London Life Science Innovation

at the heart of Euston and Kings Cross

Government's growth mission depends on maximising the economic potential of the UK's strongest innovation assets. The 1.5 km² area around Euston and King's Cross - anchored by UCL, The Francis Crick Institute, and UCLH - already generates over £8bn in annual GVA and employs 12,000 life science workers. With the right interventions, this district could become the UK's answer to Kendall Square, the cluster around MIT.

The innovation district around UCL is already home to world-leading UK life science and technology companies. From, Synthesia, to Autolus to Google DeepMind. The potential opportunities for land redevelopment within the heart of this district creates a once-in-a-generation and nationally unique opportunity to accelerate and shape this outcome deliberately rather than leaving it to chance.

International evidence shows that world-leading innovation districts emerge organically - yet to thrive, they require coordinated decisions on planning density, transport connectivity, anchor institution strategy, and investment frameworks. On this UCL, working with our partners, is leading the way.

We asked Public First to assess the scale of the opportunity. Drawing on comparator analysis from world-leading innovation clusters in Barcelona, Tokyo, and Boston. In short, if we match growth trajectory of Kendall Square, our innovation district could add a further £3.5bn in annual GVA and add 20,000 life science jobs over the next decade, more than double the present number. With measurable productivity spillovers to other UK clusters, enabled by our national rail connections.

Prof Geraint Rees, Vice Provost (Research, Innovation and Global Engagement), UCL

Prof Alan Thompson, Pro Provost (London), UCL

Life Science Innovation at the heart of Euston and Kings Cross

Near Euston and Kings Cross, situated within London's Knowledge Quarter, the area around UCL's Bloomsbury campus is an established ecosystem of leading life science institutions including UCL, UCLH and The Francis Crick Institute. It has major technology companies, many which work at the intersection of biology and AI, such as Google DeepMind.

The innovation district around UCL is already home to world-leading UK companies. The area has national and international rail links and access to capital. This mix has already led to a number of leading start-ups and university spin-outs.

This work examines only one element of UCL's wider research and innovation environment, yet it highlights the scale of the growth opportunity for the university and its partners across the UK economy.

Case studies

- **Isomorphic Labs**, spun out from DeepMind in 2021 to use AI for drug discovery. It works by hiring machine learning researchers who collaborate with medicinal chemists and structural biologists.
- **Autolus Therapeutics**, recently gained NHS approval for its cancer immunotherapy treatment. It emerged from university research and, its clinical trials drew on NHS patient data and hospital infrastructure. The company has raised $1.1 billion, employs 450 people, and operates a state-of-the-art UK manufacturing facility in Stevenage.
- **MyCardium AI**, uses AI to analyse heart MRI scans in just 20 seconds, saving cardiologists time and improving outcomes. The company was founded in 2022 as a spin-out from UCL. It is now based in Liverpool and growing rapidly.
- **Synthesia** moved into new headquarters at Regent's Place in July 2025, explicitly citing proximity to UCL where co-founder Lourdes Agapito is a Professor of 3D vision in Computer Science. This AI-native company is an exemplar of the potential of the district, now valued at $2.1bn with over $100m in revenue

UCL commissioned Public First to:

Characterise the size and density of the life science and technology cluster, which sits at the heart of London's Knowledge Quarter, in the proximity of UCL's Bloomsbury campus, and identify relevant international clusters to compare and benchmark against

Demonstrate the economic impact on jobs, output and local average salaries if life science and technology employment density follows the growth trajectory of key international comparators

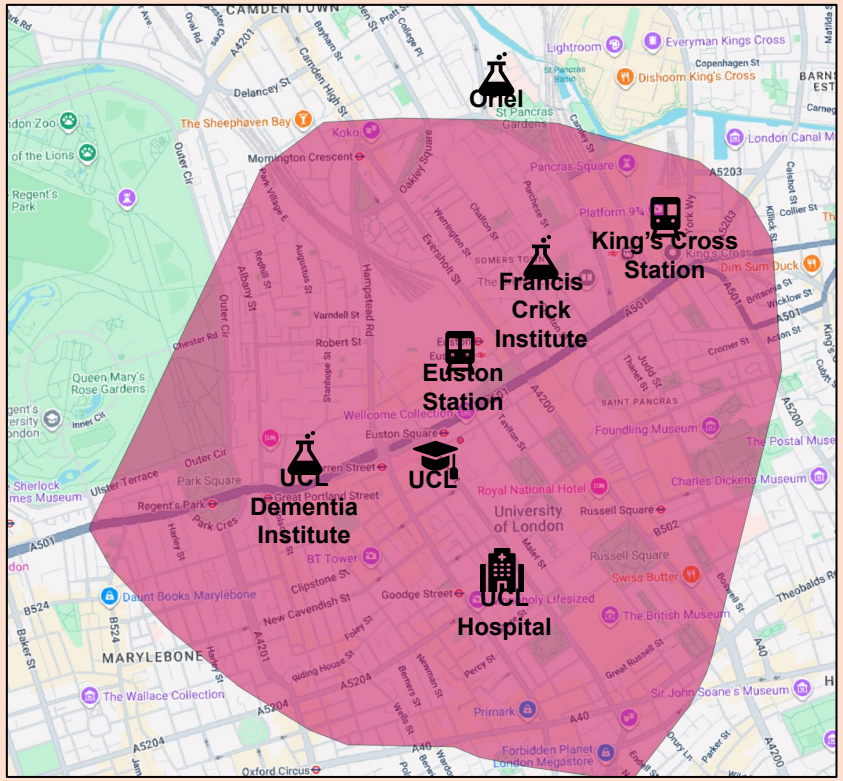
To assess how the potential gains are spread, highlight where the productivity benefits from agglomeration are realised, and display how impact is spread across the UK

What we did

- We first define the UCL cluster - We use a maps API* in QGIS* to create an isochrone showing the area within 10 minute walking distance of the UCL main quad. We overlap this with Lower Layer Super Output Areas (LSOA) shapefiles to identify the proportion of each LSOA which overlaps the 10 minute walking area. We then pair this with employment data at the 5 digit SIC* level from the ONS Business Register and Employment Survey to calculate employment.
- Using an SIC code definition for Life Science roles, including AI and Technology activities, we also estimate the employment of this cluster at the heart of the Knowledge Quarter.
- We then turn to international comparators with a similar area, and take insights on their planned expansion, and past growth in similar sectors.
- Based on the past growth of these comparator clusters, we model the economic impact of emulating the success of these clusters, measured against a baseline where employment and productivity continues its current trajectory in the cluster. We assume that the Life Science employment growth rate increases sequentially from its current rate to that of the international comparator over a two year period.
- We then show how the productivity gains to Life Science clusters from agglomeration are spread across the UK under the scenario of achieving growth in line with comparators. To do this we build on the DfT WebTAG methodology for measuring gains from agglomeration.
- A more detailed appendix can be found at the end of this document.

* **API:** Application Programming Interface
* **QGIS:** Application supporting visualisation and analysis of geospatial data
* **SIC:** Standard Industrial Classification - identification code for type of employment activity

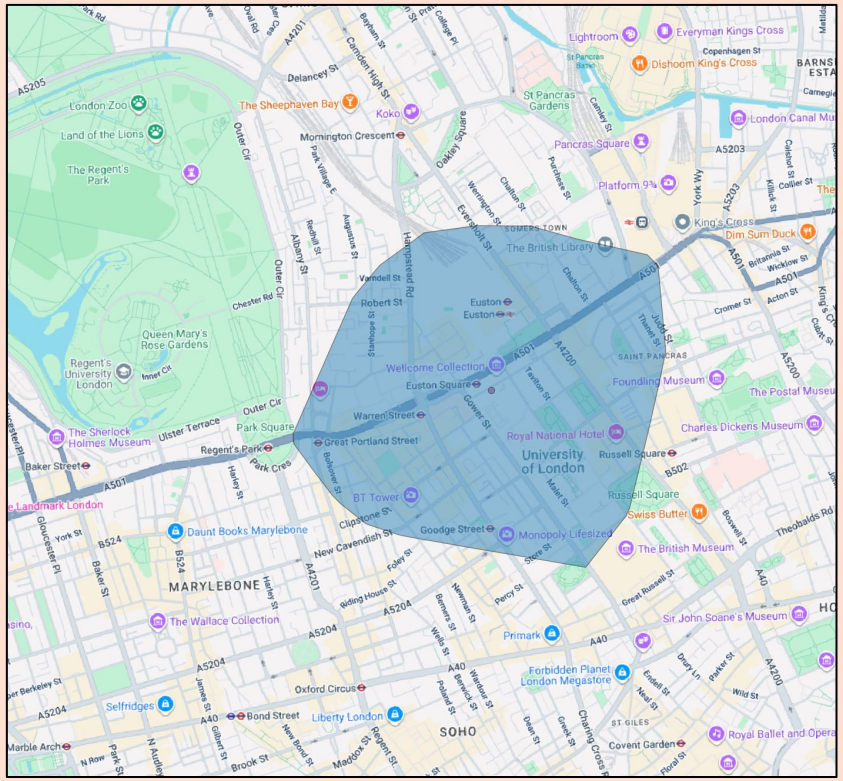
Defining the cluster



Life Science Innovation situated within London's Knowledge Quarter

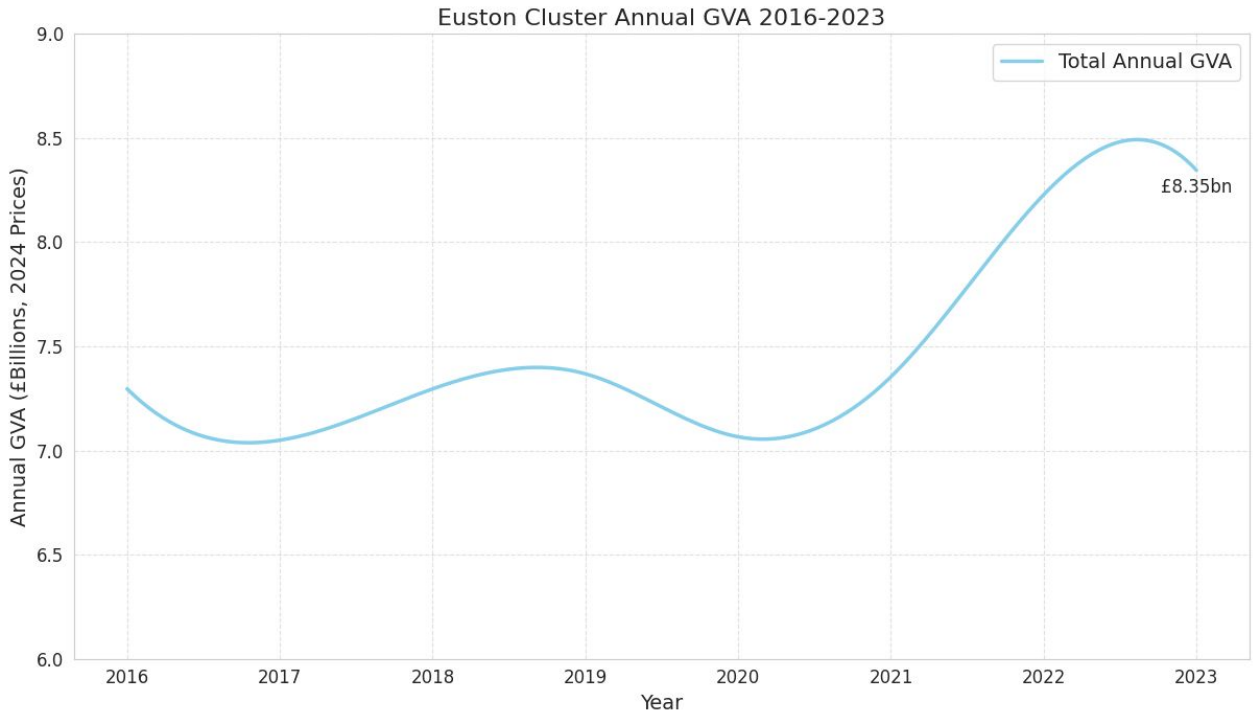
At the heart of Euston and Kings Cross, the area within 15 minutes of the UCL main quad is home to a dense employment cluster, with strong life science employment

- Total Area: 4.19km^2
- Life Science employment (2023): 35,000
- Total Employment (2023): 266,000
- Employment density: 63,000/km^2



Taking the core of the cluster (10 minutes walk from UCL main quad), we see an equally dense cluster, of similar size to our comparator districts

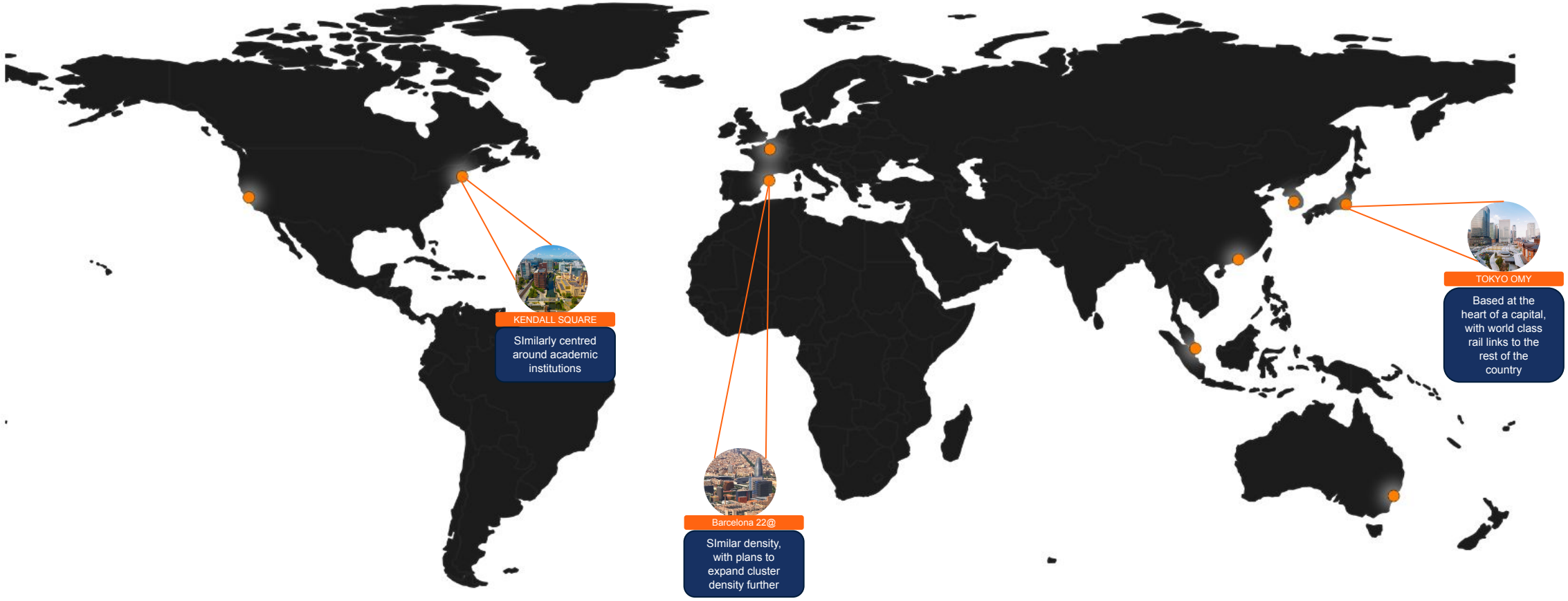
- Total area: 1.45 km^2
- Life science employment (2023): 12,000
- Total employment (2023): 88,000
- Employment density: 61,000/km^2
- Life science employment density growth: 3.7%



International comparators: modelling potential growth scenarios

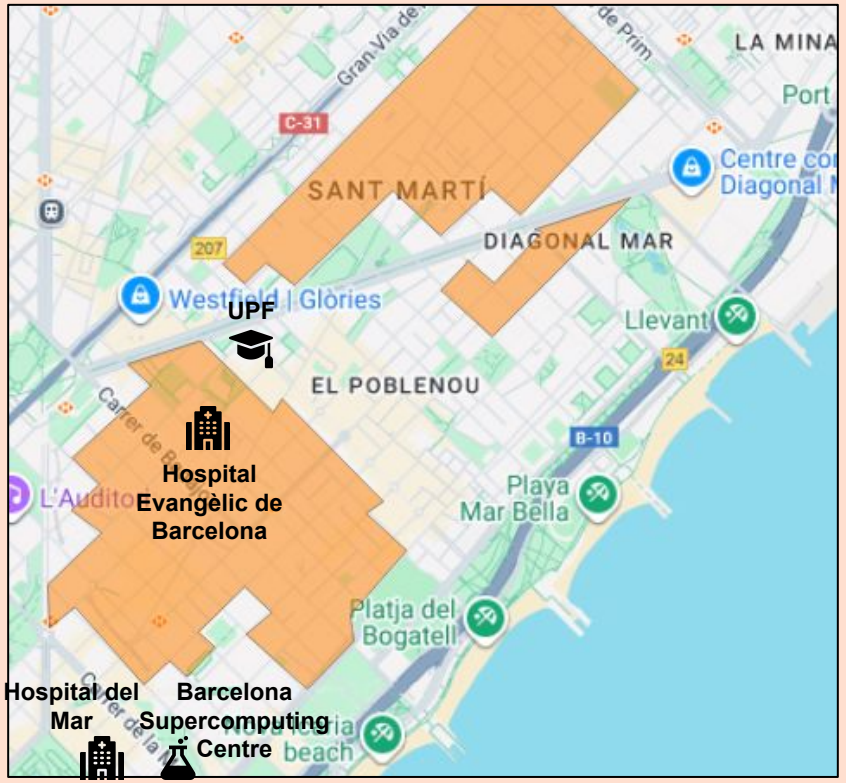
We considered a number of international life science clusters as comparators for this report

We focus on the three most comparable clusters, to identify their density and life science employment growth



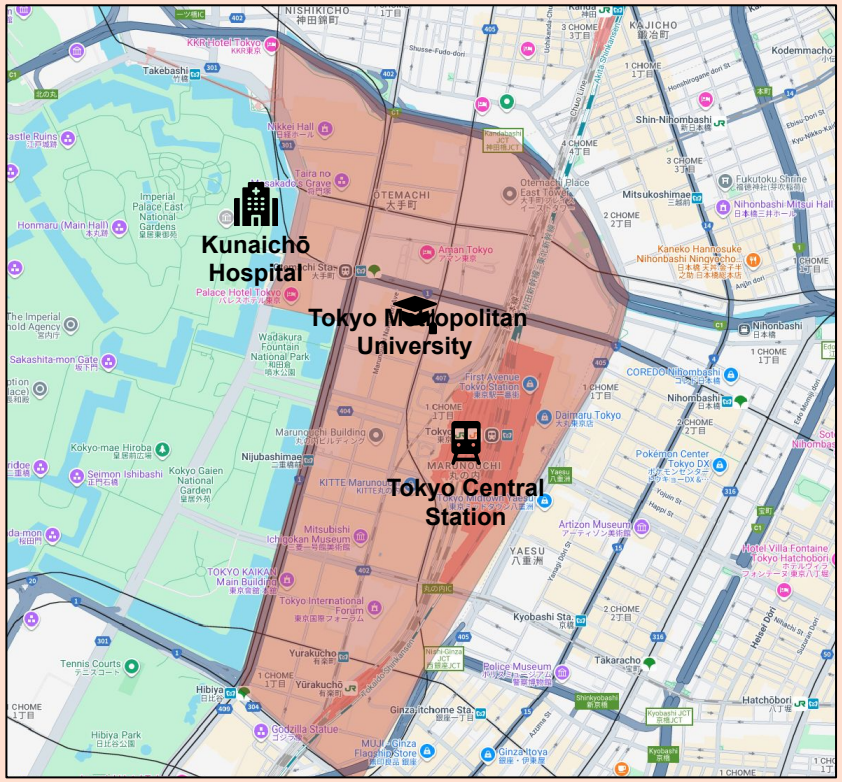
Barcelona - 22@ Cluster

- Total area: 1.92 km^2
- Total employment: 110,000
- Employment density: 57,000/km^2
- Planned density: 88,000/km^2



Expanding a cluster

- Spread across the three subclusters, the Barcelona 22@ cluster currently has a similar density of workers to the UCL-led cluster
- The government revealed plans in 2022 to expand density of the cluster, adding 60,000 high skilled jobs
- This would expand the density to 88,000/km^2, mirroring the ambition for the UCL-led cluster to increase its employment density



Tokyo - OMY Cluster

- Total area: 1.21 km^2
- Total employment: 350,000
- Employment density: 290,000/km^2
- Life science cluster growth (2018-2023): 6.9%*

Growing a dense cluster

- The Otemachi, Marunouchi, and Yurakucho (OMY) cluster is an incredibly dense innovation district in the heart of Tokyo, built around a **redeveloped Tokyo Central Station complex**
- With parallels to the proposed HS2 route, the cluster has world class train access to other major Japanese cities through the bullet train service, leaving from the station in the cluster centre
- Despite its impressive density, the cluster has still grown over the past decade, with nearly 7% annual growth in the science, professional and technical service sector.
- The OMY district shows how impressive growth in high value sectors are possible in even the densest of clusters

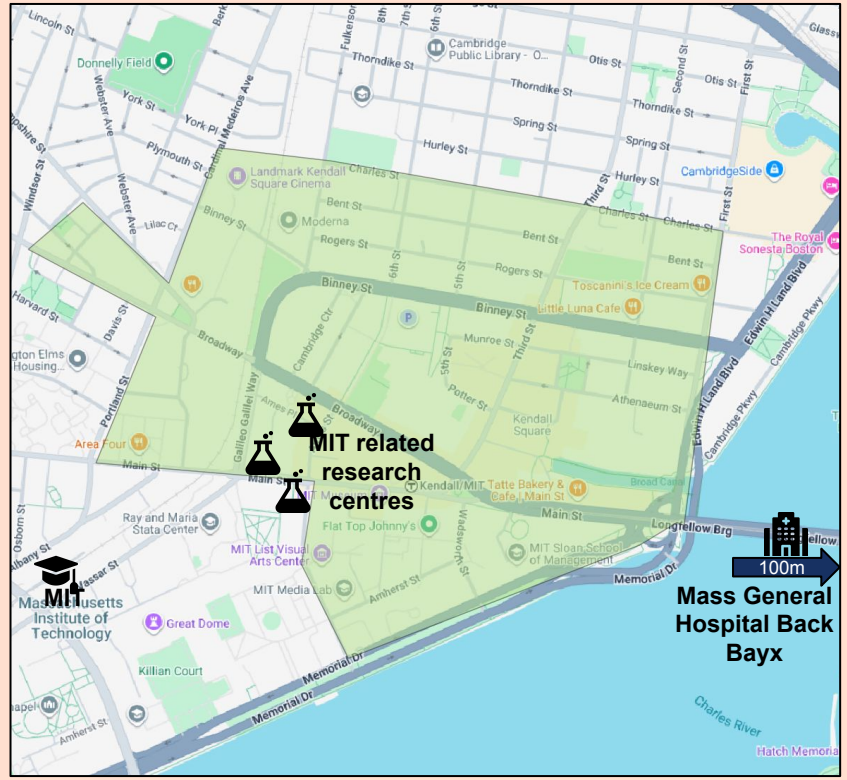
*Based on CAGR of scientific research, professional and technical services employment in Chiyoda ward

Boston - Kendall Square

- Total area: 0.92 km^2
- Total employment: 49,000
- Employment density: 53,000/km^2
- Life science cluster growth (2018-2023): 10.9%*

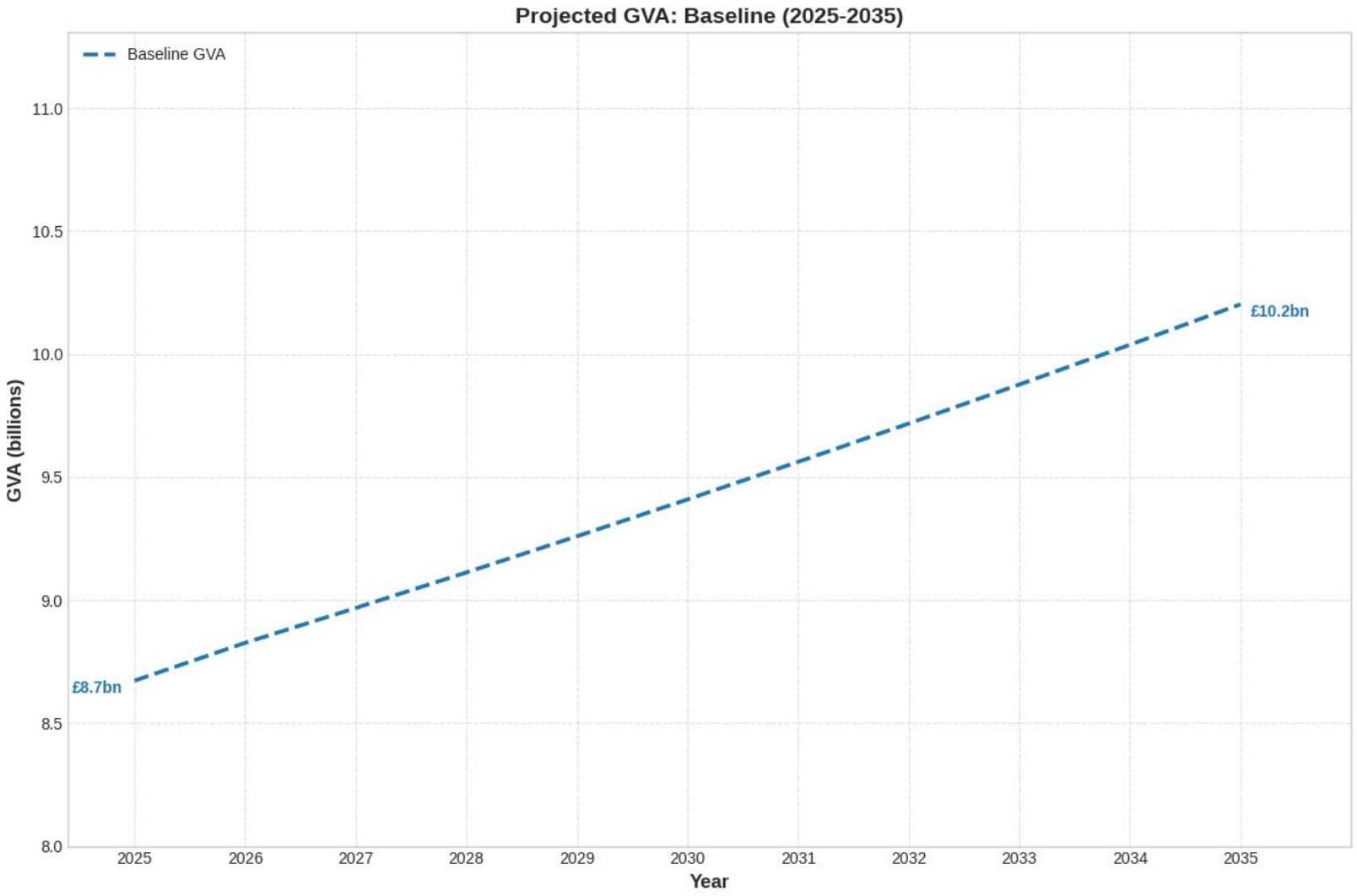
Rapid Life Science Growth

- Kendall Square, often referred to as the most innovative cluster in the world, has seen impressive growth in its Science, Professional and Technical services employment
- The cluster shows how concentrated growth in high value sectors is achievable by leveraging academic institutions and ensuring sufficient investment and venture capital availability



*Based on CAGR of Scientific research, professional and technical services employment in kendall square, as defined in the map on this slide

Through maintaining current employment and productivity growth, the Life Science cluster around UCL could grow to provide an additional £1.5bn of annual GVA* by 2035

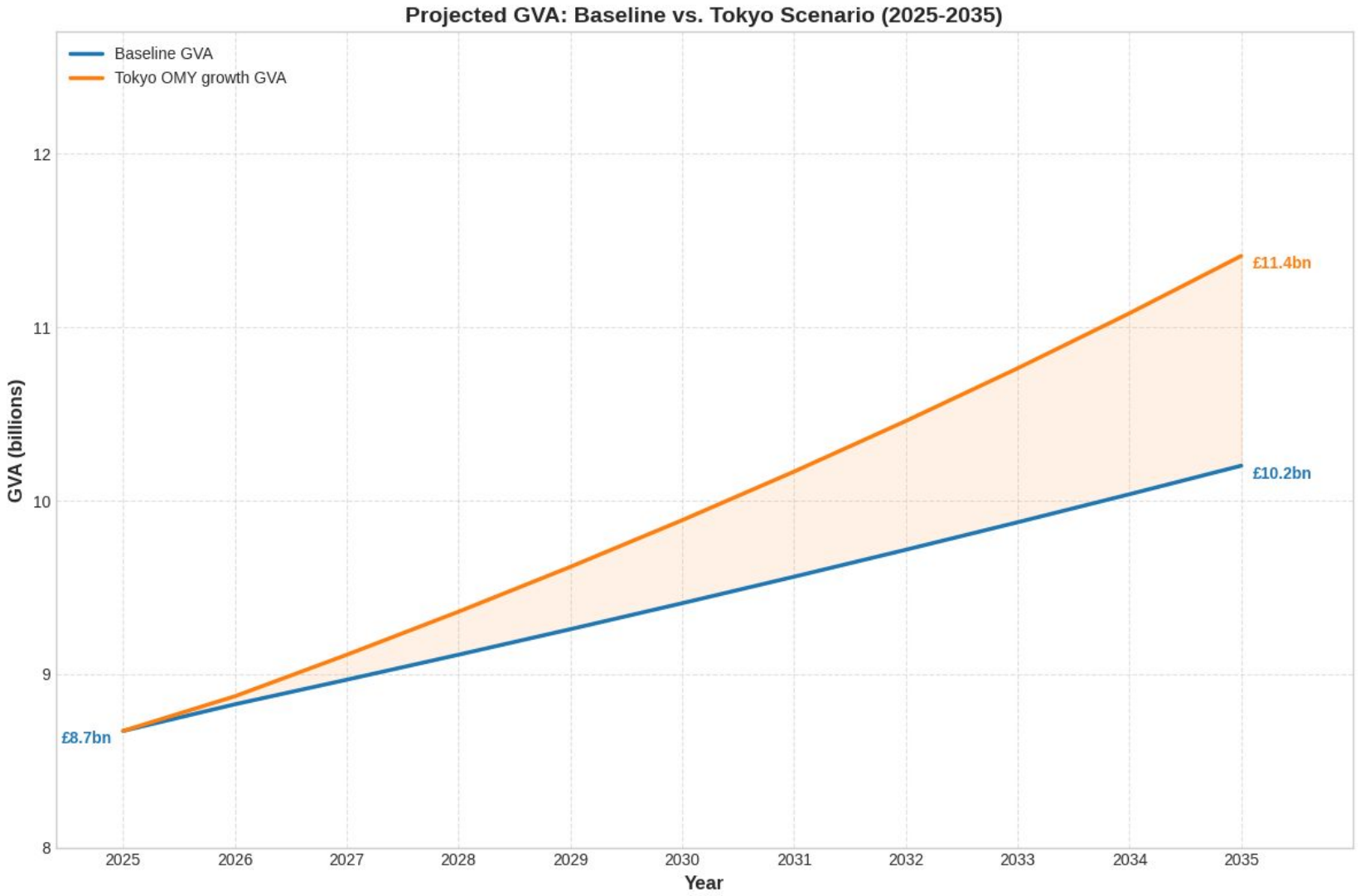


Additional jobs across all industries (2035): **9,785**

Additional annual GVA (2035): **£1.5bn**

* Real GVA in 2024 prices

If the cluster around UCL can grow the employment density at the rate seen in Tokyo's OMY cluster, this would add £2.7bn of annual GVA* by 2035, adding 12,000 life science jobs



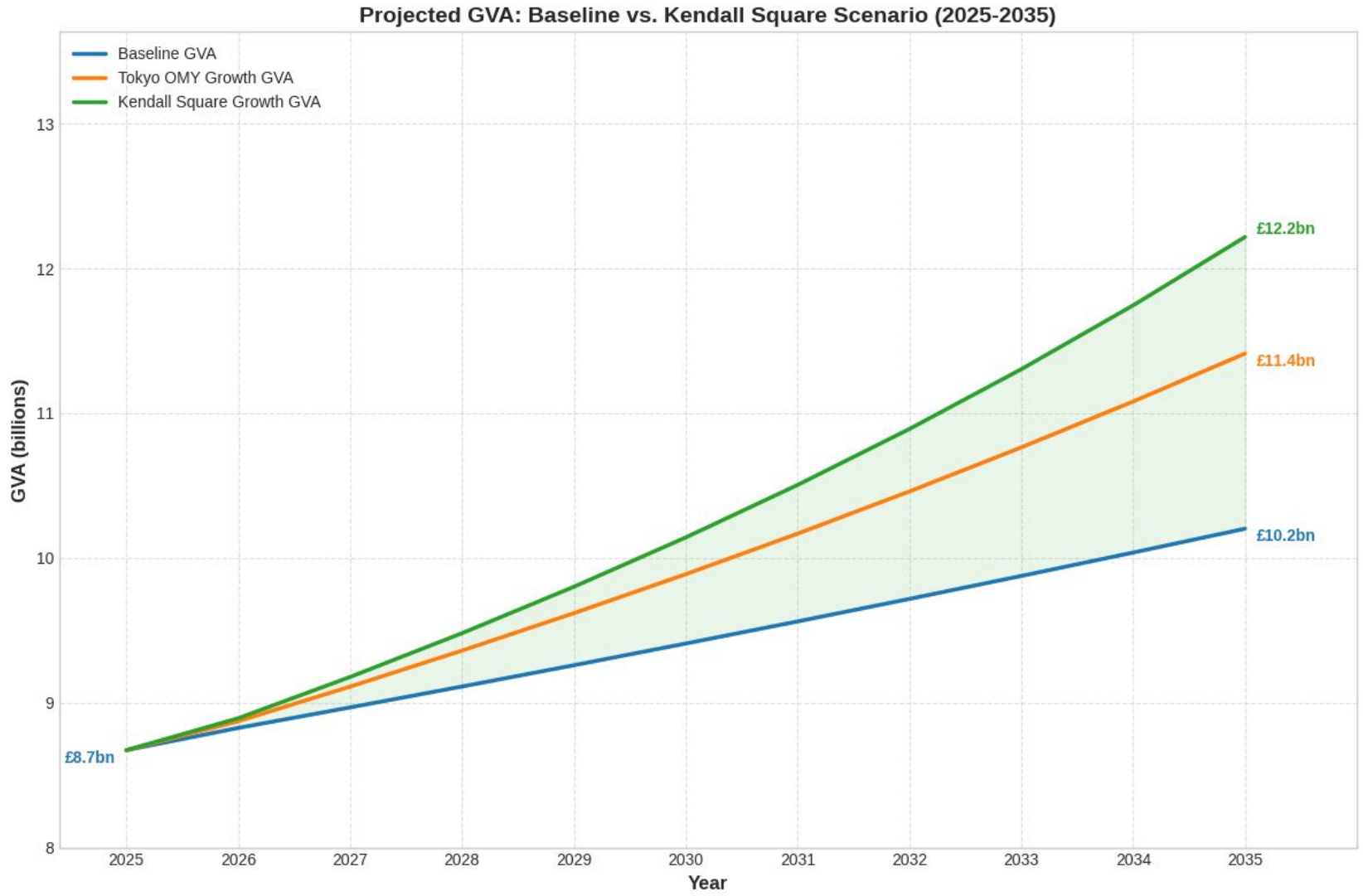
Additional life science jobs (2035): 11,975

Additional annual GVA (2025 vs 2035): £2.7bn

As Tokyo Station has done, HS2's anticipated delivery will play a large role in ensuring strong life science employment growth

* Real GVA in 2024 prices

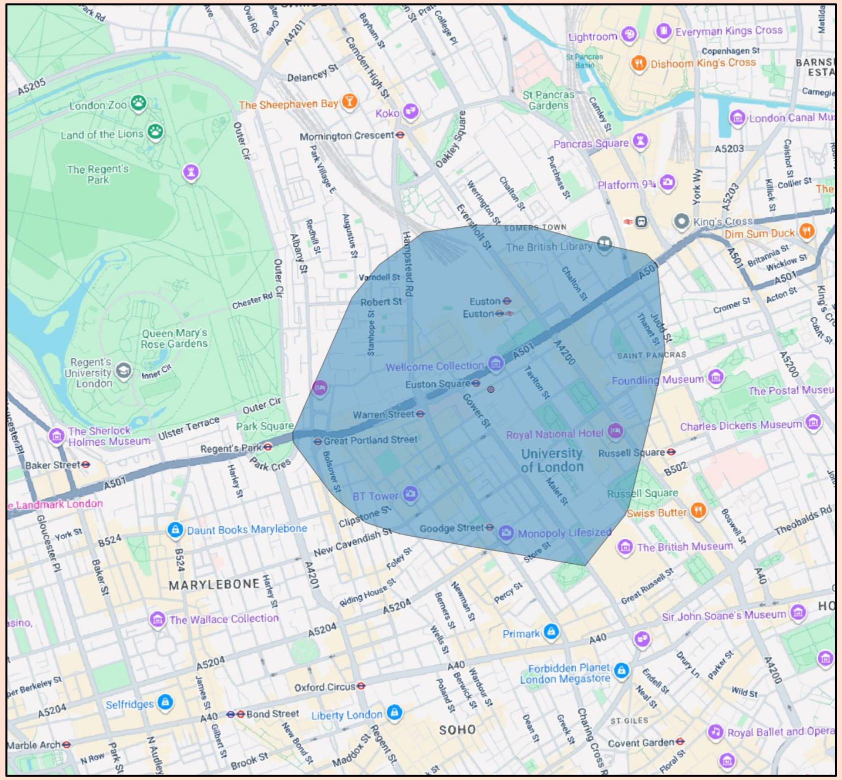
Following the rapid growth trajectory of Kendall Square's life science cluster could add £3.5bn of annual GVA* to the economy by 2035, and create nearly 20,000 life science jobs



Additional life science jobs (2035): 19,787

Additional annual GVA (2025 vs 2035): £3.5bn

* Real GVA in 2024 prices



Gains to the wider cluster

By continuing impressive growth, and following comparators' growth trajectories in life science employment, the core of the cluster could deliver substantial benefits to the wider area over the next 10 years:

Tokyo OMY Growth Scenario

Additional Jobs across all Industries (2035): 21,760

Additional Life Science Jobs (2035): 11,975

Additional annual GVA (2025 vs 2035): £2.7bn

Kendall Square Growth Scenario

Additional Jobs across all Industries (2035): 29,572

Additional Life Science Jobs (2035): 19,787

Additional annual GVA (2025 vs 2035): £3.5bn

Measuring the agglomeration impact

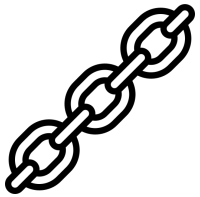
The consolidation of life science and technology activity around UCL creates benefits that extend far beyond the boundaries of London itself. As the cluster develops, researchers and investors concentrate in a small geography. The resulting gains in productivity do not stay local. They spread across the country through shared supply chains, knowledge flows and stronger national labour markets.The modelling makes clear that London's growth is not the end point. It is a driver of national productivity. Strengthening the UCL cluster creates new opportunities for towns and cities with complementary strengths.

We measure the productivity benefits from agglomeration caused by an enhanced London Life Science cluster finding strong spillover effects across the UK. This is useful to understand how different life science and technology clusters are connected and benefit each other. It is not mapping financial flows between different parts of the country. It reflects where UK companies do things better, rather than do more.

Building on the DfT WebTAG methodology for measuring gains from agglomeration, we rank each local authority district based on the increase in output from higher productivity due to increased employment density in the UCL cluster.

To capture specific subsector effects, we conduct this analysis for a set of life science sub-sectors: research related to life sciences; IT and AI; and life sciences engineering.

Agglomeration occurs through three main channels

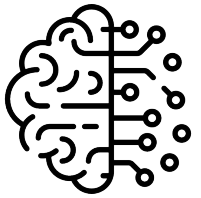


Sharing supply chains:

Locating near firms with similar supply chains provides efficiencies through sharing infrastructure and economies of scale in the logistics sector

Knowledge sharing:

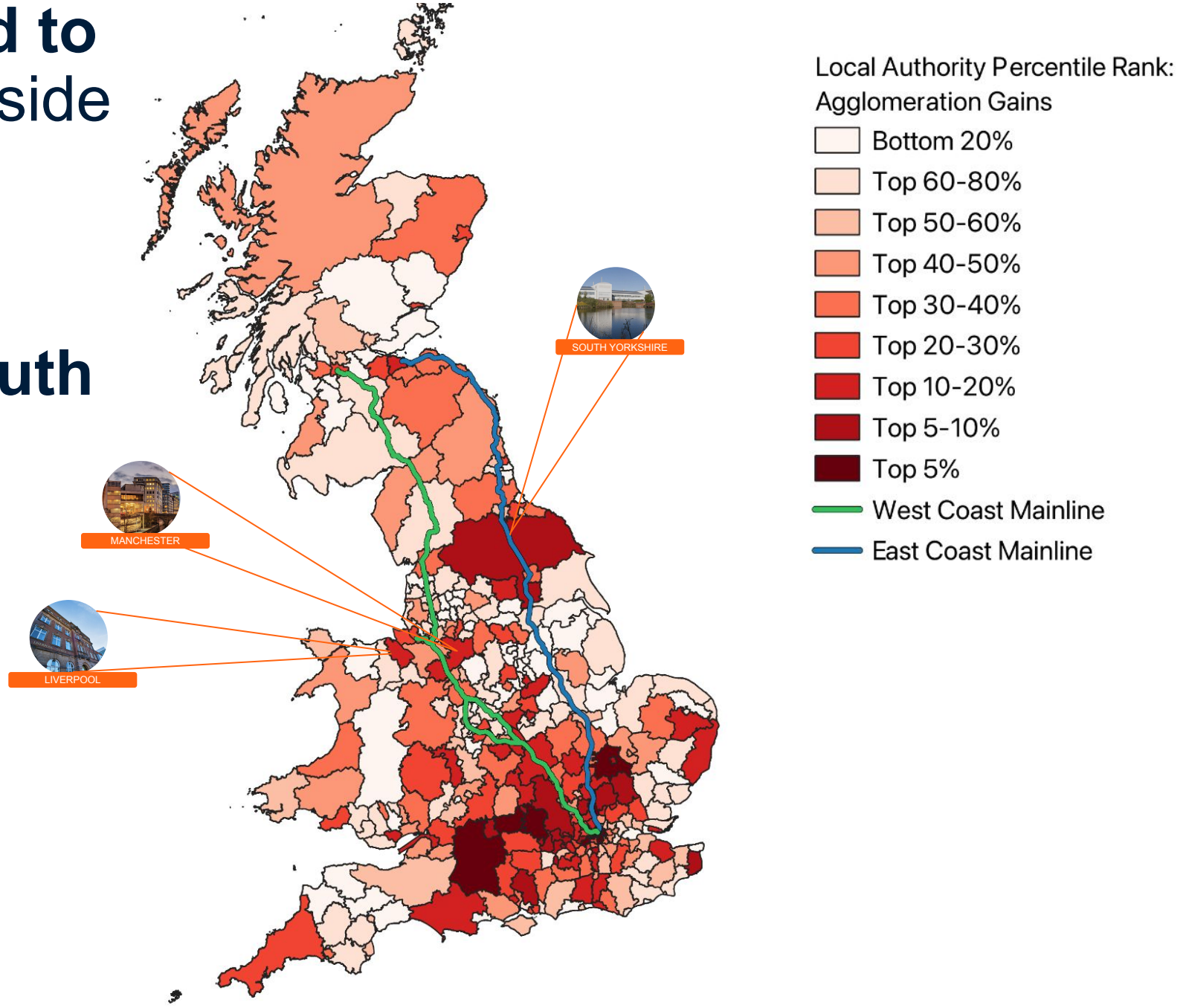
The ability for firms and workers who work in close proximity to share ideas and information, increasing productivity. Also referred to as knowledge spillovers



Labour market matching:

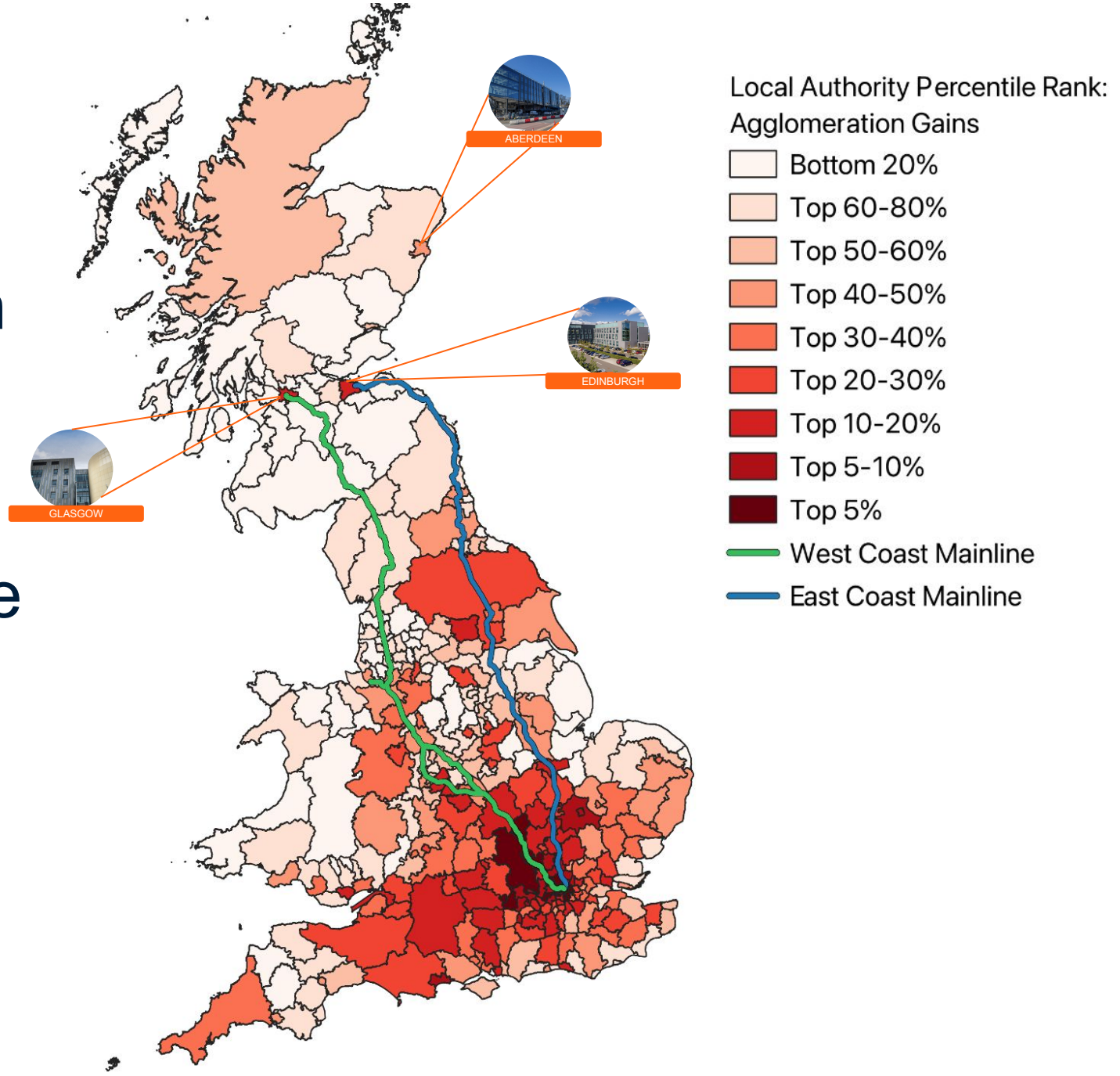
Deeper labour market pools, and more available roles increase the probability that a worker finds a role they are most productive in, and conversely increases the probability of a firm finding the best worker for a role

Research Related to Life Science: Outside of London and the South East, **Manchester**, **Liverpool** and **South Yorkshire** see particularly strong gains from agglomeration.



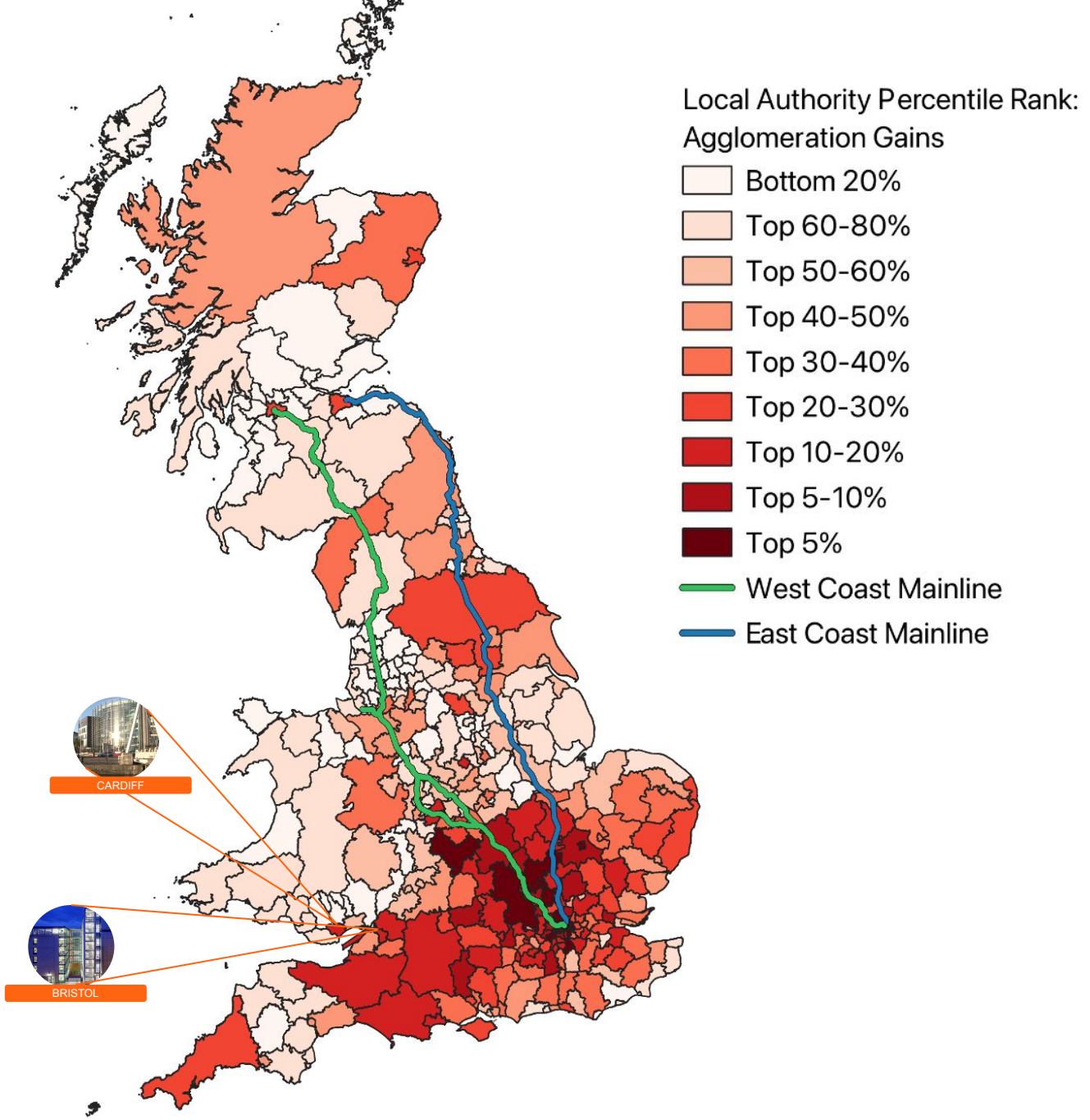
*(Kendall Square scenario)

IT and AI related activities: Gains in this sector reach **Glasgow**, **Edinburgh** and **Aberdeen**, alongside many other urban Local Authorities beyond the South East



*(Kendall Square scenario)

Life Science Engineering: Similarly, we see gains spread across the UK in this sector, with the **South East**, **Cardiff** and **Bristol** in the top 20% of LADs by productivity gains



*(Kendall Square scenario)

Methodology

Methodology (1 / 2)

Scenario Modelling:

- We use a mapping software (QGIS) to identify which administrative boundaries are inside the 10 minute radius of the UCL main quad. We do this at the most granular level for which employment data is available (Lower layer Super Output Area LSOA). We also calculate the proportion of each LSOA that falls within the 10 minute radius to define the UCL cluster
- We pair this with ONS Data (NOMIS BRES) which gives detailed (5 digit SIC codes) employment data for every administrative area to define how many people are employed in the cluster. We identify which 5 digit SIC codes are considered ‘life science’ to also quantify life science employment.
- We identify the population of workers in the cluster who do not work in life science roles, and allow the employment and productivity (GVA per worker) growth to continue at its current rate. We model 0% employment growth in the life science cluster for the baseline in order to fully capture the effect of growth in this cluster for our scenario outputs
- Our two scenarios build on the baseline by growing the life science cluster employment at the rate seen in Tokyo, and the at the rate seen in Kendall square.
- To account for the time it would take to enable this growth, we assume employment growth in the life science cluster starts at its current annual growth rate (3.7%) and grows linearly to the comparator growth rate over 2 years (2025-2027). We express the economic gains as the difference between total annual real GVA @024 prices) from the Euston cluster today vs that in 2035

Methodology (2 / 2)

Agglomeration Mapping:

- Evidence of agglomeration is strongest for more granular industry definitions. We classify three subgroups (groups of 5 digit SIC codes) of the life science sector to pick up the specific effects in each subcategory
- For each subcategory, we measure the current effective density; For every local authority (LAD), we measure how dense employment is, accounting for employment in every other LAD, but weighting based on travel times
- That is, employment in Manchester and Edinburgh both increase employment density in Leeds, but employment in Manchester has a larger proportional impact
- Using the same method, we calculate the uplift in effective density caused by more employment in Euston, for every LAD. We pair this with academic literature estimates (also used by the DfT) on the agglomeration elasticity to determine how an increase in density translates into an increase in productivity.
- We combine the uplift in productivity with data on GVA per worker and employment in that LAD to quantify the size of the productivity gains, in terms of increased annual output for that sub sector in that LAD
- This model is in line with the DfT WebTAG methodology for appraising agglomeration gains from transport projects. While their modelling holds employment constant and investigates the impact of changing travel times, we hold travel times constant and investigate the impact of changing employment.

To find out more, please contact

Amy Lightstone, Director of London Office, UCL:
a.lightstone@ucl.ac.uk

Steve O’Neil, Head of Public Affairs, UCL:
steve.o'neil@ucl.ac.uk