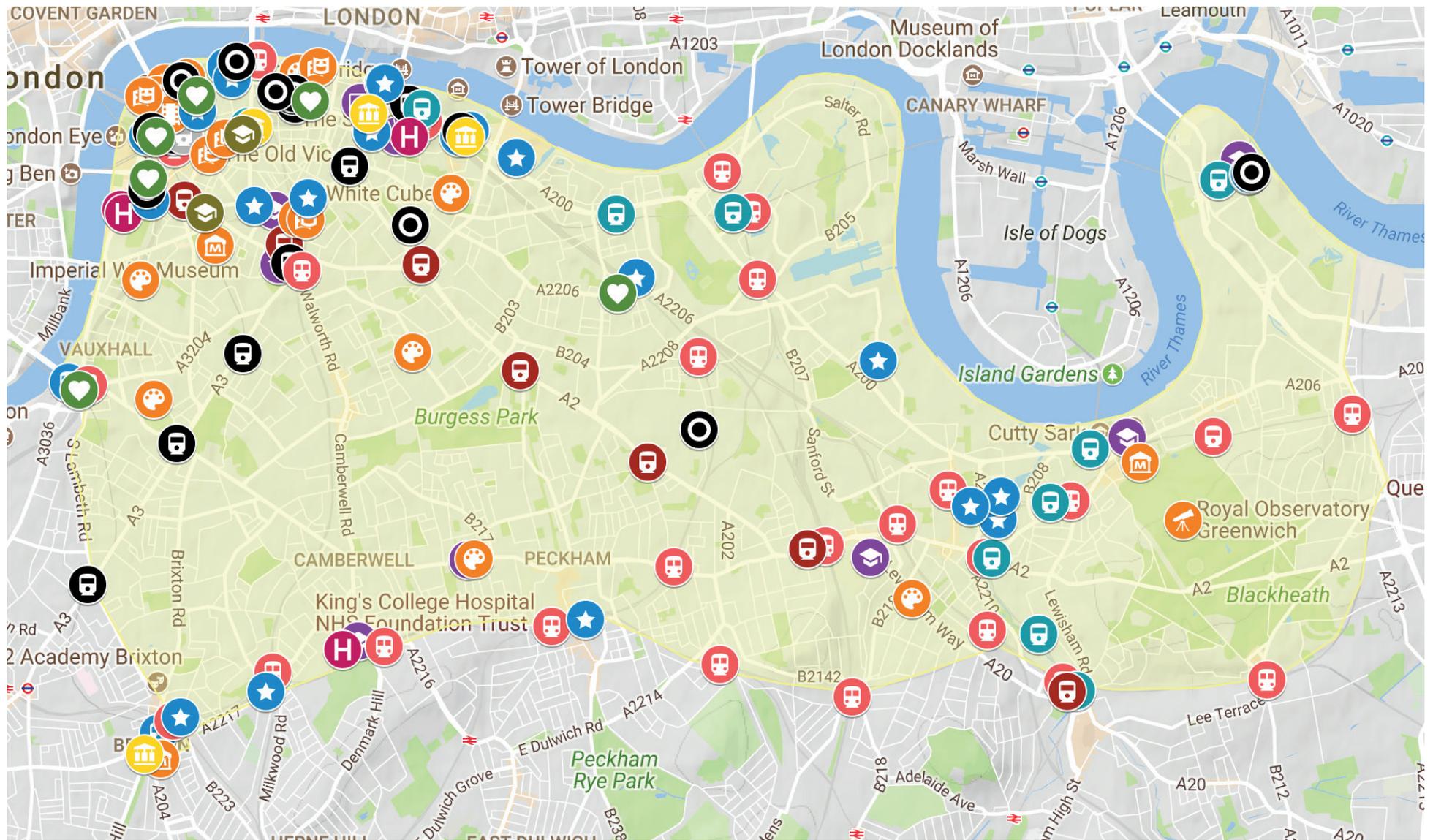


Fig. 6. SBIQ Innovation Assets:
 For map detail see Appendix 4.
 Images&Co. Base map data ©2018 Google.

THE SOUTH BANK CORRIDOR

The reasons for the investment disparities we have seen can be numerous. Grants were awarded by professional panels on the basis of published criteria and the best bids won. Are the 'disadvantaged' areas capable of competing better? Are the calls and criteria best addressing the opportunities for innovation-led growth in a balanced economy? The first is a question for South London stakeholders to consider. The second is one for government and its funding agencies, with advice and input from Local Enterprise Partnerships and organisations such as KTN, the Smart Specialisation Hub, thinktanks and innovation consultancies.

As to whether the region could do better, it is clear that South London has distinctive and significant strengths. It has more than a dozen higher education institutions, five teaching hospitals, a number of innovative businesses and one of the most concentrated clusters of world-class cultural institutions. It is however a metropolis in its own right: too large and distributed to be suitable for development of a place-based innovation strategy, which feeds on concentrated strength and centres of excellence. A more promising approach is to identify potential clusters capable of advancing on their own and in concert, for the benefit of the wider region.

Innovation assets

In 'The Rise of Innovation Districts', Katz and Wagner (2014) argue that successful innovation districts emerge in areas with the right mix of economic assets, such as universities and research institutes, physical assets including public realm, transport and a diverse mix of buildings, and networking assets, which include formal and informal arrangements for knowledge exchange and collaboration.

In this regard, the South Bank corridor from Vauxhall to the Greenwich Peninsula is perfectly primed with existing assets and projected developments. Extending across a broad but closely interconnected area, it is best described as an area with great potential for a coordinated innovation partnership. Overall its nature is 'Radical Mixed Use' and it contains several 'University Plus' clusters in the definitions used in Centre for London's 'Spaces to Think' (Hanna 2016). The area amounts to a network of nodes which are set to become better connected internally as well as to neighbouring areas and beyond.

A selection of these assets is set out in the following pages.

Map of the South Bank IQ partnership area, showing current and projected innovation assets (Images&Co).

1. Sectors and disciplines

Arts and culture

The South Bank from the London Eye to Tower Bridge is described as “London’s cultural district, home to national centres for arts, film and performance”. Global and national leaders in arts and culture include the Southbank Centre, the Royal National Theatre, British Film Institute and London IMAX, Tate Modern, Rambert, The Globe Theatre and Imperial War Museum.

All these organisations are engaged in innovation, including in areas such as environments, audience immersion, interaction and exhibition technologies. In most cases cross-sector and multidisciplinary collaboration is part of their nature and mission. An example is the NT’s theatre performance captions smart glasses technology being developed in partnership with Accenture (Marcotte 2017).

Significant investment in redevelopment has been seen in recent years – including the new Herzog & de Meuron building at Tate Modern and major refurbishments of the Southbank Centre, IWM London and National Theatre – with more planned in the future.

Media and creative technologies

The media, creative and digital sector is vibrant both within these cultural organisations and outside, including in the London Studios and a number of the higher education institutions – notably London South Bank University, London College of Communication, Ravensbourne and Goldsmiths driving advanced research and innovation in film, photography, performance, design, animation, games, big data, blockchain, robotics, networked image, digital storytelling, VR/AR, immersion, wearables and audiovisual technologies. Industry majors in the sector include Ogilvy & Mather, Omnicom and ITV.

Medicine and healthcare

The Faculty of Life Sciences & Medicine at King’s College London, located at London Bridge, Waterloo and Camberwell, is one of the largest and most successful centres for research and education in the UK. King’s Florence Nightingale Faculty of Nursing, Midwifery & Palliative Care, and London South Bank University’s School of Health and Social Care are leading trainers and innovators in healthcare. The South Bank corridor has three major

academic hospitals. The Gene & Cell Therapy Catapult at Guy's Hospital is one of Britain's foremost establishments in medical research and innovation. Guy's & St. Thomas' Charity, a major landowner in the area, is investing significantly in innovation and has supported the development of the Health Foundry, London's largest incubator of digital health startups in Royal Street opposite St. Thomas' Hospital.

Transport and mobility

The South Bank corridor hosts important operational and development functions of two major transport authorities: Transport for London and Network Rail. It has the busiest railway station in the UK at Waterloo as well as the oldest mainline terminus at London Bridge, both undergoing major redevelopment.

There are numerous other notable rail and underground stations (including Blackfriars, a station that spans the river Thames) and an extensive bus network. The area has seen some of the most advanced innovations in walking and cycling infrastructure. Significant network and infrastructure development plans in the area are detailed elsewhere in this report.

Built environment, energy and engineering

The opportunities for innovation in built environment, energy and engineering in the South Bank corridor derives both from its position as the site of major infrastructure development, and as the home of innovators and global actors in the field, including Royal Dutch Shell and Bouygues in industry, dRMM and Allies & Morrison in architecture. Within the research institutions there are specialist areas of engineering excellence such as in air conditioning and refrigeration at London South Bank University.

Education and skills

Innovation is also a focus of all education institutions in the area, from the new developments in schooling being explored by Teach First Innovation in Greenwich Peninsula to the Post-Digital Art School concept of Professor Fred Deakin at UAL (Deakin and Webb 2016) and the education and skills pathways ecology being developed by Professor David Phoenix in his 'Families of Learning' programme at London South Bank University (Phoenix 2017).

Infrastructure and public realm development in the area additionally brings collaboration with leading businesses including Lendlease, British Land, Delancey and many others.

Opposite, clockwise from top left: (1) the proposed St George's Quarter development (BDP), (2) section view of the new campus building of London College of Communication, directly over the Northern Line station at Elephant & Castle (Allies and Morrison), and (3) district overview from Elephant Park (Leandlease).

2. Real estate development

Intensive development is in progress in the area and more is planned. The timing, progress and detail of many schemes are subject to finance, consultation and planning constraints and therefore uncertain, but on the evidence of the last decade, the pace and intensity of development in the area can be expected to increase. A clear outcome of existing plans is substantial improvement of connections and permeability within the area as well as between the area and its neighbours, reinforcing the case for an effective partnership to stimulate inward investment across the South Bank corridor area identified in this report. Among the planned developments are:

Elephant & Castle

The redevelopment of the 'Piccadilly Circus of the South' by 14 partners including Leandlease and Delancey, provides a major regeneration of the area, including significant infrastructure upgrades by two universities: London South Bank University and UAL: London College of Communication. Delancey's new E&C town centre will include a redeveloped shopping centre, a live music venue, 1,000 rental homes and the new LCC campus with almost 300 student studios. Adjacent Elephant Park, developed by Leandlease, is already well under way delivering a large new public park with shops, 2,500 new homes and a zero-carbon heat and power plant. Leandlease has completed a further two developments in the area: Trafalgar Place and One The Elephant, providing 514 new homes.

LCC

At the heart of the E&C town centre will be the new campus building of UAL: London College of Communication, which aims "to build capacity around the digital technology industries, including design and gaming, and allow the expansion of TV and film into a new creative hub for the area."

LSBU - St George's Quarter

A short walk away is the campus of London South Bank University which has seen significant development across its x-acre Southwark Campus comprising academic buildings, laboratories, extensive libraries, a fully equipped film and broadcasting studio, performance spaces and an enterprise and innovation centre. The St George's Quarter redevelopment will deliver an all-weather central concourse making the campus more permeable and connected, a performing arts centre with two theatres and a new learning centre with the UK's first fully automated book retrieval system in an academic institution outside the British Library.



Opposite: CGI of the 'new town' at Canada Water (British Land)

Old Kent Road

The Old Kent Road Opportunity Area has the potential to significantly impact the perception of South London. Southwark Council has stated that with the introduction of new transport infrastructure, "Central London will expand to the South". If funding for the Bakerloo Line extension to Lewisham is confirmed, the strategy for the Old Kent Road published by Southwark Council aims to deliver 20,000 new homes and 10,000 new jobs, a Further Education college, a major cultural attraction and numerous other amenities (Southwark Council 2017).

Royal Street

Behind Waterloo and opposite St Thomas' Hospital, this area is earmarked for significant development by Guy's & St Thomas' Charity, a major landowner in the area, which is consulting on the creation of a significant health innovation cluster, including the expansion and relocation of hospital and academic functions, expansion of the incubation started with Health Foundry, and attracting innovative private sector partners into the area.

Canada Water

Led by British Land, the £2bn 'new town' redevelopment of Canada Water represents an important regeneration in the Rotherhithe area of the South Bank corridor, adjacent to Southwark Park. The plan is expected to deliver a new High Street and Leisure Centre, Park, Town Square and 3,500 new homes as well as a significant academic and residential facility for King's College London. The scheme is directed by Roger Madelin, who led the redevelopment of King's Cross for Argent, and is expecting a planning decision by the end of 2018.

Bermondsey

Grosvenor's £500m development plan for Bermondsey promises 1,350 new rental homes and 1,500 new jobs by delivering a new secondary school, 10,000 m² of new office space and 10,000 m² of retail and leisure alongside 25,000 m² of public realm improvements.

Deptford Creek / Greenwich Riverside

The Timberyard Deptford is a Lendlease project to deliver 1,100 mixed tenure homes, 7,500 m² flexible workspace, green space and pedestrian/cycle routes and an incubator in the refurbished Victoria Pub. Other schemes in the Deptford Creek / Greenwich Riverside Opportunity Area include Saxon Wharf, an affordable and social 145-home development by Notting Hill Genesis backing onto Deptford Creek.



Greenwich Peninsula

Home to the Millenium Dome, Ravensbourne and Digital Greenwich, planned development on the well-connected Peninsula include a 130,000 m² landmark building, a 1-hectare 'design district' with "an eclectic ecosystem of ambitious start-ups, entrepreneurs and creatives" and a total of 15,000 new homes in seven neighbourhoods.

Other developments

In addition there are numerous other projected developments across the area, including at **Brixton**, where a 2014 Master Plan - which projected 250 new homes, 10,000 m² of commercial space and 500 new jobs - has been revised by AECOM and Fluid and is expected to be reissued mid-2018; at **Loughborough Junction**, Hawkins\Brown and Fluid have been commissioned by Lambeth Council to produce a Master Plan; a Transport for London consultation about the possible reopening of **Camberwell** Station is ongoing; the **Peckham and Nunhead** Area Action Plan envisages 2,000 new homes as well as an extra 4,000 m² of business space and 8,000 m² of retail.

Prime location

The appeal of the area as a location for leading and innovative enterprises, reinforced by the significant developments taking place, was highlighted by Knight Frank who in their August 2017 report dubbed it "London's newest commercial hotspot". This noted that in the previous five years, four occupiers entered into transactions for more than 100,000 sq ft: News International, Omnicom, Ogilvy & Mather and Bouygues. Significantly, Knight Frank noted that in the year to October 2016, 33% of the demand had come from the tech, media and telecom sector, and 43% from corporates (Blackwell 2017).

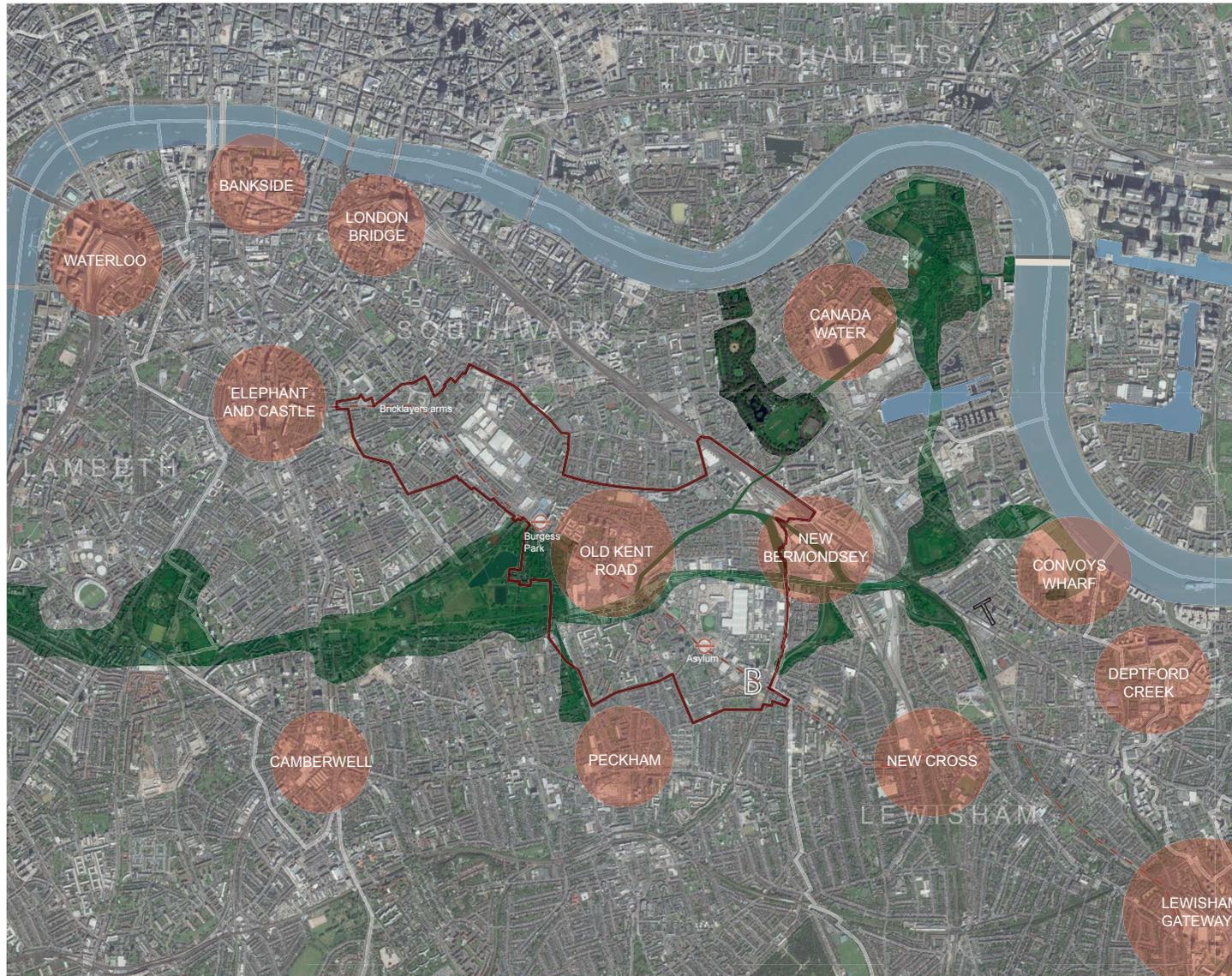


Fig. 7. Planned developments between Waterloo and Lewisham, including the Old Kent Road Opportunity Area in red outline (Southwark Council, 2017).

3. Transport

In transport too, the timing and detail of some key elements remain to be confirmed, but the overall impact of planned development is a highly connected network of multiple transport modes through and across the area.

The proposed Bakerloo Line extension runs from Lewisham in the South East through to Waterloo in the North West and through into the West End and North London. At various points it links with the DLR for connections to Canary Wharf and the Royal Docks, the Northern Line to the City of London, North London and the South West, and the Jubilee Line from Stratford to Wembley and beyond. The network includes connections to Overground, Thameslink and National Rail connections at multiple stations throughout the area.

Future developments to West and East – respectively, the Northern Line extension from Kennington to Battersea, and the Elizabeth Line from Heathrow and Central London to Woolwich and Abbey Wood – will also benefit the area in terms of enhanced TTWA and connections out and in.

The 2050 London transport diagram by Brian Butterworth shows the area to be highly connected within the metropolis, no longer the victim of distorted perception engendered by Harry Beck's tube map.

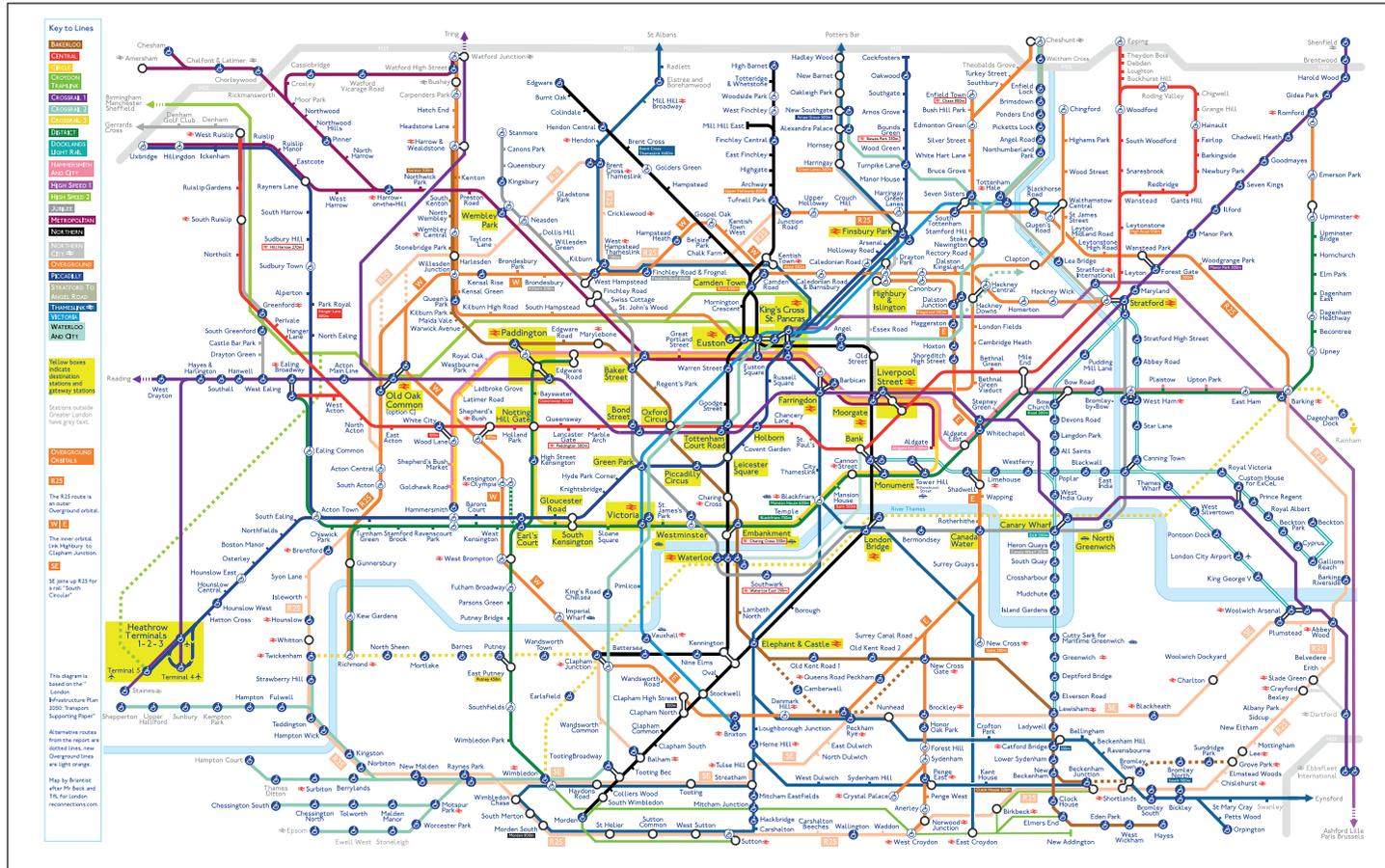
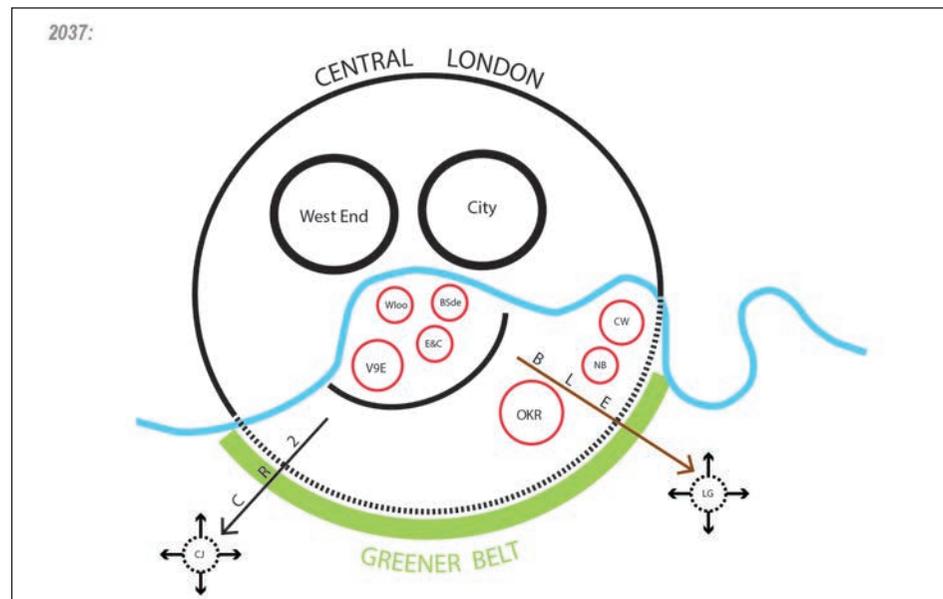
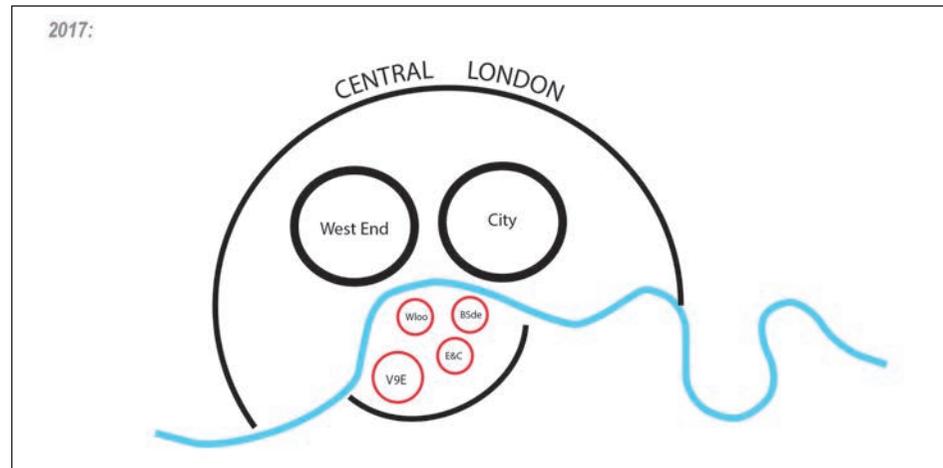
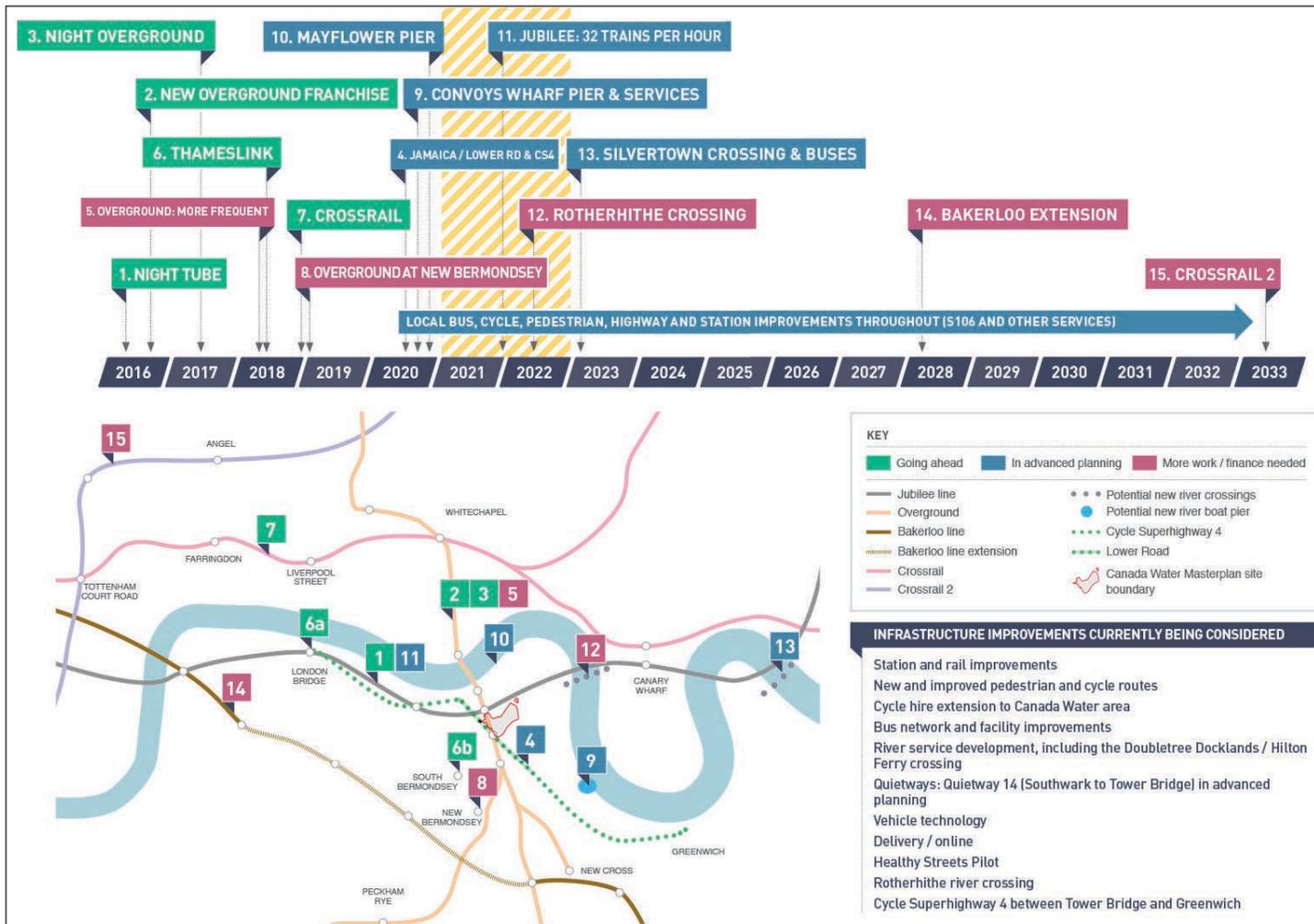


Fig. 8. A more balanced transport infrastructure? South London no longer looks so disconnected in this projection of planned developments up to 2050 by Brian Butterworth (Butterworth 2014).

Left: Fig. 9a-b. The proposed extension of the Northern and Bakerloo Lines will have the impact of expanding Central London to take in a large part of the South Bank area (Southwark Council 2017).

Opposite: Fig. 10. Diagram showing potential wider transport improvements, relevant to the local area showing indicative timeline of opening first buildings (ibid.).







4. IACs

The area has a number of highly effective incubators and accelerators to act as engines of growth for the start-up economy that is so important in driving innovation, supported by a growing network of coworking spaces, including:

The Clarence Centre

The Clarence Centre for Enterprise and Innovation, at London South Bank University, is the #1 business incubator in the UK operated by a single university, according to the UBI Global World Rankings 2018. Among university-managed incubators generally, it is #2 in the UK, #4 in the EU and #14 in the world. UBI ranks incubators that achieve “outstanding impact and performance relative to their global peers”. The Clarence Centre and Technopark combined are home to 90 microbusinesses with a combined turnover of £173m (LSBU REI 2016) and it has an extensive collaboration network across the university to stimulate knowledge transfer, employment and student enterprise. The Centre has built an international network of connections in North America and Asia and operates enterprise exchange programmes through its partnerships with DMZ in Toronto – world #1 in the UBI rankings – and with the UK-China Catalyst programme, part of Urban Catalyst. The Clarence Centre is home to two ERDF-funded programmes in which LSBU is a partner: the ERDF-funded Enterprise Steps programme, which provides free, tailored business support to startups, and the health tech accelerator SimDH, which supports health tech start-ups and SMEs to innovate, develop and deliver new products and services.

Health Foundry

Health Foundry at Royal Street is London’s only dedicated digital health incubator. It has 170 members – of which 70% are startups – within yards of St Thomas’ Hospital in Lambeth. Established with the support of Guy’s & St Thomas’ Charity, its specialist team supports member startups in developing digital products, connects them into the healthcare system and enables the wider ecology of actors in the healthcare system to innovate and adopt new solutions. Its member startups include DrDoctor, which places patients in control of their appointment journey to improve engagement, attendance and outcomes; and Oxford Heartbeat, a developer of minimally invasive surgical interventions to make planning for surgery simpler, faster and more accurate.

DigitalHealth.London

Based at Minerva House in Southwark, DigitalHealth.London is a support programme for health innovators delivered by MedCity and London's three Academic Health Science Networks - UCLPartners, Imperial College Health Partners, and the Health Innovation Network. It is supported by NHS England (London) and the Mayor's Office. The programme was set up in response to the London Health Commission's recommendation to put London at the centre of the global revolution in digital health by creating a "digital health hub": a marketplace where digital health solutions are traded, and a favourable environment for industry to do business in.

Impulse London

Supported by Bouygues and Digital Greenwich, Impulse London is an accelerator for innovation startups in real estate and construction, located in Greenwich Peninsula next to Ravensbourne and the Millenium Dome. Member startups include Q-Bot, a robot-installed insulation system; and XtreeE, which conceives and makes large-scale concrete 3D prints for architectural use.

WeWork

WeWork currently has two coworking spaces in the area, at Stamford Street and Upper Ground, and is developing what The Times reports is the largest coworking space in the world (26,000 m²) in the old Shell Centre at Waterloo, with facilities including 3D printers, laser-cutters and machinery for producing prototypes.

The Ministry

Sound and audio innovation are at the core of The Ministry, a new coworking space from Ministry of Sound, opening on Newington Causeway in 2018. Billed as a club and shared workspace for creative businesses, the facilities will include soundproof studios, a cinema and an immersive tech suite.

IKLECTIC

IKLECTIK showcases contemporary art, experimental music and artistic critical practice and fosters the arts and social development. It focuses on experimentation in arts, sound art, installation and cross disciplinary projects and has plans to expand as an interdisciplinary research arts laboratory to explore processes and techniques, and to address social, political, cultural and critical issues.

Make Space Studios

A studio hub near Waterloo, home to over eighty artists, artisans and creative businesses working across painting, illustration, fashion, photography, film, music, sculpture, design and other mediums.

Market, Peckham, and The Bussey Building

Convenient for both UAL: Camberwell Collage of Arts and Goldsmith's University of London, Peckham is a vibrant area popular with artists, students and creative professionals. Among the new facilities proliferating to support this demographic are Market and the Bussey Building, both combining coworking spaces with extensive social space and live performance venues.

The coworking centre of London

This expanding ecology of IACs responds to and stimulates the area's growing popularity. Coworking platform Hubble's annual analysis of internet searches, covering 340,970 searches in the year to May 2018, shows that the area between London Bridge and Westminster Bridge is now the top search location for flexible office space, beating Shoreditch (Tech City) and Soho into second and third place. Echoing Knight Frank's description in relation to commercial property, this latest study prompted GCUC, the global coworking conference, to tag South London as the capital's "new tech hotspot" (Harley 2018).

5. Relative potential

There were indications of promise in Centre for London's 'Spaces to Think' report, which found that its "London South Bank University" study area (which it defined as including UAL: London College of Communication) scored second to UCL by just one tenth of a percentage point (at 99.3%) in terms of public transport connectivity, and had the highest percentage of jobs in the knowledge economy after Imperial White City (third after UCL and Tech City in absolute numbers). King's College London was not included in that study, perhaps because of its multiplicity of locations, but its Guy's campus at London Bridge alone would vie for top spot in both these categories.

In networking assets, LSBU was fourth after UCL, London Met/Queen Mary and Tech City (combined with Goldsmiths it was second). Goldsmiths occupied the top spot in London for superfast broadband and was Number 2 after Tech City for IACs (Hanna 2016).

The work done by Centre for London provided positive impetus for looking at the potential in this part of London, particularly in the context where overall it is underperforming in the areas we have seen. The innovation infrastructure has developed significantly since then, particularly in terms of IACs and networking assets, while the real estate and transport developments in the area – both committed and proposed – will significantly enhance all categories, particularly permeability, connectivity and knowledge sector employment.

The question is how to translate this into an effective innovation partnership between the actors and clusters in the corridor identified.

VISION

As a proposition, SouthBank IQ does not follow a template or formula, but responds to the circumstances, distinctive strengths, trends and opportunities that present themselves in this area. We see it more as a flexible partnership across a geographic area than a concentrated innovation district. Its logic derives from existing collaborations, planned real estate and infrastructure development, and from the potential for cross-sector innovation alongside a highly rated and fast growing network of incubators, accelerators and coworking spaces to fuel the startups and microbusinesses that are central to driving growth through innovation.

Coupled with this, there is a compelling case for investment in this area by national, regional and local government in fostering a balanced economy across the capital to address key challenges around housing, employment and inclusion. To trigger such investment, the stakeholders in the area must develop equally compelling innovation propositions born of the amazing potential for multidisciplinary and cross-sector collaboration between global leaders and emerging talent to which this area is home.

The selected geography is defined by existing activity, observed trends and planned developments. Based on these we are, in Michael Batty's words, "predicting flows and networks rather than simply observing them" (Batty 2014). Closer in area to the Research Triangle Park in North Carolina than the Knowledge Quarter around King's Cross, the area - insofar as geography is pertinent - is certainly large enough, but there are compelling arguments for potential eastward extension to connect with the Elizabeth Line at Woolwich, and for building links to neighbours west (Nine Elms and Battersea) and south (Croydon), which have their own distinctive and significant promise.

The aim of an innovation partnership is to attract inward investment with a sustainable long term proposition. We believe this is best achieved by building on acknowledged strengths with a vision that does not constrain future development. For this reason we think it would be wrong to focus exclusively on a sector, such as Medicine, or Engineering, or Media. There is great potential for cross-sector innovation between all these areas in a way that adds up to an attractive ecology for inward investment.

The vision that emerges from this exploration is one of smart innovation within and across all the areas of excellence: "SouthBank IQ, the smart innovation partnership", developed through a flexible mechanism that supports and does not seek to replicate the work of partners, encouraging contact, looking for connections and overlaps that have the promise of propositions worthy of investment.

NEXT STEPS

The purpose of this report is to engender a wider exploration among stakeholders about the benefits of building on – not replicating – existing relationships, around a flexible partnership to foster innovation-led growth.

The area is extraordinarily rich in networks and collaborations. Every conversation we have with stakeholders reveals new assets and opportunities (and obstacles, too). We plan to continue exploring the potential for initiatives within the area as well as the wider partnership, and to iterate this report to support optimal outcomes for the area, for South London generally, and for a balanced economy across the metropolis as a whole.

If a partnership finds support among stakeholders, the steps to develop it as a successful platform may include:

1. Establish a partnership of champion institutions, businesses and organisations to underpin, grow and coordinate the innovation quarter.
2. Set up a steering group and consultation network, including individual champions.
3. Engage in an informal consultation process with potential partners.
4. Develop a clearly defined, non-competing and collaborative role for the partnership, focused on:
 - a. access to finance and funding: supporting effective business case and bid development,
 - b. opportunity scanning and development: cross sector innovation, matching partner strengths to local and external opportunities,
 - c. collaboration support: introductions, consortium building with local and external partners,
 - d. IQ development: promotion, marketing, international networks, events, economic analysis and underpinning, political and public engagement.
5. Build a network of connections with neighbours, and with clusters elsewhere in the country and internationally.
6. Collaborate with existing innovation support mechanisms including Innovate UK, KTN, Smart Specialisation Hub and the Research Councils.
7. Procure support from the Mayor and the LEP, Ministers and local MPs.

Of those individuals and organisations listed in the Brookings Report as driving the growth of innovation districts (Katz and Wagner 2014), many are present and receptive to engaging:

- Mayors and local governments. In this case, in addition to engaging with the Mayor and GLA, the relevant stakeholders are the four Borough Councils – Lambeth, Southwark, Lewisham and Greenwich – and we would add also Transport for London and Network Rail. In the UK context, central government including BEIS, DCMS and UKRI are also pertinent.
- Major real estate developers and major landowners. To include Lendlease, Delancey, British Land, Grosvenor, Guy's & St Thomas' Charity and the Higher Education Institutions.
- Managers of research campuses. All HEIs are relevant here, particularly King's College Guy's Campus and the Gene & Cell Therapy Catapult.
- Anchor companies. At present these may include Bouygues, Royal Dutch Shell, BAE Systems, IBM and Canonical alongside creative industry majors such as Ogilvy & Mather, Omnicom, dRMM, Allies & Morrison and ITV.
- Advanced research institutions. As a global leader in medicine and life sciences, King's College London is central to the research potential in the area, with leading edge research impact and expertise promise across the other HEIs and research centres in creative technologies, engineering, refrigeration and air conditioning, and other areas.
- Advanced medical campuses. The academic hospitals at Guy's, St Thomas' and Denmark Hill, combined with the related faculties at King's College and London South Bank University represent leading edge and world-leading expertise in this area.
- Philanthropic investors. While as a mechanism this is more embedded in the United States than the United Kingdom, there is significant potential here too – the Health Foundry digital health accelerator funded by Guy's & St Thomas' Charity being a shining example.
- Incubators, accelerators, and other economic cultivators. These are as we have seen well represented and rapidly growing networks.
- Social networking programmers. Extensive networking programmes are operated by HEIs, incubators such as the Clarence Centre, and some of the cultural institutions, such as the Southbank Centre. In addition the Business Improvement Districts and community organisations play an important role.

To participate or contribute as we explore these ideas further, join us at www.images.co.uk/sbiq.

REFERENCES

- Batty, Michael. *The New Science of Cities*. Boston: MIT Press, 2014.
- Blackwell, Hayley. London's newest commercial hotspot: Why London's South Bank is attracting top occupiers. London: Knight Frank, 2017 (<http://www.knightfrank.co.uk/blog/2017/08/24/londons-newest-commercial-hotspot-why-londons-south-bank-is-attracting-top-occupiers>, accessed 01/06/2018).
- Bone, Jonathan, Olivia Allen, and Christopher Haley. *Business Incubators and Accelerators: The National Picture*. Report, London: Nesta for Department of Business, Energy & Industrial Strategy, 2017.
- Butterworth, Brian. *WHOLE London 2050 – A Tube Map for the Future*. UK Free TV (https://ukfree.tv/article/1107052204/2050_Tube_Map_#b759230, accessed 01/05/2018).
- City Growth Commission. *Unleashing Metro Growth: Final Recommendations of the City Growth Commission*. Report, London: RSA, 2014.
- Deakin, Fred, and Charlotte Webb. *Discovering the Post-Digital Art School*. Project report, London: Fred and Company, 2016.
- Florida, Richard. *The New Urban Crisis: Gentrification, Housing Bubbles, Growing Inequality, and What We Can Do About It*. London: Oneworld Publications, 2017.
- Hanna, Kat. *Spaces to Think: Innovation Districts and the Changing Geography of London's Knowledge Economy*. Report, London: Centre for London, 2016.
- Harley, Justin. *Hubble Releases New Heatmap Which Shows South London Is The New Tech Hotspot*. GCUC UK, 2018. (<http://uk.gcuc.co/7638-2/>, accessed 12 June 2018).
- Katz, Bruce, and Julie Wagner. *The Rise of Innovation Districts: A New Geography of Innovation in America*. Report, Washington, DC: Brookings Institution, 2014.
- LSBU REI. *Annual Review 2015/2016*. Report, London: London South Bank University, 2016.
- Marcotte, George. "AR at the National Theatre: Enhancing Experiences for Hard-of-hearing Patrons." *WIRED*, November 1, 2017: NA.
- Mayor of London. *London Infrastructure Plan 2050: A Consultation*. Consultation Document, London: Greater London Authority, 2014.
- Mayor of London. *The London Plan*. Policy document, London: Greater London Authority, 2016.
- Phoenix, Professor David. *Families of Learning: Co-Creating Local Solutions to Education System Failings*. Report, London: London South Bank University and PA Consulting, 2017.
- Southwark Council. *Old Kent Road Area Action Plan: Opportunity Area Planning Framework Consultation*. Consultation document, London: Southwark Council, 2017.

APPENDIX 1: INNOVATION AND RESEARCH FUNDING

Analysis of grants awarded by the seven UK Research Councils and Innovate UK in the five-year period from 2012-2016 inclusive (project start years).

The population figures used are:

Greater London	8,835,500	
Greater Manchester	2,782,100	
North London	5,545,700	(62.8%)
South London	3,289,800	(37.2%)

The figures are taken from the official statistics of Greater London Authority (2017) and Greater Manchester Combined Authority (2018).

Grants awarded are from the data published by each funding body through UKRI, filtered by funding body and year and sorted by region (gtr.ukri.org).

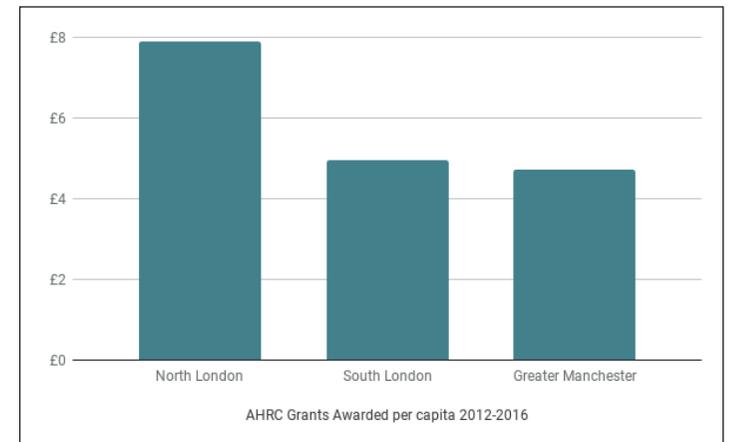
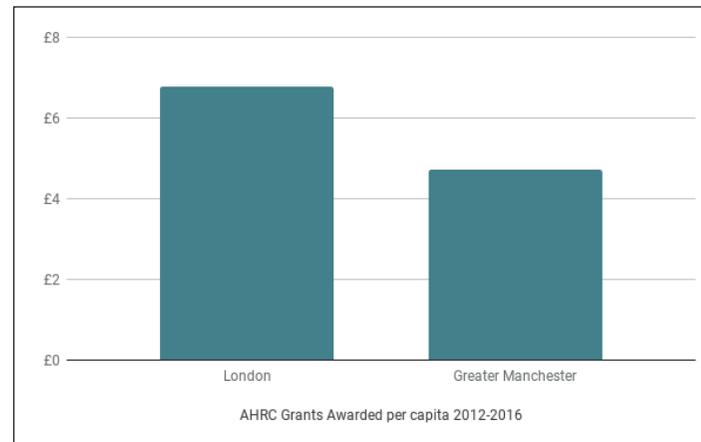
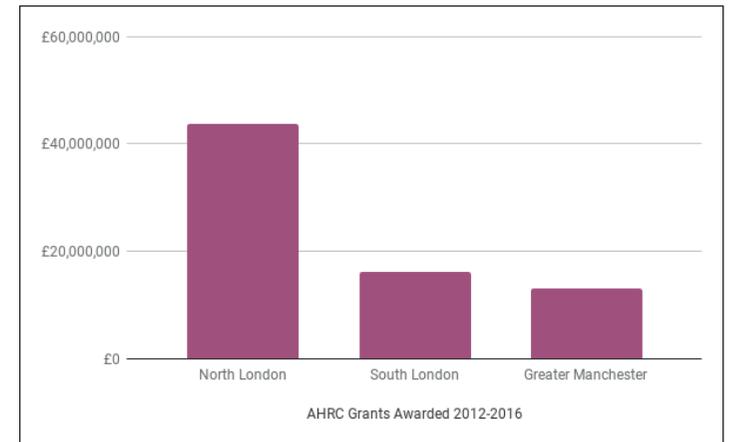
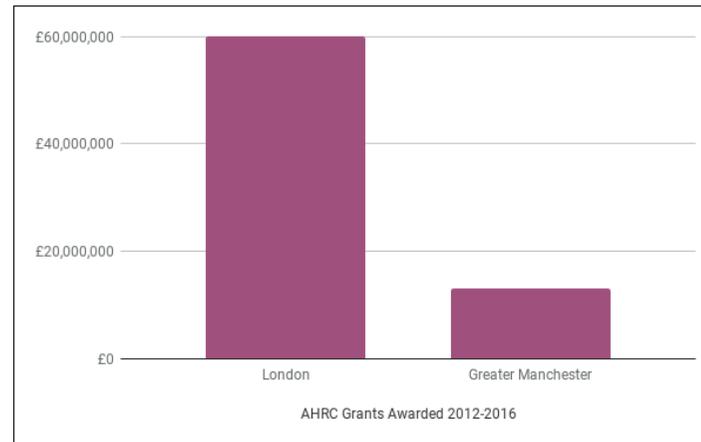
In the case of the Research Councils the results have been analysed by institution and then allocated to location.

In the case of Innovate UK, we have analysed the application addresses of individual grant beneficiaries by postcode. Since many postcodes at Level 3 (the first part plus the first number of the second part) cross borough boundaries, the data has been mapped down to Level 4, by 317,306 postcodes (Office for National Statistics, August 2017).

AHRC

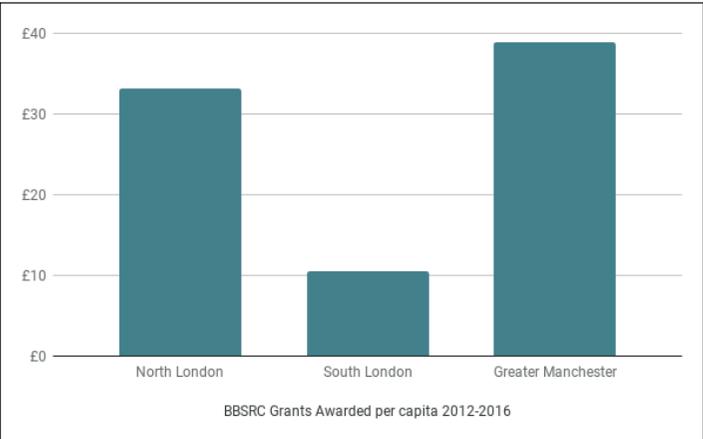
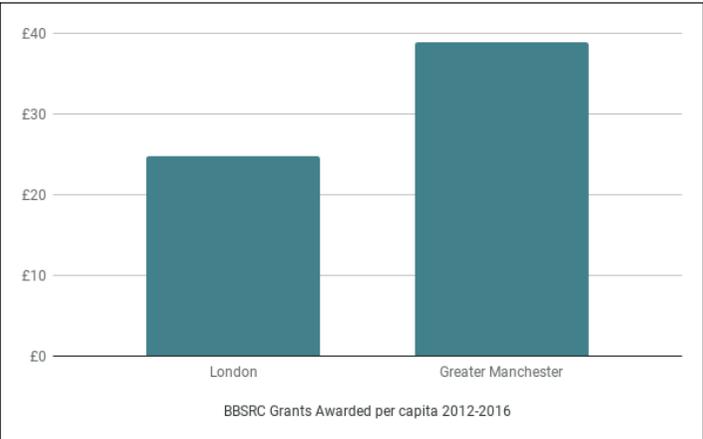
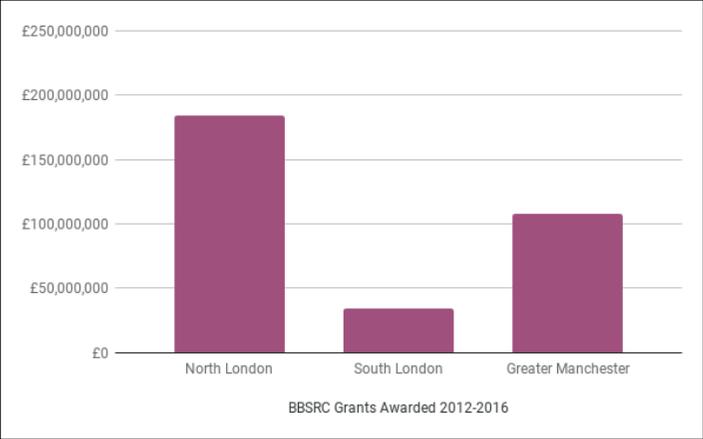
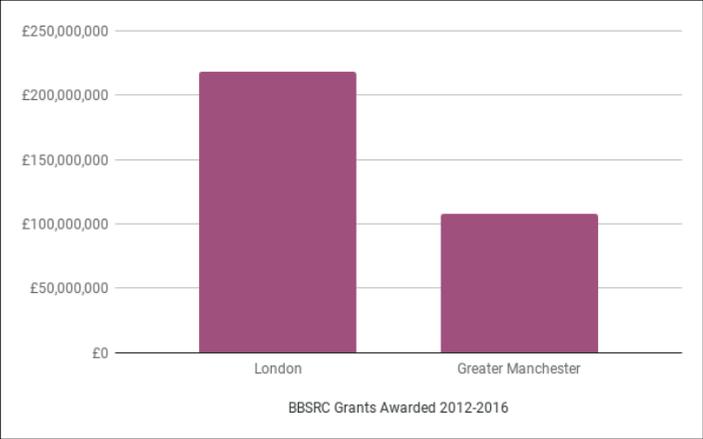
Fig.11a and 11b (right) AHRC Grants Awarded (absolute value)

Fig.11c and 11d (below right) AHRC Grants Awarded (per head of the population)



BBSRC

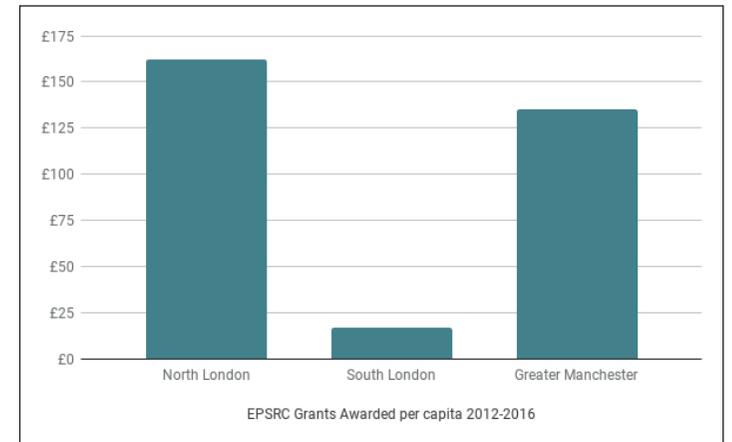
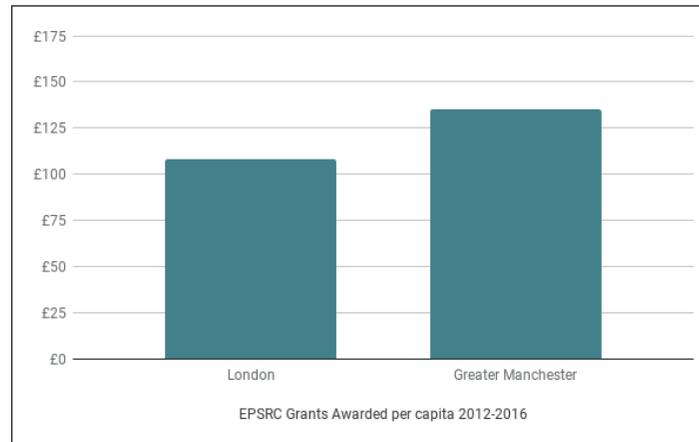
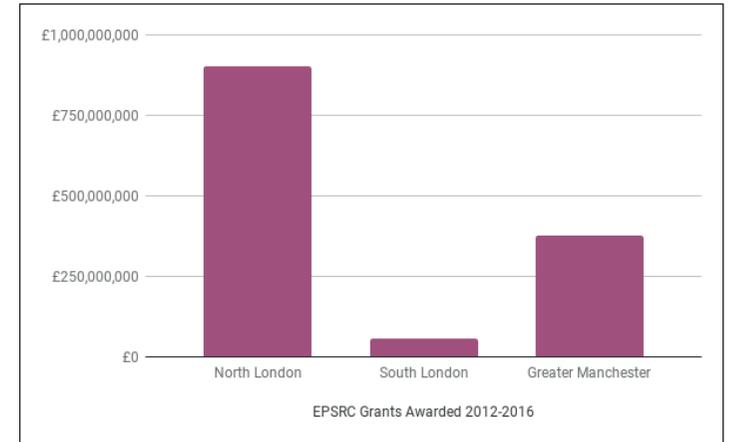
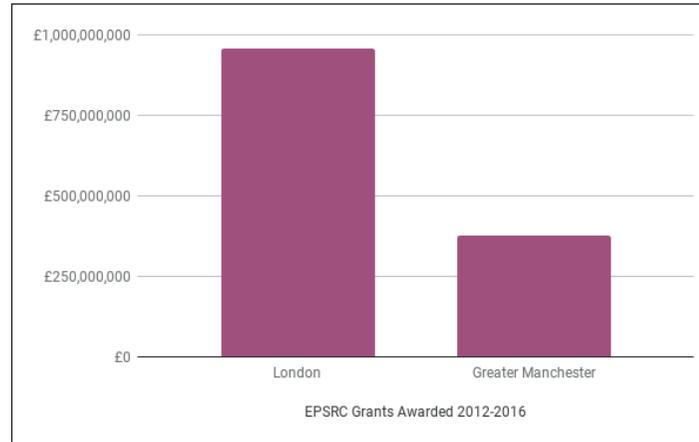
*Fig. 12a and 12b (left) BBSRC Grants Awarded (absolute value)
 Fig. 12c and 12d (below left) BBSRC Grants Awarded (per head of the population)*

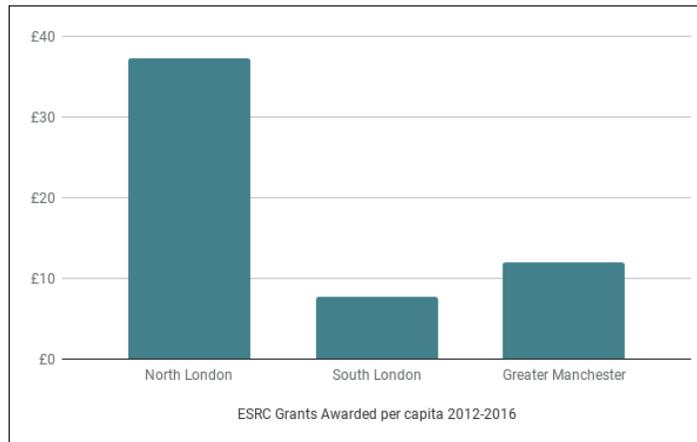
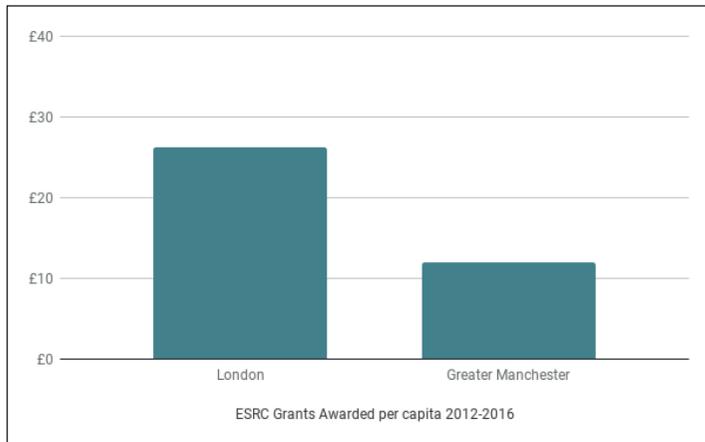
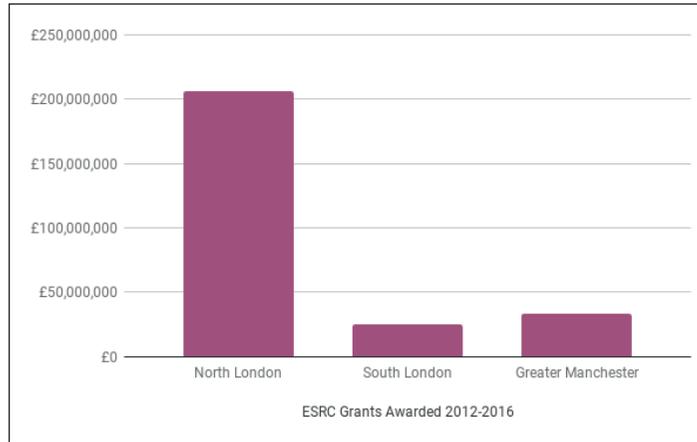
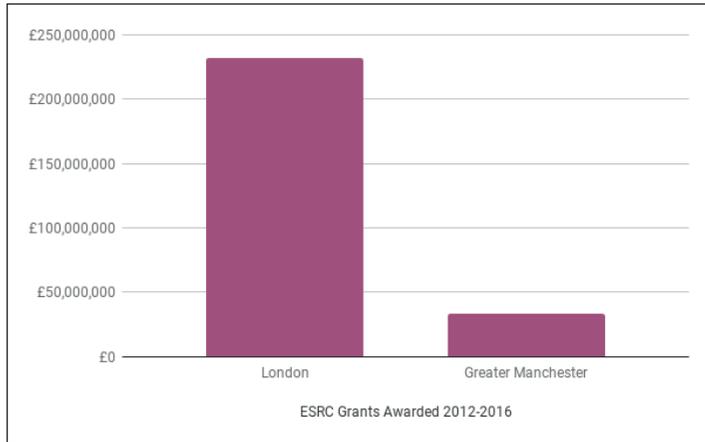


EPSRC

Fig. 13a and 13b (right) EPSRC Grants Awarded (absolute value)

Fig. 13c and 13d (below right) EPSRC Grants Awarded (per head of the population)





ESRC

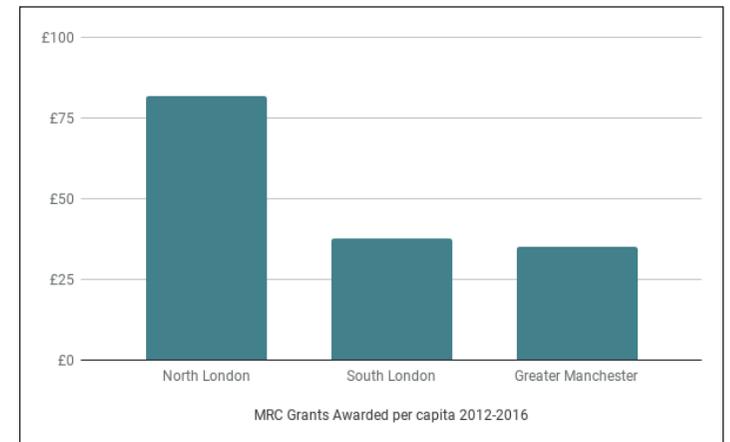
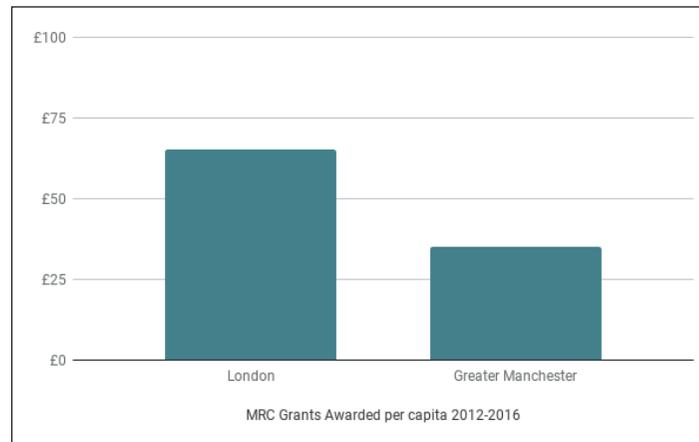
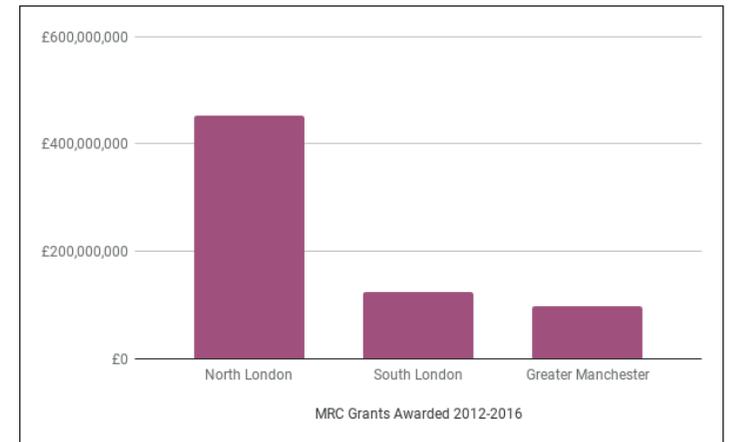
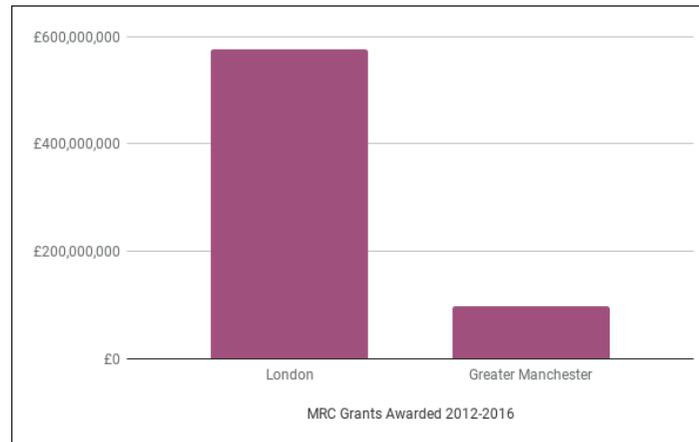
Fig. 14a and 14b (left) ESRC Grants Awarded (absolute value)

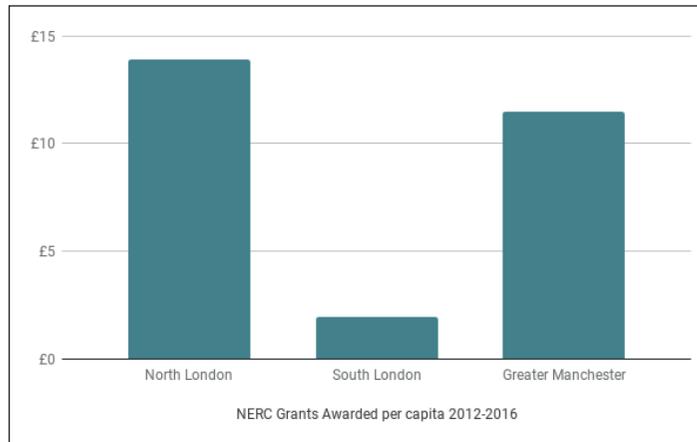
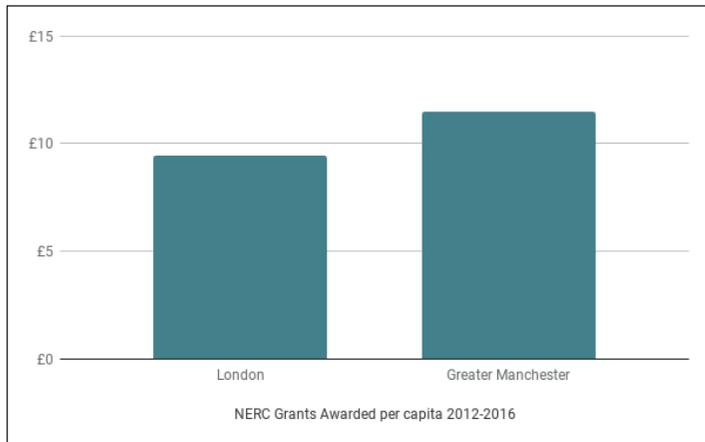
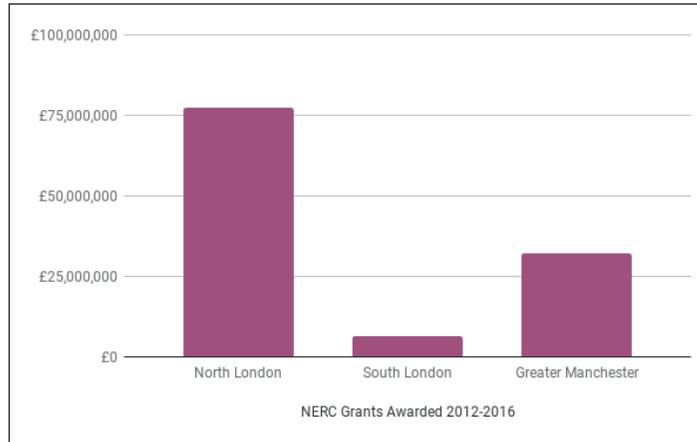
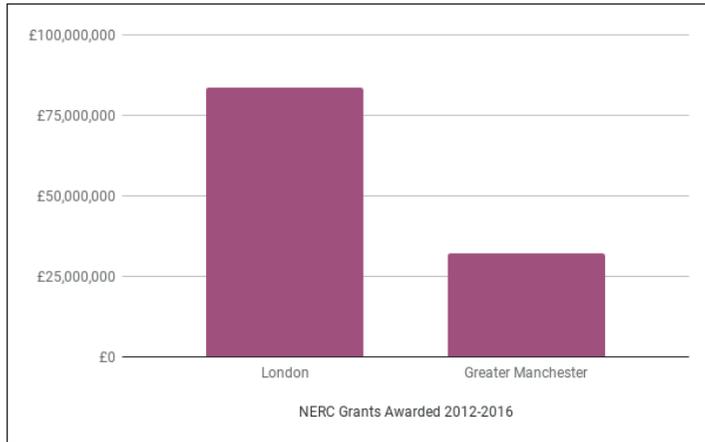
Fig. 14c and 14d (below left) ESRC Grants Awarded (per head of the population)

MRC

Fig. 15a and 15b (right) MRC Grants Awarded (absolute value)

Fig. 15c and 15d (below right) MRC Grants Awarded (per head of the population)





NERC

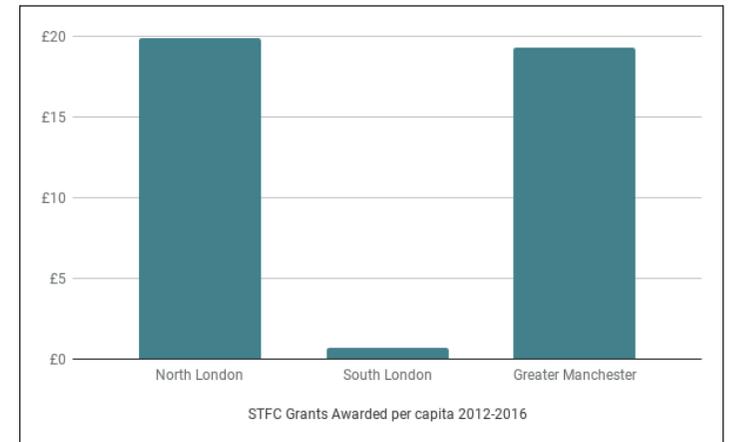
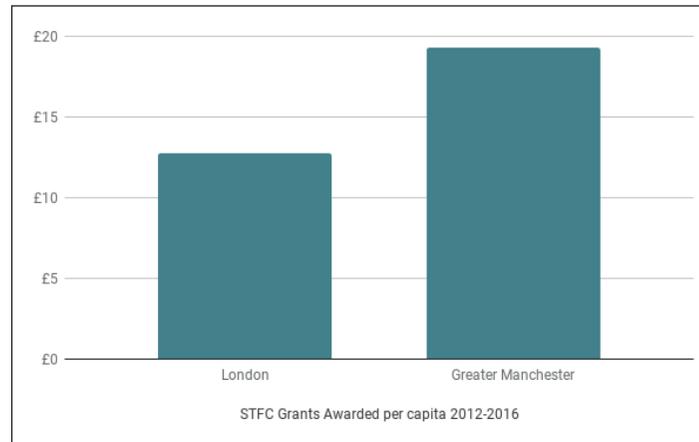
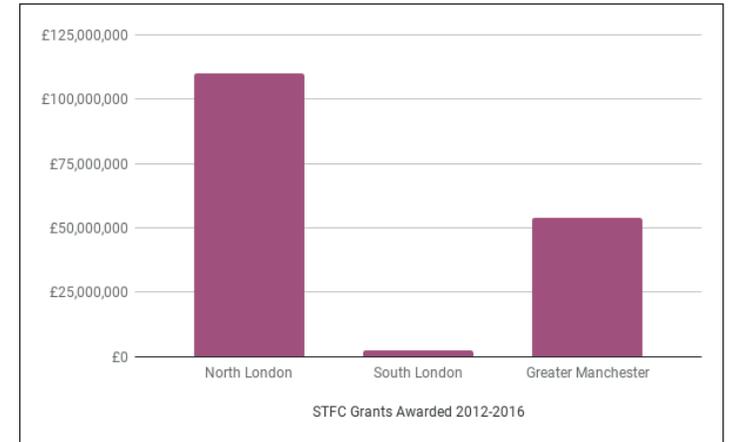
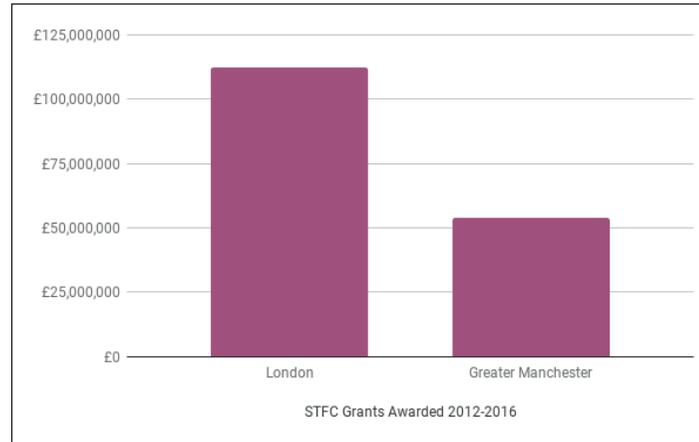
Fig. 16a and 16b (left) NERC Grants Awarded (absolute value)

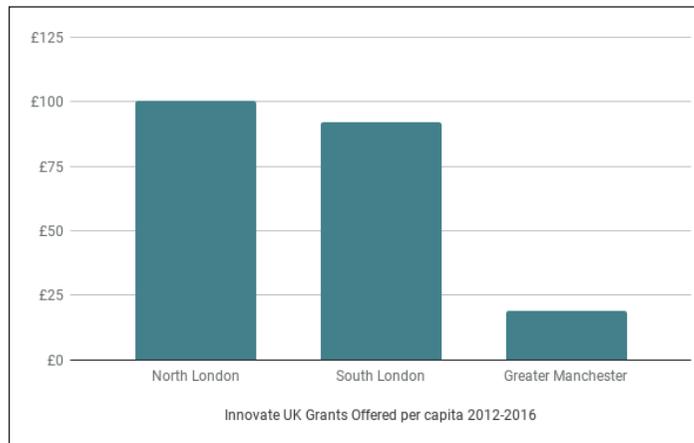
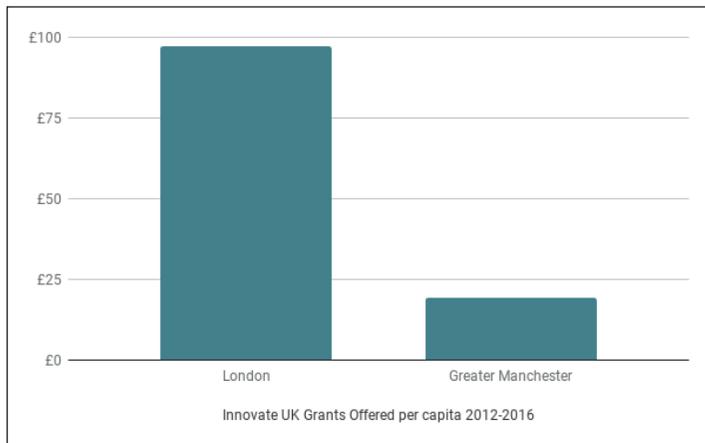
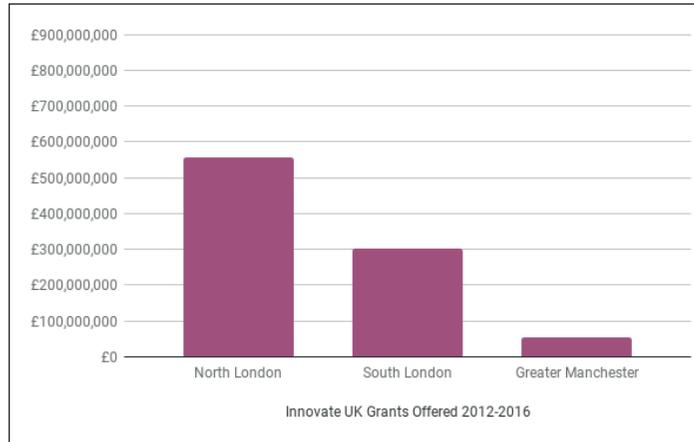
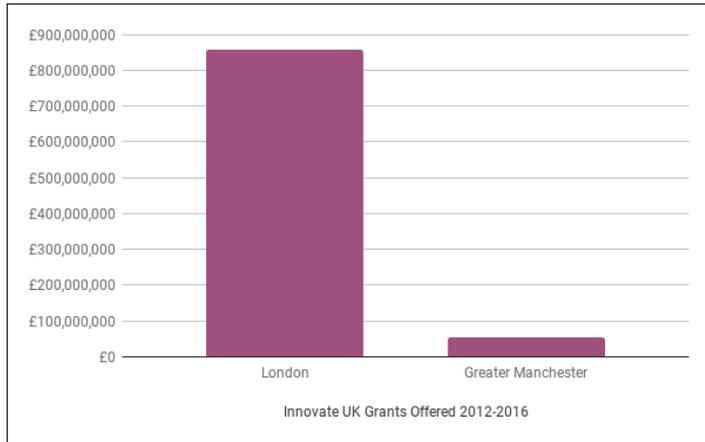
Fig. 16c and 16d (below left) NERC Grants Awarded (per head of the population)

STFC

Fig.17a and 17b (right) STFC Grants Awarded (absolute value)

Fig.17c and 17d (below right) STFC Grants Awarded (per head of the population)





Innovate UK

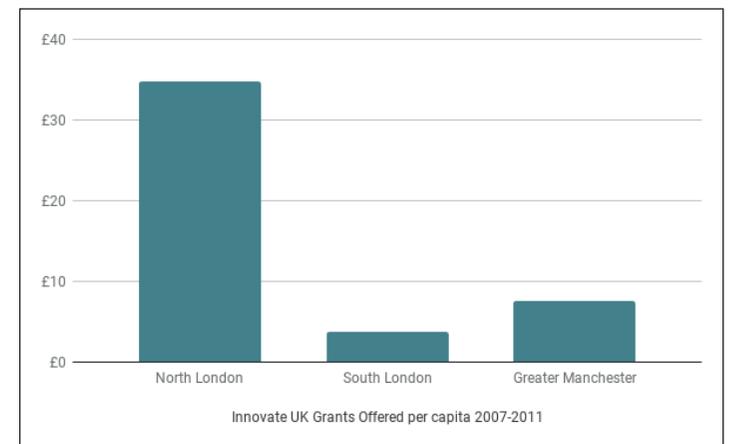
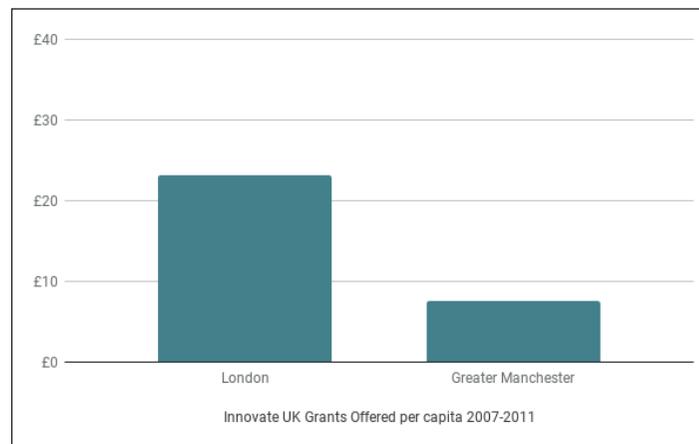
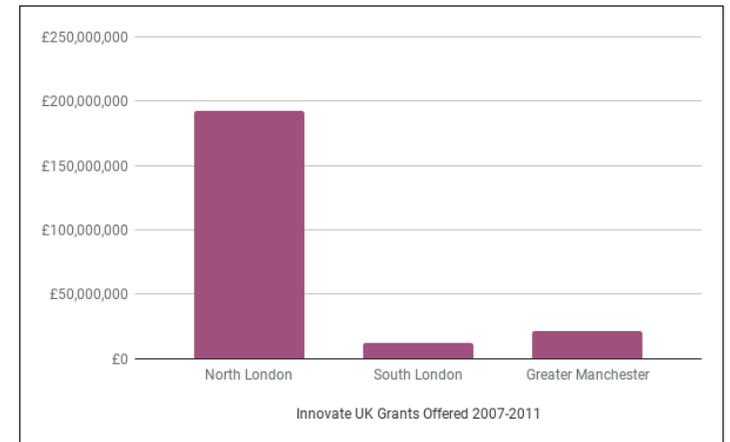
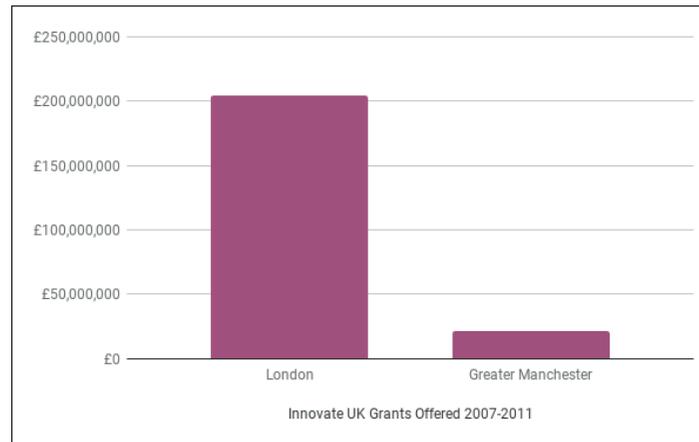
Fig. 18a and 18b (left) Innovate UK Grants Awarded (absolute value)

Fig. 18c and 18d (below left) Innovate UK Grants Awarded (per head of the population)

Innovate UK 2007–2011

Fig. 19a and 19b (right) IUK Grants Awarded (absolute value)

Fig. 19c and 19d (below right) IUK Grants Awarded (per head of the population) in the period before 20



APPENDIX 2: HIGHER EDUCATION INSTITUTIONS INCOME

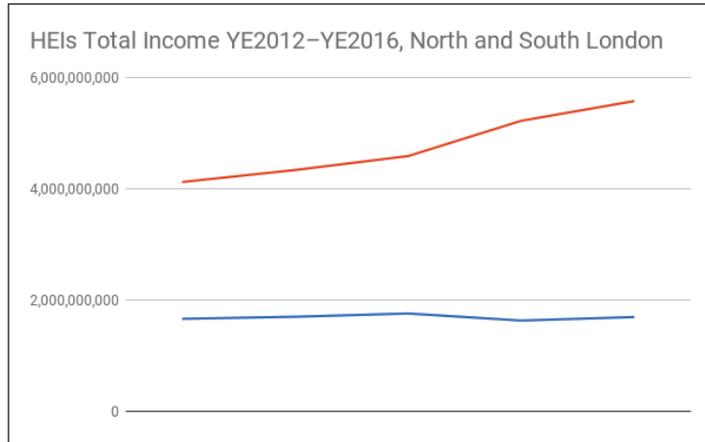
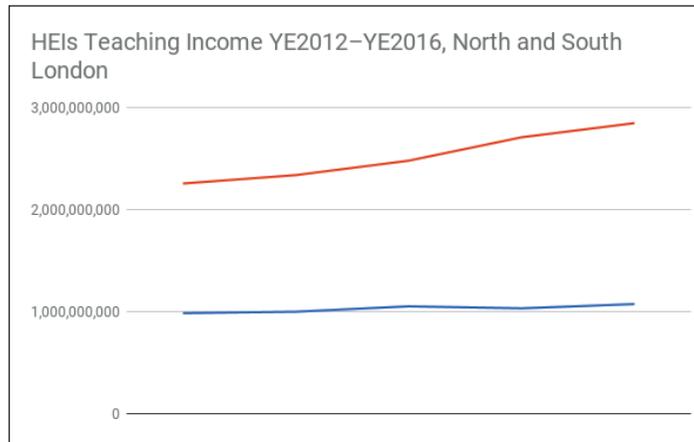
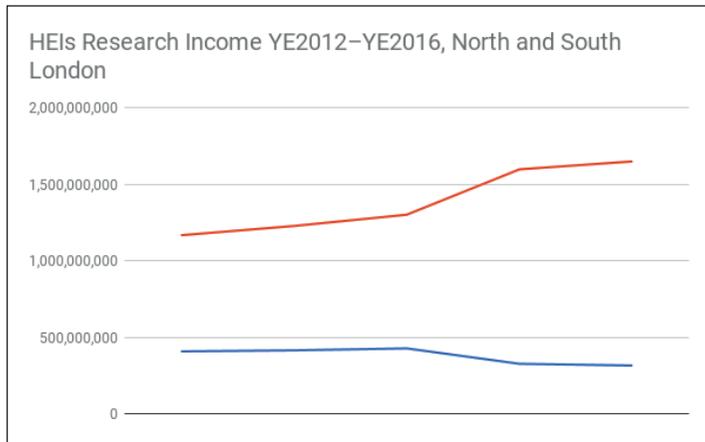


Fig.20a (left) HEIs Total Income 2012-2016, North London and South London
Fig.20b and 20c (below left) HEIs Research Income and Teaching Income 2012-2016, North London and South London

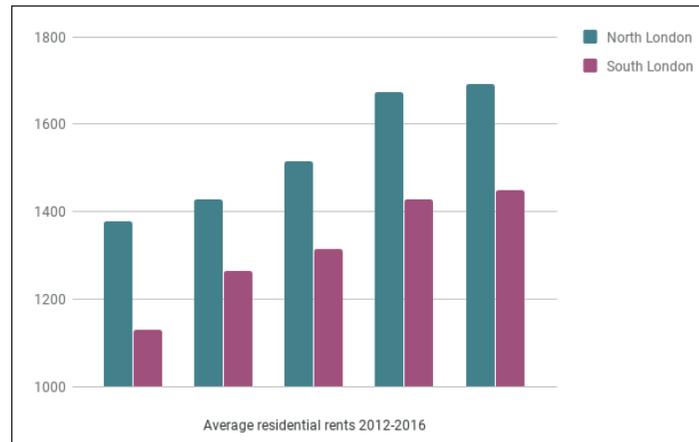
Source: HESA Estates Management Record (hesa.ac.uk/data-and-analysis/publications)



APPENDIX 3: AVERAGE PRIVATE SECTOR RENTS

Fig.21 Increase in average rents in the private rental market, North London and South London, 2012-2016.

Source: Valuation Office Agency, Private Rental Market Statistics, December 2017.



APPENDIX 4: LONDON PLAN OPPORTUNITY AREAS

Table 4. The South London Opportunity Areas with targets and status.

OA	Area (ha)	Jobs	Homes	Status
Bexley Riverside	811	4,000	3,000	4
Bromley	69	2,000	2,500	1
Canada Water	46	2,000	4,500	3
Charlton Riverside	177	1,000	3,500	3
Croydon	194	7,500	7,300	3
Deptford Creek/Greenwich Riverside	163	4,000	5,000	1
Elephant & Castle	88	5,000	5,000	3
Greenwich Peninsula	261	7,000	20,000	3
Lewisham, Catford and New Cross	815	6,000	8,000	1
London Bridge, Borough & Bankside	155	25,000	1,900	4
Old Kent Road	114	1,000	2,500	1
Thamesmead and Abbey Wood	811	4,000	3,000	4
Vauxhall, Nine Elms, Battersea	227	25,000	20,000	3
Waterloo	78	15,000	2,500	3
Woolwich	77	5,000	5,000	3
TOTAL	4,086	113,500	93,700	

Status key:

- 1 - Proposed
- 2 - In preparation
- 3 - Adopted
- 4 - Under review
(Mayor of London 2016)

APPENDIX 4: INNOVATION ASSETS

In addition to the transport infrastructure development described, selected innovation assets in the SouthBank IQ corridor are listed here. IACs from Bone, Allen and Haley, 2017 and public directories. The map with layers, reproduced on the following pages, can be accessed at www.images.co.uk/sbiq/map.

HEIs & research centres

Cell and Gene Therapy Catapult
Centre for Cities
Goldsmiths, University of London
King's College London
London South Bank University
Ravensbourne
UAL: Camberwell College of Arts
UAL: London College of Communication
University of Greenwich
Warwick Business School London

Arts / culture / media

Black Cultural Archives
British Film Institute
Gasworks
Imperial War Museum
ITV London Television Centre
Lewisham Arthouse
Merlin Entertainments
Ministry of Sound
National Theatre
Newport Street Gallery
Rambert
Royal Museums Greenwich
South Bank Centre

South London Gallery
Southwark Playhouse
Tate
The Globe Theatre
The Old Vic
Turps Gallery
White Cube
Young Vic Theatre

IACs

Accelerator Network
Art Hub
Bussey Building
Clarence Centre
Cockpit Arts Deptford
Collider
Deptford Lounge
Digital Greenwich
DigitalHealth.London
Enterprise Steps
Entrepreneur First
FFWD London
Finance Innovation Lab
Hatch Enterprise
Health Foundry
Health Innovation Network

Impact Hub Brixton
Market, Peckham
The Ministry
Newable
Red Bull Amplifier
SimDH
TeachFirst Innovation
The Family
Victoria Pub Deptford
WeWork

Local and transport authorities

London Borough of Lambeth
London Borough of Lewisham
London Borough of Southwark
Network Rail Infrastructure
Royal Borough of Greenwich
Transport for London

Industry innovation

Allies & Morrison, architects
BAE Systems AI, engineering
Canonical
Bouygues UK, construction & energy
British Land, property development
Delancey, property development

dRMM, architects
IBM
Lendlease, property development
Ogilvy & Mather, advertising company
Omnicom, advertising media
Royal Dutch Shell, energy
United Visual Artists, public media art

Business and community

Better Bankside
Blue Bermondsey
Coin Street Community Builders
South Bank BID
South Bank Employers Group
Vauxhall One
We Are Waterloo

Academic hospitals

Guy's Hospital
King's College Hospital
St Thomas' Hospital
Evelina Hospital

FE Colleges

Morley College
Lewisham Southwark College

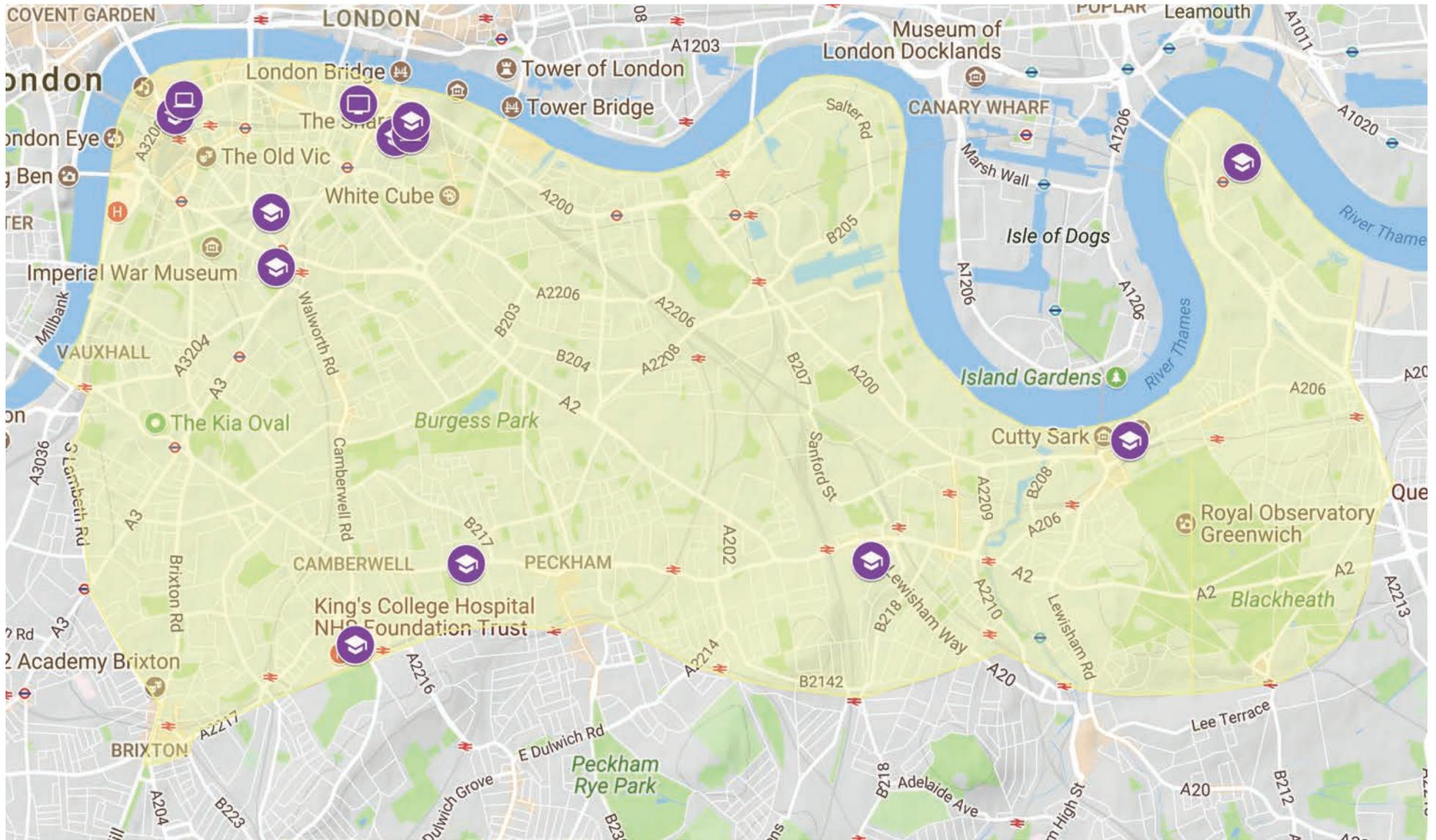


Fig. 22. SBIQ Innovation Assets: Higher Education Institutions and Research Centres. Images&Co. Base map data ©2018 Google.

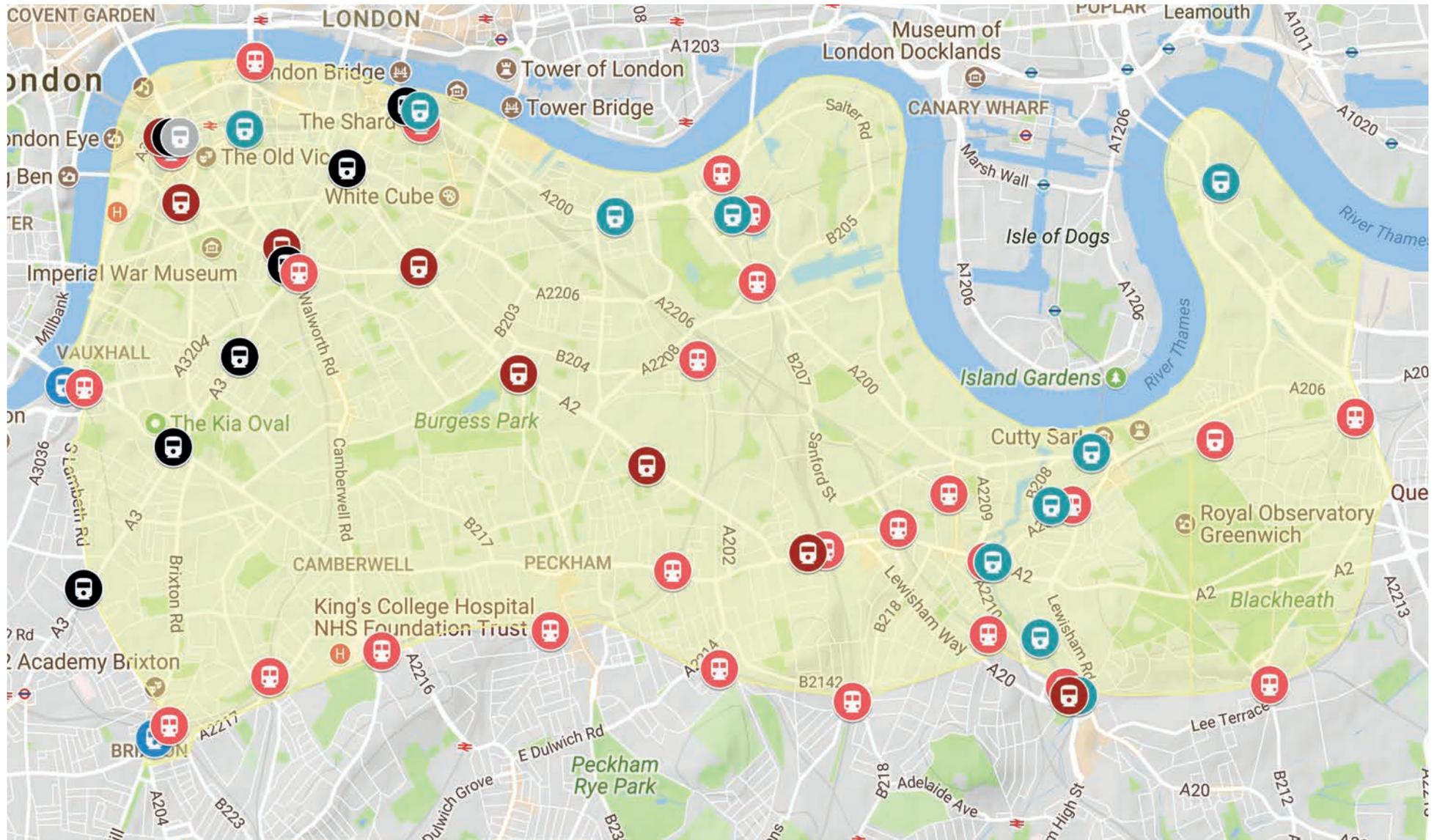


Fig. 24. SBIQ Innovation Assets: Transport network including Bakerloo Line extension. Images&Co. Base map data ©2018 Google.

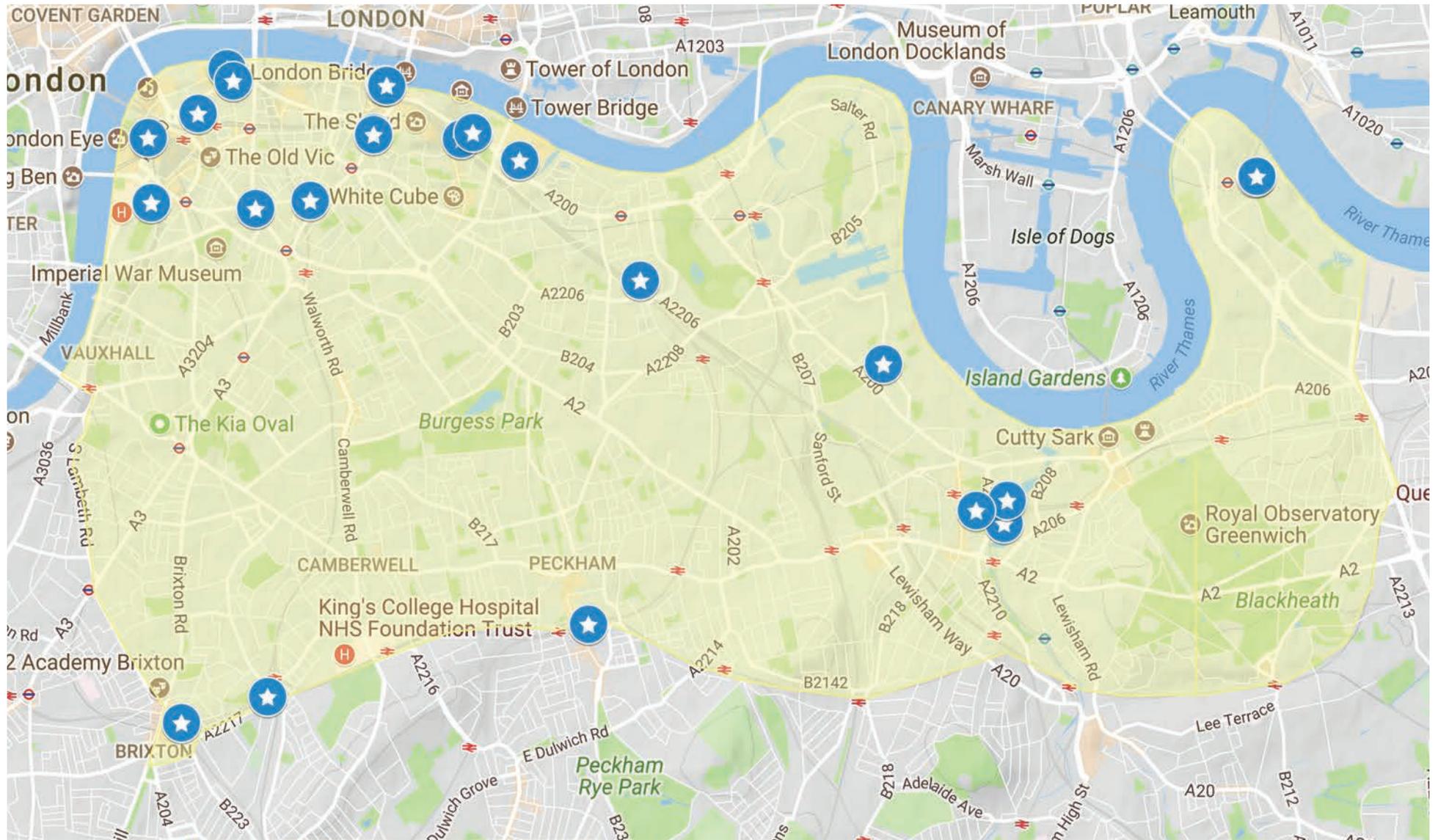


Fig. 26. SBIQ Innovation Assets: Incubators, Accelerators & Coworking Spaces. Images&Co. Base map data ©2018 Google.

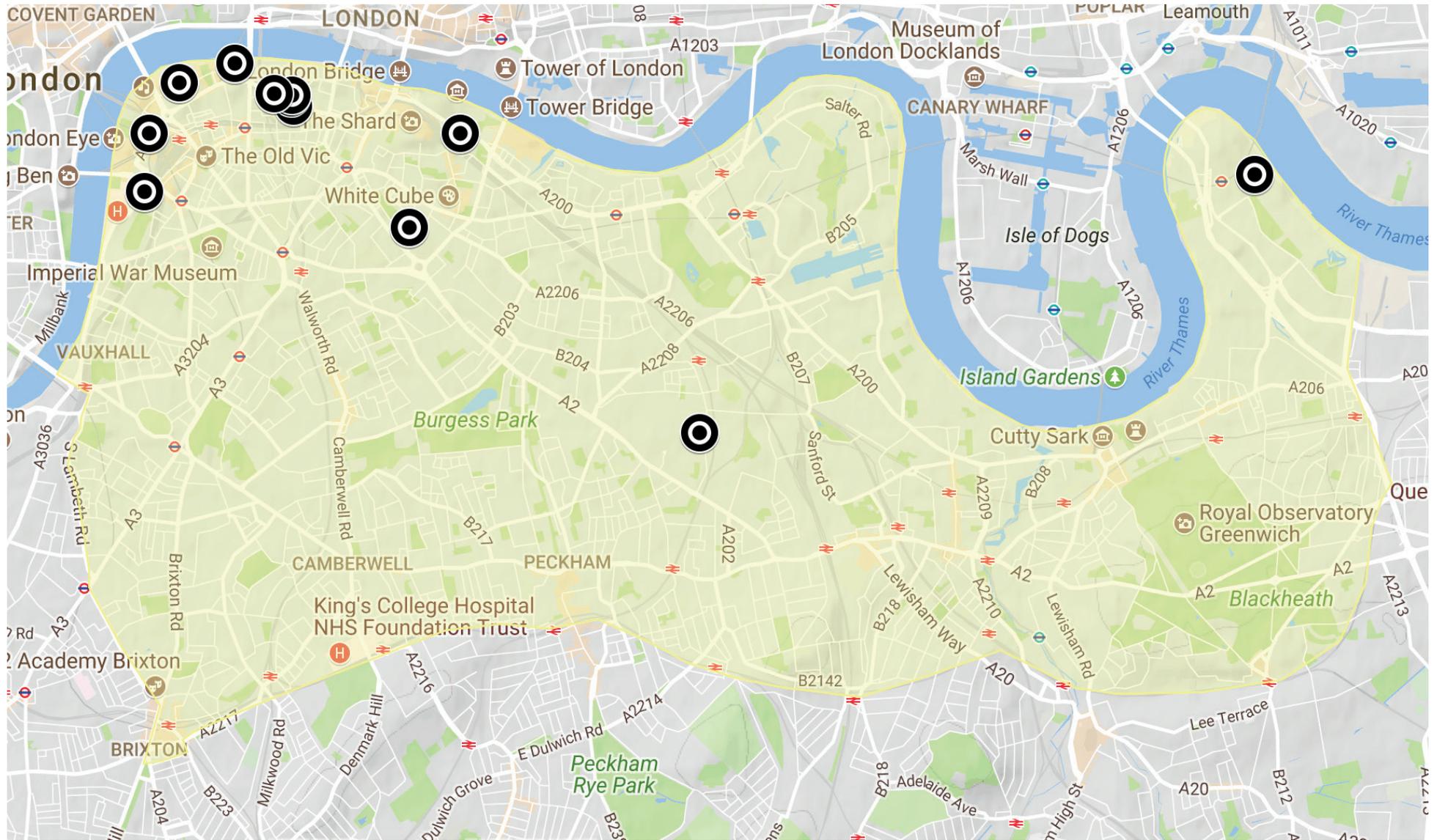


Fig. 28. SBIQ Innovation Assets:
 Industry Innovation.
 Images&Co. Base map data ©2018 Google.

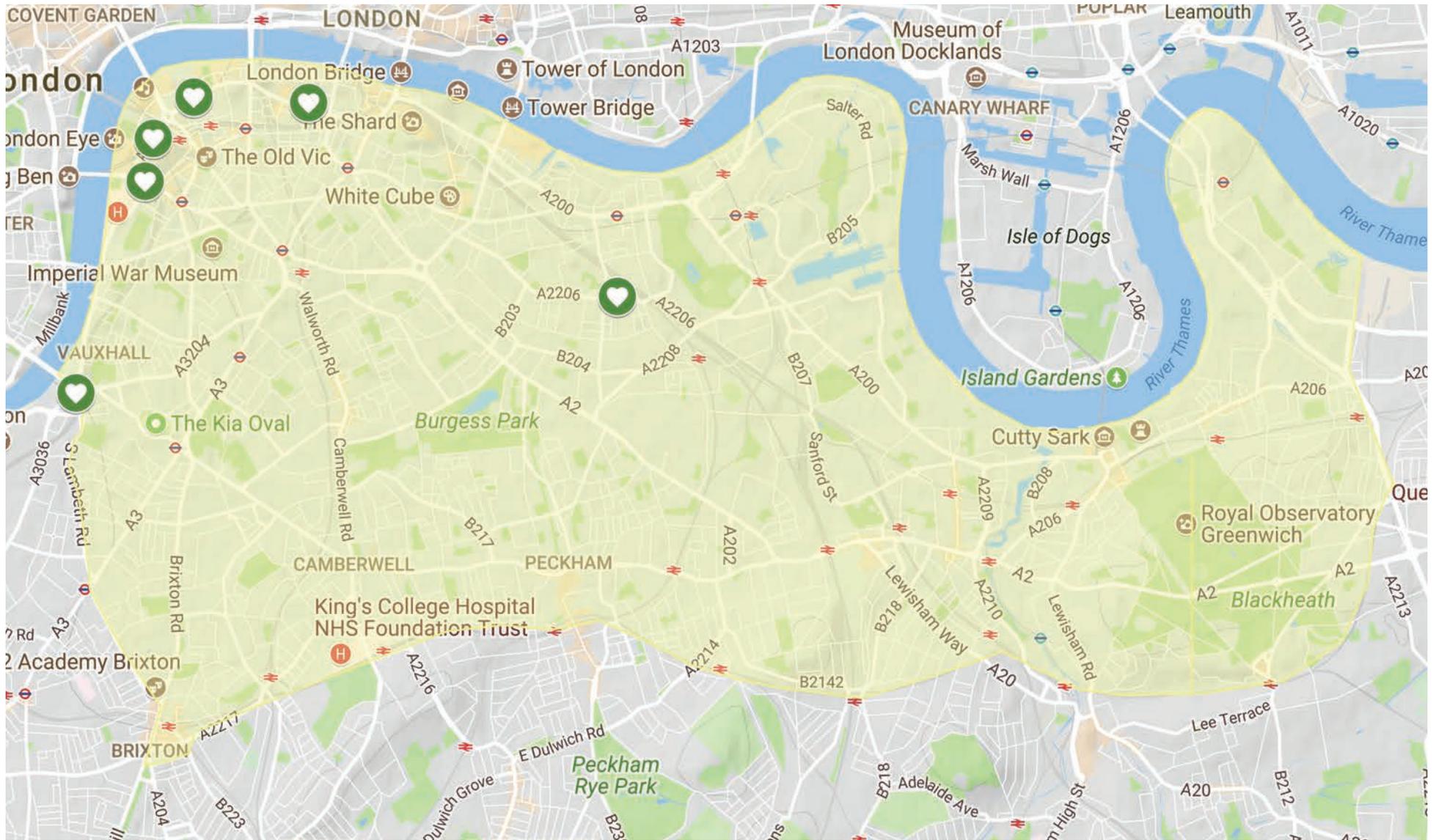


Fig. 29. SBIQ Innovation Assets:
 Business and community organisations.
 Images&Co. Base map data ©2018 Google.

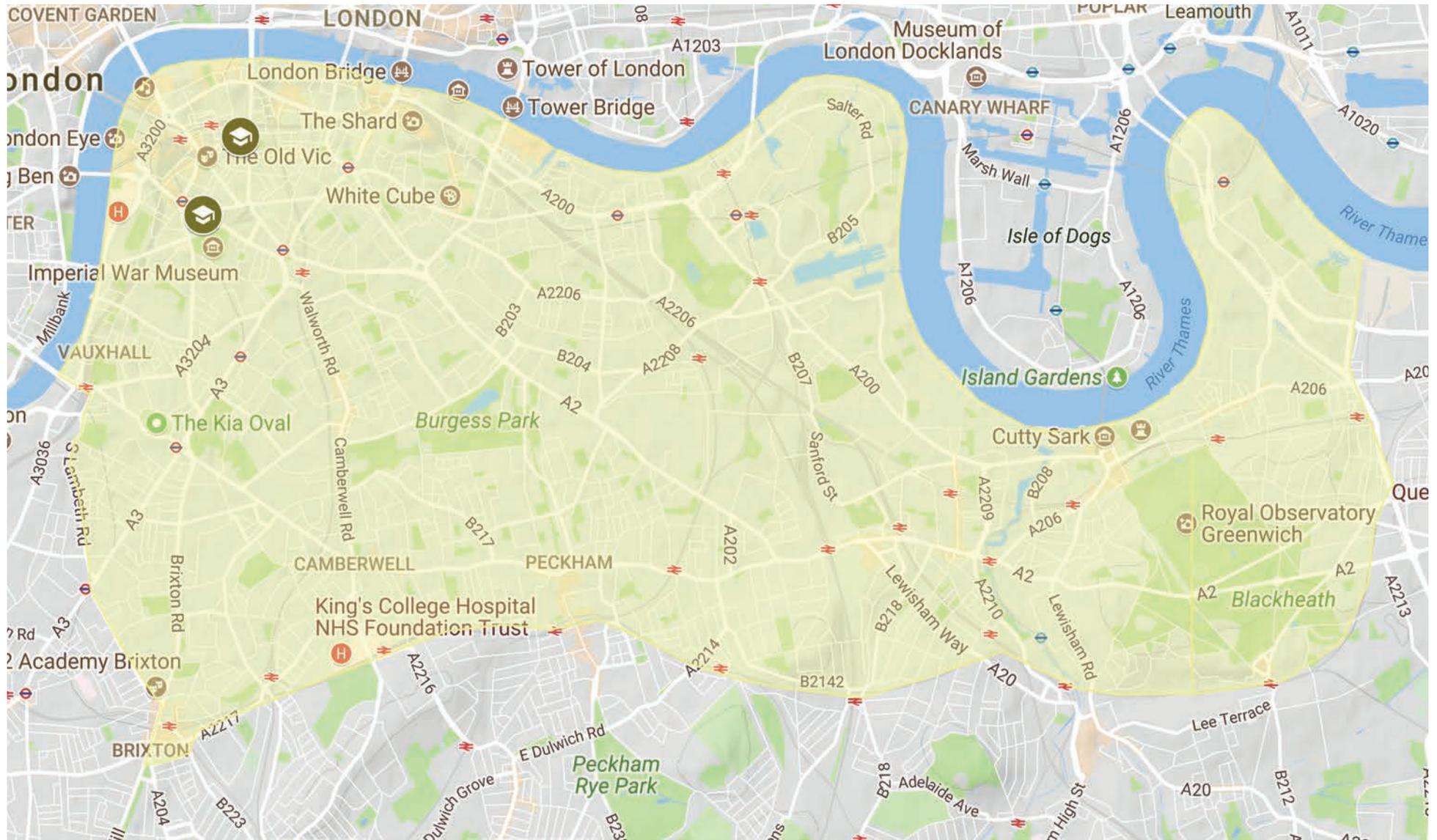


Fig.30. SBIQ Innovation Assets:
Further Education Colleges.
Images&Co. Base map data ©2018 Google.

