Scaling OxCam

HOW THE OXFORD TO CAMBRIDGE GROWTH CORRIDOR CAN BECOME A TOP 10 GLOBAL INNOVATION CLUSTER

PUBLIC FIRST

Oxford-Cambridge SUPERCLUSTER

World-class science, without the scale

Relative to its size, the Oxford to Cambridge Growth Corridor (OxCam) is one of the most innovation-intensive places in the world, but it does not yet have the scale or depth to become a top 10 global cluster.

HIGH INTENSITY

1st

Between 2019 and 2023 OxCam produced more scientific publications per resident than any other global cluster.

LACK OF SCALE

10×

Beijing produced almost ten times as many publications as OxCam in 2025, and Tokyo almost six times.

OxCam is not yet competing globally

Compared to the world's 10 leading innovation clusters, and three smaller clusters performing at a similar level on patents, publications and venture capital, OxCam is falling behind in several ways.

Five constraints stop its assets compounding

CONSTRAINT	WHERE OXCAM STANDS	HOW OTHER CLUSTERS SOLVED IT
01 Capital	$1.8bn of venture capital in 2025, compared to more than $150bn in the Bay Area – over 80 times as much.	Federal defence and space procurement gave Bay Area firms reliable revenue and technical capacity, helping attract private capital at scale.
02 Commercialisation	15,600 university publications co-authored with industry over the past decade, less than half Boston's 33,400.	Boston has a larger and more concentrated network of universities, hospitals, specialist investors, shared lab and healthcare demand.
03 Talent	Two thirds of unicorns founded by Oxford and Cambridge alumni headquartered elsewhere.	Singapore built visa routes aimed at founders and senior operators.
04 Infrastructure	Industrial power costs 60% more than in Paris and almost five times higher than Austin.	Austin combined a permissive approach to infrastructure with fast grid connections.
05 Transport	406,000 people live within 60 minutes of Oxford, Cambridge or Milton Keynes. 3.5 million live within 60 minutes of Amsterdam and Rotterdam.	The Randstad combines intercity rail, roads, cycling and local public transport to allow multiple urban centres to function as one labour market.

Scaling OxCam to become a top 10 innovation cluster requires progress on every front

No single intervention – transport, planning reform or scale-up finance – is enough on its own. OxCam needs sustained government support, and the speed and governance to match its ambitions.

00 Contents

01 Foreword

Science shapes almost every major decision modern governments make. How we power the country, how we provide the most advanced healthcare, how we move people and goods, and how we protect and defend ourselves. My career has been spent where science meets its application, in the laboratory, in academia, in industry, and in government. But while Britain has a great history of innovation, I have long believed that we do not make enough of what we are good at. The challenge has been how we transform that innovation into products, companies, and growth. And nowhere is that clearer than in the Oxford to Cambridge Growth Corridor.

The Corridor's legacy is undeniable. Cambridge was home to the discovery of DNA, and Oxford developed the first antibiotic medicine produced at scale. More recently, it has produced the sequencing technologies that transformed genomics research, the processor designs that underpin modern mobile computing, and a vaccine that helped tackle the Covid-19 pandemic worldwide. The Corridor has kept turning research into discovery, and discovery into innovation, generation after generation.

The strengths of the Corridor are not in question. It has a concentration of globally renowned research universities, deep capabilities in life sciences, AI, advanced manufacturing, digital technology, and space. A rate of spin-out and company creation that few places on earth can match. The harder question is how Britain keeps competing in a global innovation race that is only accelerating, and we cannot lose focus or slow down now.

Our shared ambition is for the Oxford to Cambridge Growth Corridor to be one of the world's top 10 innovation clusters. This report studies clusters that have built real strengths of their own: the Bay Area's depth of capital and repeat founders, Austin's pace at turning research into companies, Paris's success in pulling institutional capital into growing companies. The aim is not to copy any one of them, but to capitalise on the Corridor’s existing strengths, understand what has worked elsewhere and what might suit the Corridor, and deliver growth that is shared across the country. This includes strengthening existing partnerships between Manchester and Cambridge, Liverpool and Oxford, and deepening the Corridor’s links with London as part of a stronger national innovation economy.

There has already been real progress and there are ambitious plans for growth in Oxford, Cambridge, Milton Keynes, and beyond. Reforms to planning, pension capital and industrial policy, alongside the establishment

of the UK Scale-Up Fund to support high-growth companies, all point in the right direction. This report highlights the constraints that we need to tackle together, across local and national government, industry and academia, as we have done before.

We have a golden opportunity, one that we cannot afford to miss. But while the opportunity is real, so is the competition for it. We are competing with every cluster named in this report. With collaboration across the region, the Oxford to Cambridge Growth Corridor can show what it can do when the conditions are right.

Lord Vallance, Chair of the Oxford-Cambridge Growth Corridor and former Science Minister

02 Executive summary

The Oxford to Cambridge Growth Corridor (OxCam) is anchored by two of the world's leading universities and has significant strengths in life sciences, AI, advanced manufacturing, space, defence, quantum and clean technology – the frontier industries on which national renewal depends. Its global prestige surpasses many of its rivals, and for its size, it is among the most research-intensive places anywhere. OxCam has produced more spinouts, relative to its size, than any other world-leading cluster, and its research has been cited in more than 26,000 patents over the past decade, more per head than any other cluster.

These strengths give OxCam the foundations of a leading global cluster, but they do not yet amount to the wider ecosystem depth or scale found in the world's leading innovation economies. The Vision for the Oxford to Cambridge Growth Corridor has set out the ambition to close that gap so that **OxCam becomes one of the world's top 10 innovation clusters**. This report examines how leading clusters scaled and what OxCam can learn from them. It draws on a benchmarking exercise comparing OxCam against 14 of the world's leading innovation clusters across innovation, capital, commercialisation, infrastructure and talent.

It makes clear that a top-tier innovation cluster requires more than exceptional scientific output. OxCam excels at generating research and early-stage companies but is a relatively weak ecosystem for companies needing to raise growth capital, find routes to market or scale production. When those features are considered, OxCam ranks second last among the clusters, behind the Bay Area, Boston, New York, Beijing, Tokyo, Seoul, Shenzhen, Singapore, Paris, Austin and the Randstad, and ahead of only Tel Aviv.

OxCam has significant potential to grow, but its economy is held back by five constraints:

1. **Capital**. While availability of early-stage funding is relatively healthy, the funding ladder narrows sharply as firms grow. OxCam hosted just five venture capital funding rounds above $100 million, compared to 22 in Austin, a cluster of similar maturity.
2. **Commercialisation**. OxCam lacks the market depth, early customers and flexible regulatory environment needed by scaling companies – it has just one headquartered Forbes Global 2000 company, the lowest of the global clusters compared for this research.
3. **Talent**. The corridor has educated generations of founders and researchers, but many left to build companies elsewhere. Around two-thirds of the unicorn companies established by Oxford and Cambridge alumni are not headquartered locally, and around one in five has left the UK entirely.

4. Infrastructure. Housing is among the least affordable of any comparator cluster and industrial electricity costs are some of the highest in the world – over 60% higher than in Paris and Boston and, extraordinarily, almost five times more than in Austin. OxCam has insufficient homes and utilities, while commercial space takes too long to build.
5. Transport. Poor transport connections limit the size of OxCam's labour market. Around 406,000 people live within 60 minutes of two of Oxford, Cambridge or Milton Keynes, compared with 3.5 million people within 60 minutes of both Amsterdam and Rotterdam in the Randstad.

Other successful clusters show these constraints must be tackled together. Silicon Valley grew on university research, federal procurement and deep venture capital networks. Shenzhen's rapid development was built on production and engineering depth. Austin has recently become a leading innovation cluster by pairing a pro-growth business environment with a permissive approach to infrastructure. None was built by a single policy. The clusters that have pulled ahead have done so with local institutions that could decide things quickly – Paris reformed its fragmented local government and supported by national investment in public transport and mobilisation of capital towards late-stage funding, its innovation cluster has thrived. The decisions that determine whether OxCam can grow are largely taken elsewhere. No cluster offers a template to copy, but each offers lessons OxCam can learn from.

Unlocking growth in OxCam would materially strengthen the UK economy and the benefits would be felt well beyond the corridor. The supply chain contracts and factories that follow a scaling firm could sit in Birmingham, Bristol or Sunderland rather than Boston or Beijing, and the tax receipts they generate would help deliver good growth and fund services across the country. In partnership with the Government, OxCam should be empowered with the devolved powers and institutional freedom to break through these five bottlenecks to growth. The same freedoms would strengthen innovation-led places across the country – OxCam is well placed to pioneer and prove the model.

The Government has already recognised many of these constraints. East West Rail, the proposed Development Corporations for Cambridge and Oxford, its planning reform agenda, the Mansion House reforms, deeper devolution, the Local Innovation Partnerships Fund and a renewed national commitment to industrial strategy all point in the right direction. But none yet goes far enough or fast enough, which is why the Government's forthcoming long-term national growth plan should turn intent into delivery at the scale and pace needed to make OxCam a top 10 global cluster.

OxCam's competitors moved quicker to align growth and innovation policy and are moving faster still. Across Europe, Asia and North America, governments are investing heavily in the places that scale frontier science into industrial strength. If OxCam moves too slowly, more of the firms and talent nurtured in the UK will move abroad. Resolving these bottlenecks is a national imperative and one of the clearest routes to long-term national renewal and economic security.

03 Where OxCam stands globally

Relative to its size, the Oxford to Cambridge Growth Corridor is one of the world's most productive innovation clusters. It has exceptional universities, high scientific output, globally relevant research and unusually strong spinout creation. But globally leading clusters succeed by turning those strengths into large companies with skilled workforces that produce long-term value. Doing this takes capital at every stage of growth, customers willing to buy new technologies, corporate anchors that train people and create demand, and the homes, transport and public services that enable firms and families to stay.

This chapter benchmarks OxCam on these measures against the world's leading clusters and smaller comparators including Austin, Tel Aviv, Vancouver and the Randstad. The analysis shows where OxCam leads, where it falls behind, and the gaps it must close to become a top 10 global innovation cluster.

How innovation clusters are defined

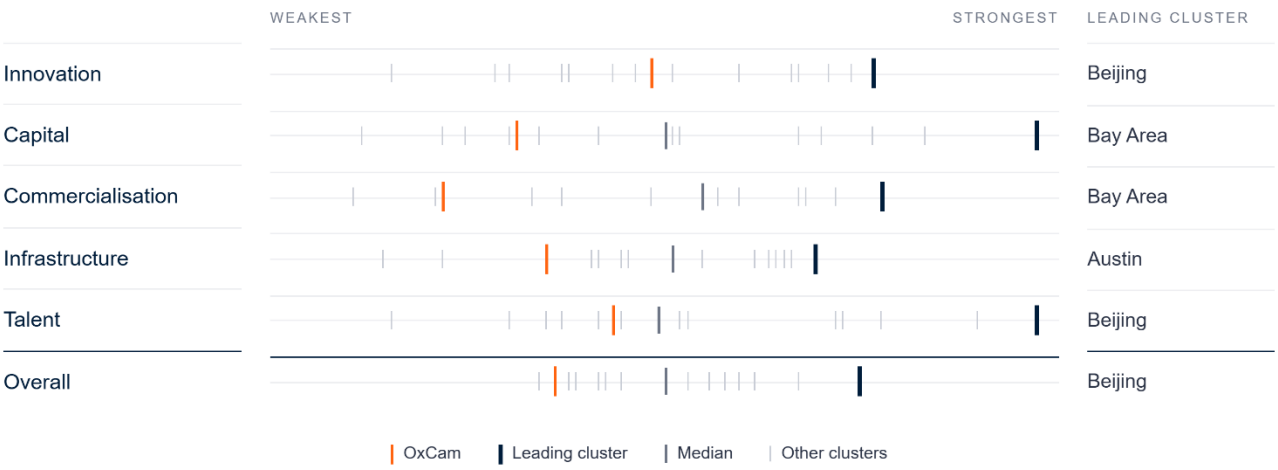
The comparator set is drawn from the World Intellectual Property Organization's Top 100 Science and Technology Clusters ranking, which measures concentrations of patent applications, scientific publications and venture capital activity. The 14 clusters were chosen as follows:

- Top 10 as ranked by the WIPO. Where one country has three or more clusters in the top 10, the lowest ranked is replaced by a high performer from another country, so the case studies span a range of national policy environments.
- Smaller comparators drawn from the same WIPO data that match OxCam on patents, publications and venture capital activity per capita.

OxCam sits within an hour of London and some treat the two as a single "golden triangle" cluster. This report keeps them separate, as the leading US ecosystems show that clusters near one another can each scale in their own right – Boston and New York compete and outperform independently rather than as one unit. London is also excluded from the comparator set by design. The policy lessons it offers are already well understood in a UK context.

Cluster scorecard

The scorecard below brings together indicators used throughout this paper to show how OxCam compares with the comparator clusters.[1] It tests whether OxCam looks like a top-tier cluster when measured against the places it competes with for firms, capital and talent, and it is not a ranking of every innovation economy.



On this scorecard, OxCam ranks second last. It scores strongest on innovation and talent, and weakest on capital, commercialisation, and infrastructure. Across the comparator group research capability is common and commercial depth is rare. OxCam's overall score is weighed down by the difficulty of growing a company in the area. Despite the potential of the 66 miles between Oxford and Cambridge, and although its founders have created some of the fastest growing firms in the world, too many of those companies scale elsewhere.

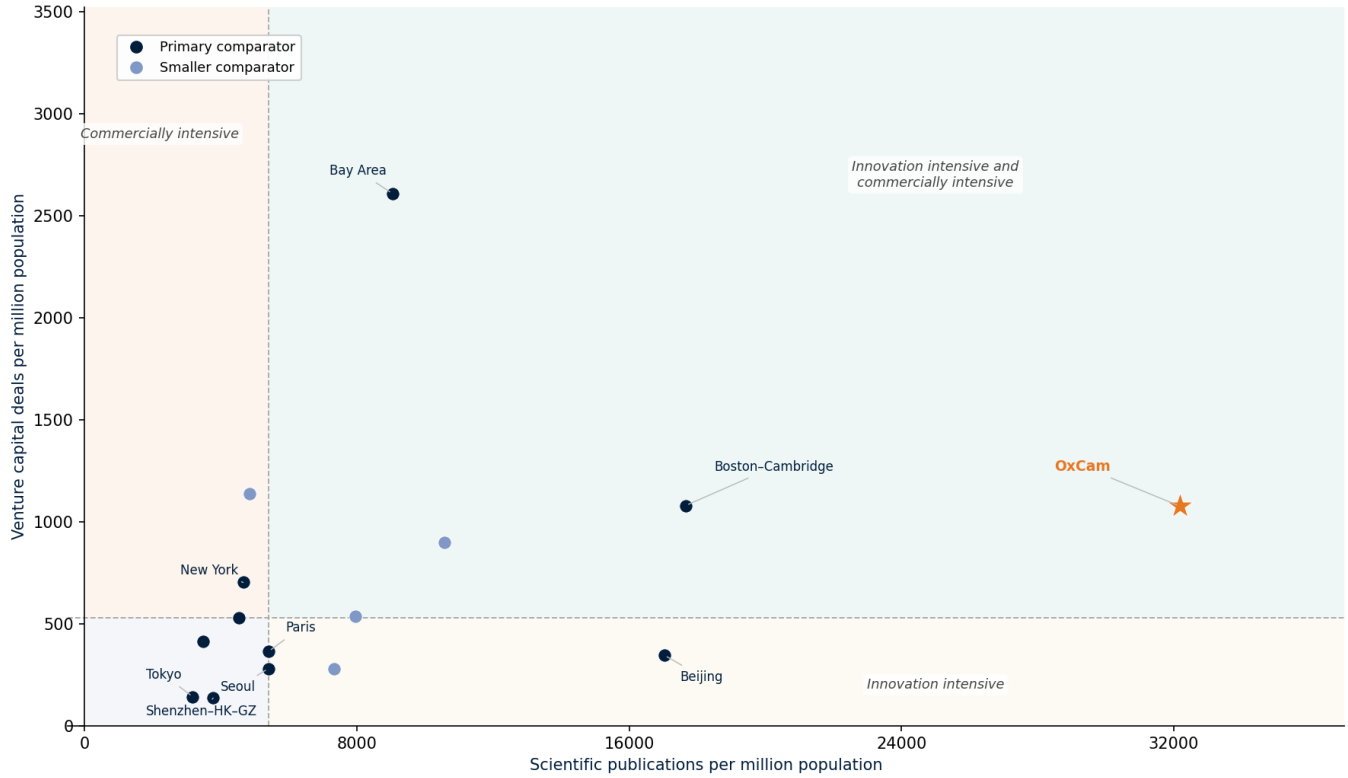
The scorecard is best read as a profile rather than a league table. It shows OxCam is an economy whose strengths in innovation and talent are not matched by the conditions that let clusters scale. The rest of this chapter explains why.

World leading on innovation intensity

OxCam's strongest global position is on innovation intensity. Relative to the size of its population, the corridor has deep scientific capability, world-class universities and a highly skilled workforce. Between 2019 and 2023, OxCam produced the most scientific publications per resident of any global cluster, almost twice as many as the second and third most, Boston and Beijing. It is also competitive with other top global clusters on attracting Venture Capital (VC) relative to population size.

[1] *Full methodology for calculating scorecard included in appendix.*

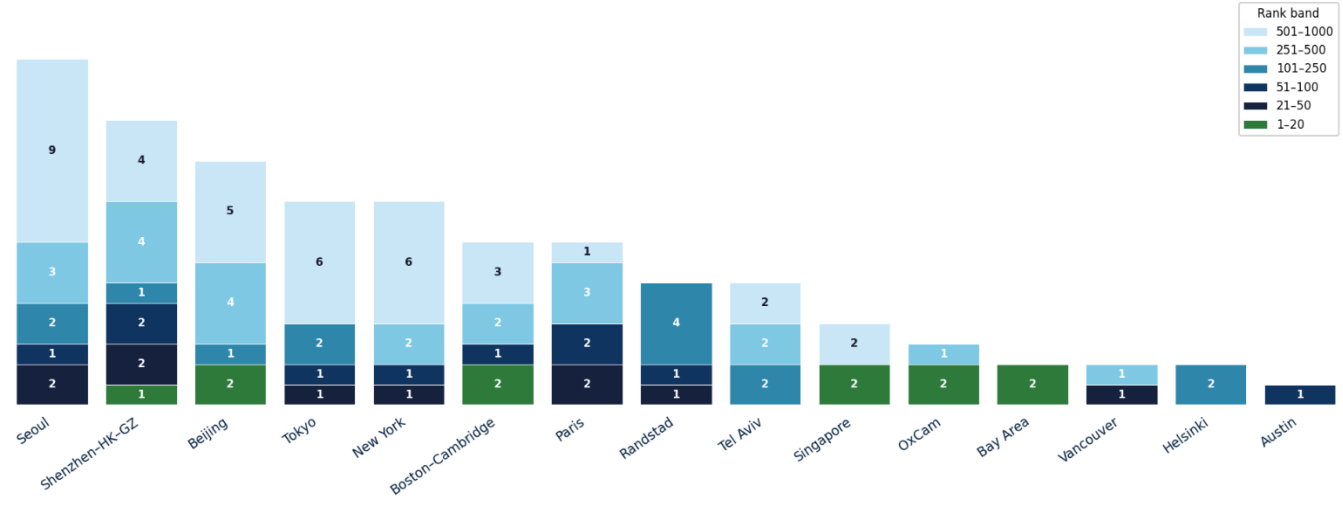
Scientific publications vs VC deals — per million population



Source: WIPO | GII 2025 | Dividers at group median (Pubs: 5,406, VC: 527)

While OxCam has fewer universities than some global clusters such as Boston, Seoul and Shenzhen, it has an unusually high concentration of leading institutions. OxCam leads the world for top 20 universities per capita but is far behind places like Seoul, Beijing and New York when it comes to the top 1,000 universities.

Universities in top 1,000 by innovation cluster

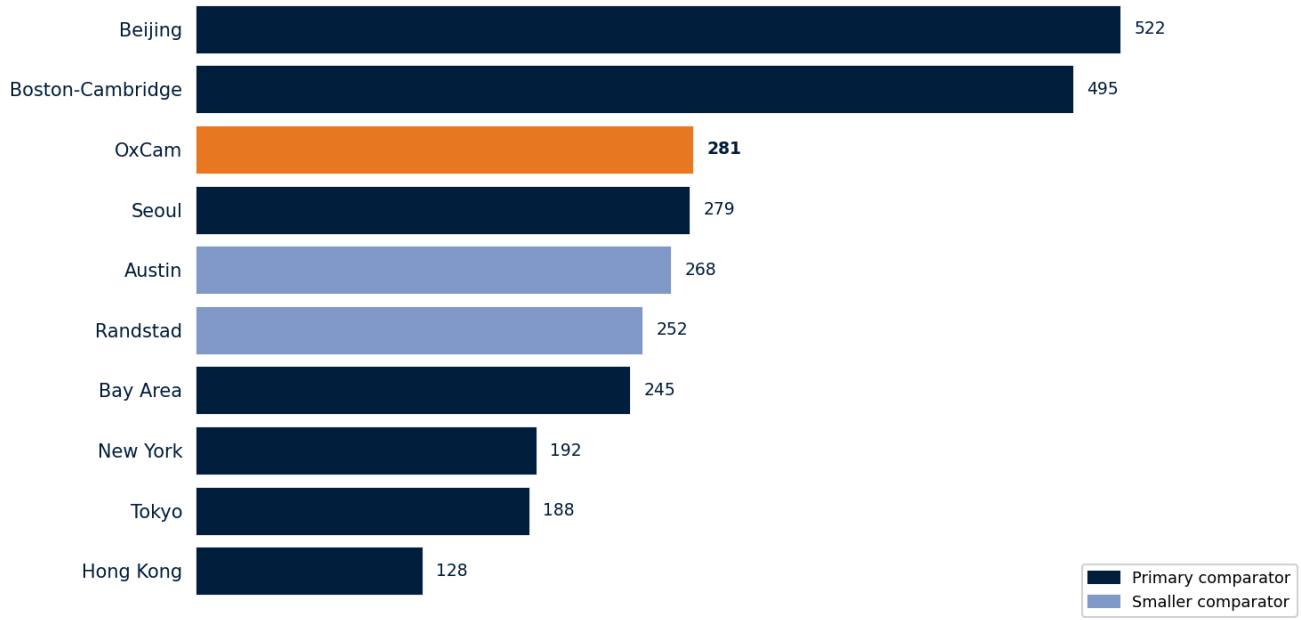


Source: QS World University Rankings 2026

This concentration of top-tier universities in OxCam creates one of the world's strongest pipelines of scientific and technical talent relative to the size of the local economy. OxCam has the third highest

proportion of STEM graduates globally, outperforming other clusters such as Seoul, the Bay Area and Tokyo, though still much lower than the level of Beijing and Boston.

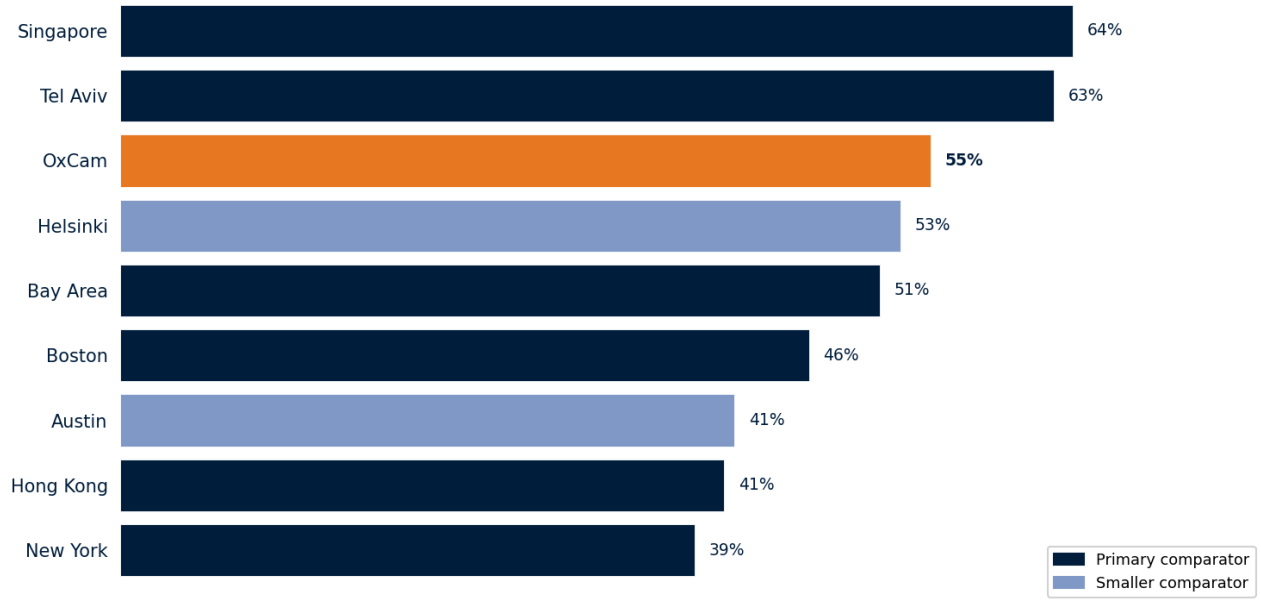
STEM graduates (bachelor's degree and above) per 100,000 population



Source: Multiple national sources. AY 2023/24.

OxCam also has one of the highest shares of high-skill employment across global clusters. Over half of its workforce (55%) is highly skilled, compared with around 41% in Austin, 40% in Hong Kong, and 38% in New York. It is behind only Singapore (64%) and Tel Aviv (63%).

High-skill workforce share — direct comparators



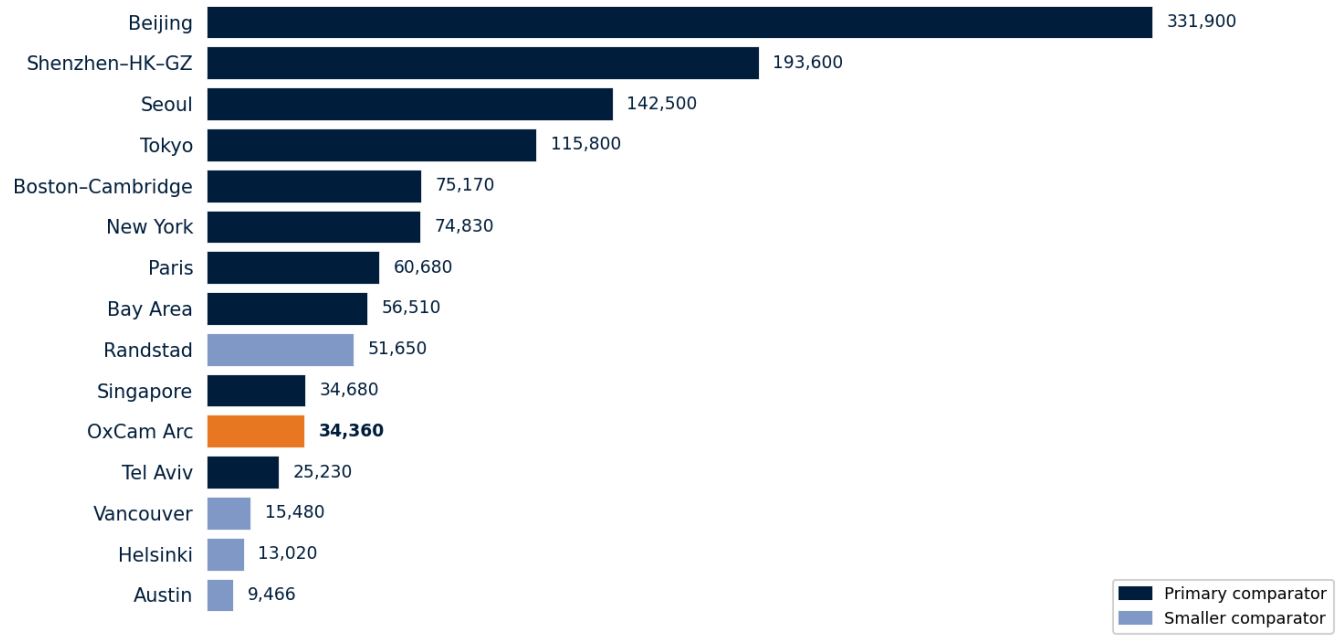
Source: ONS APS SOC2020; BLS OEWS 2024; MOM Singapore 2025; CBS Israel 2024; CenStatD HK 2025; Statistics Finland 2023.

Intensity without scale

OxCam is highly productive relative to its size, but it does not have the capital, firms, specialist services or labour market depth for those strengths to compound. Places like the Bay Area, Boston and Shenzhen are world-leading because they combine innovation intensity with very large markets for capital, companies and people.

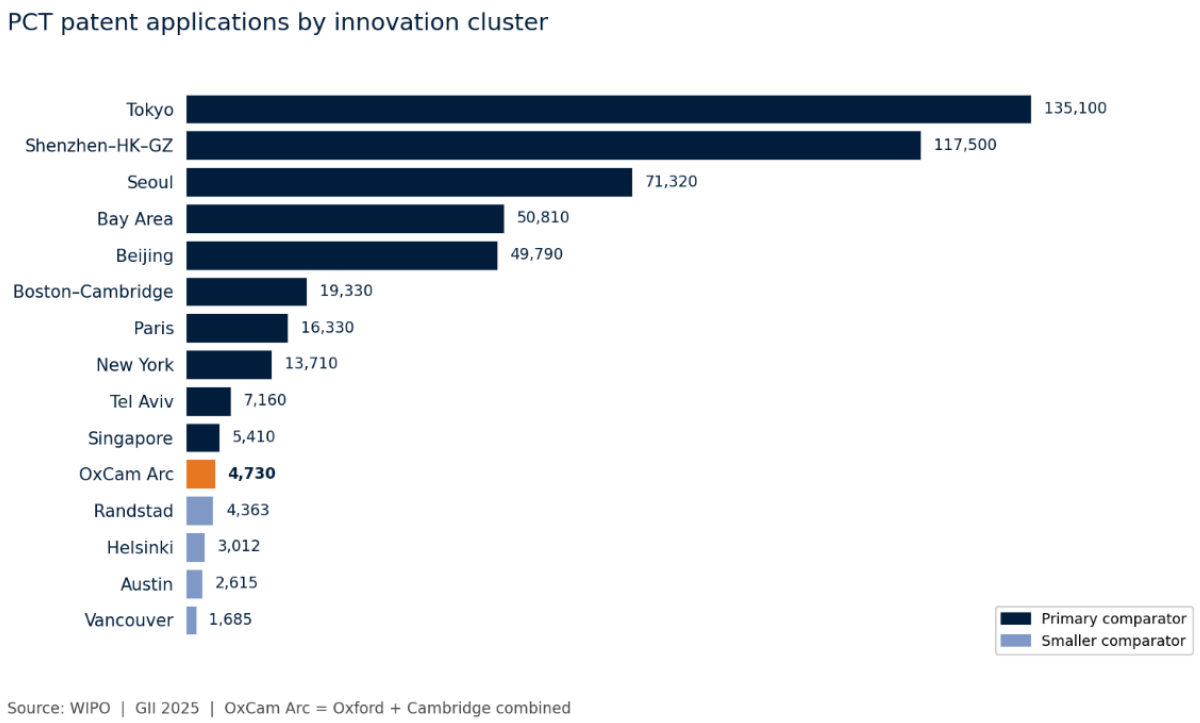
The gap is visible even where OxCam has relative strength, such as in scientific output. In 2025, Beijing produced almost 10 times as many publications as OxCam and Tokyo almost four times as many.

Scientific publications by innovation cluster

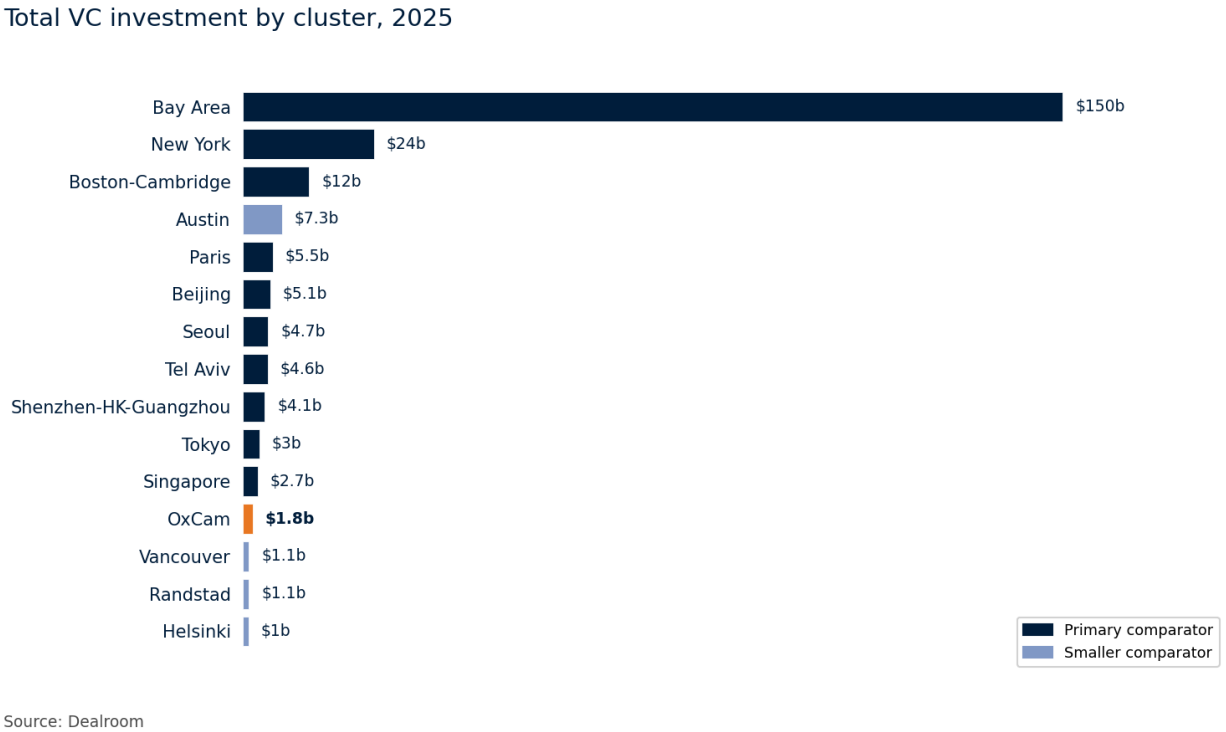


Source: WIPO | GII 2025 | OxCam Arc = Oxford + Cambridge combined

The gap in patent applications between OxCam and the largest Asian clusters is even wider than it is on research output. Although OxCam performs comfortably above smaller comparator clusters such as Helsinki, Austin and Tel Aviv, it generates far fewer patents than larger clusters in Asia and the United States. In 2025, Tokyo applied for over 28 times as many patents as OxCam, Shenzhen 25 times as many and Seoul 14 times as many.



The same pattern is evident in VC.[2] In 2025, OxCam attracted $1.8 billion of VC investment. By contrast, the Bay Area attracted over $150 billion – more than 80 times as much – while New York attracted $24 billion and Boston attracted $12 billion.

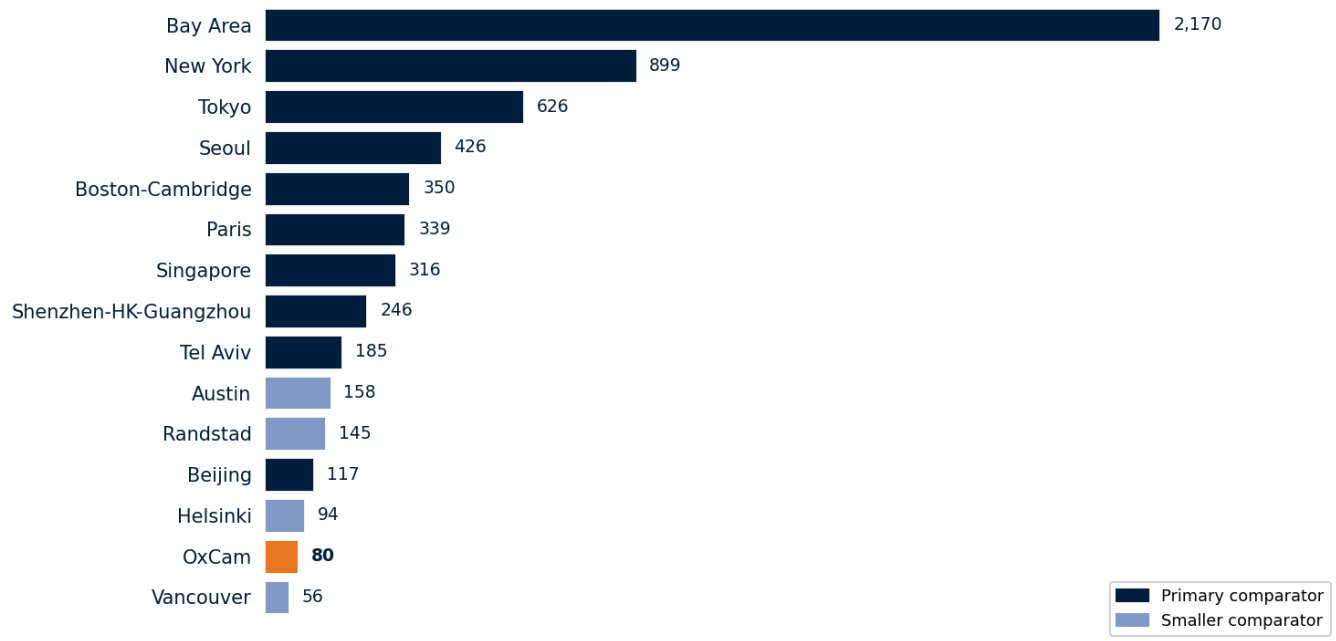


[2] *Comparisons with Chinese clusters should be treated with caution. A significant share of Chinese innovation funding flows through state-backed provincial and municipal funds, and through strategically directed investment in sectors such as AI and semiconductors, much of which is not captured in standard venture capital datasets. US dollar fundraising for China-focused VC has itself fallen to record lows in recent years (from around $150bn raised in 2022 to $13.6bn in 2025), with renminbi-denominated and state-backed funds becoming the dominant source of new capital. Reported VC totals for Chinese clusters are therefore likely to understate actual investment. Fundraising figures from Preqin, reported in Chinese VC firms rush to raise funds after three-year drought | Financial Times, 2026.*

The Bay Area is in a category of its own, supported by deep pools of capital, dense investor and founder networks, anchor universities and a mature public-market exit route. It is notable that Austin has emerged as a major global VC cluster, with total investment growing more than fivefold from $1.3 billion in 2015 to $7.3 billion in 2025.

OxCam also trails leading clusters on the number of VC funding rounds. In 2025, OxCam was home to 80 VC rounds. The Bay Area hosted over 2,000 funding rounds, New York 899 and Austin 158. OxCam performs better on average deal size – OxCam's is $23 million, compared to $70 million in the Bay Area, $27 million in New York and $46 million in Austin – which shows it is producing investable opportunities, just at much lower volume. Yet volume is what venture capital ecosystems compound on. A cluster with fewer deals attracts fewer specialist investors, fewer specialist advisers and fewer repeat founders, and the gap widens with each cycle.

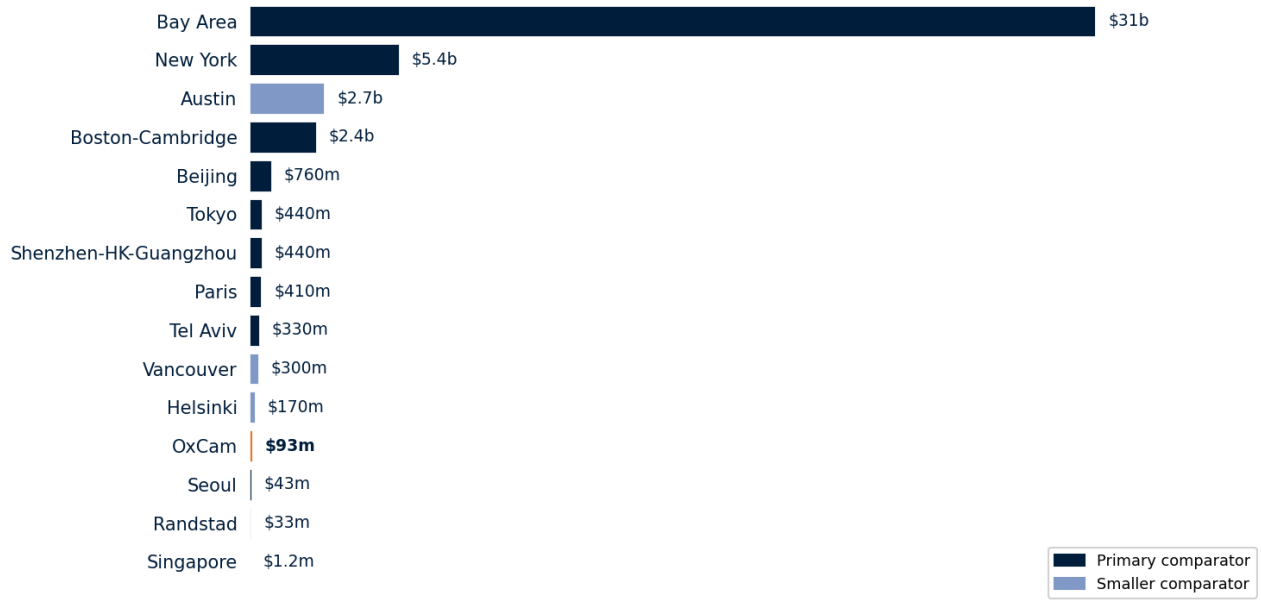
Total VC rounds by cluster, 2025



Source: Dealroom

OxCam attracted $93 million of late-stage VC investment in 2025, compared with $2.4 billion in Boston, $2.7 billion in Austin, $5.4 billion in New York and $31 billion in the Bay Area. Paris, Vancouver and Tel Aviv each attracted over three times as much as OxCam. The capital shortfall is therefore at its widest at the stage firms need to scale.

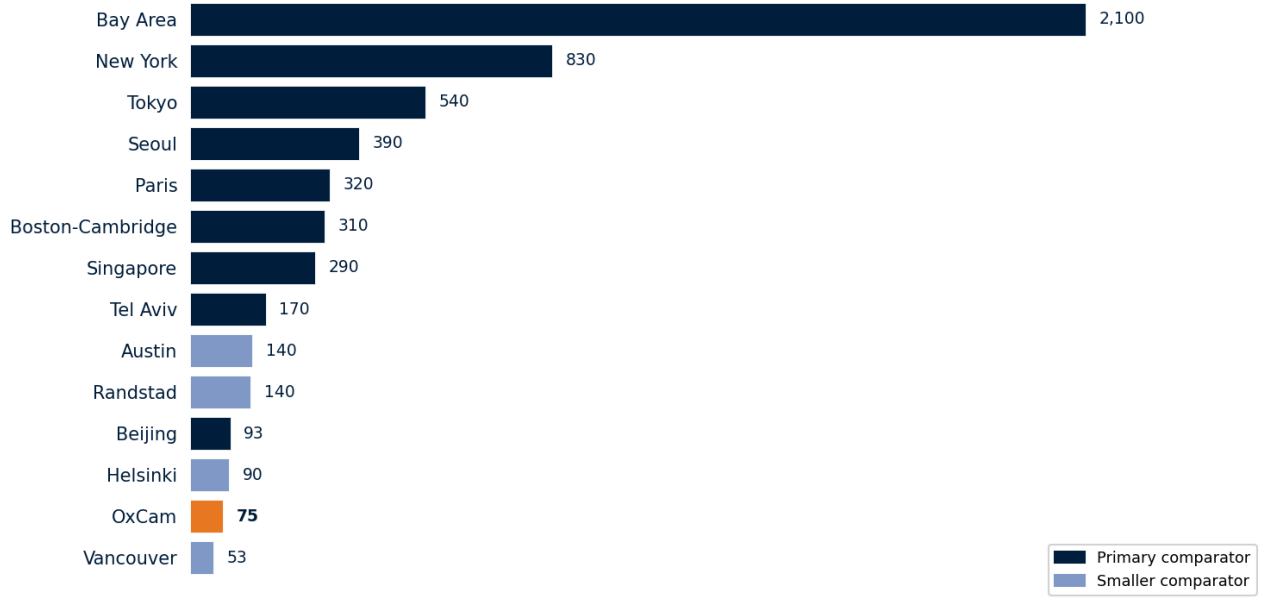
Late stage VC investment by cluster, 2025



Source: Dealroom

The low availability of late-stage VC can be seen when comparing it with early-stage activity. In 2025, OxCam hosted 75 seed and Series A rounds against Austin's 140 – a gap of roughly half. At rounds above $100 million, Austin hosted 22 against OxCam's five. A similar trend occurs nationally – the US attracts 3.7 times more capital than the UK at early stages, but more than nine times as much at later stages.[3]

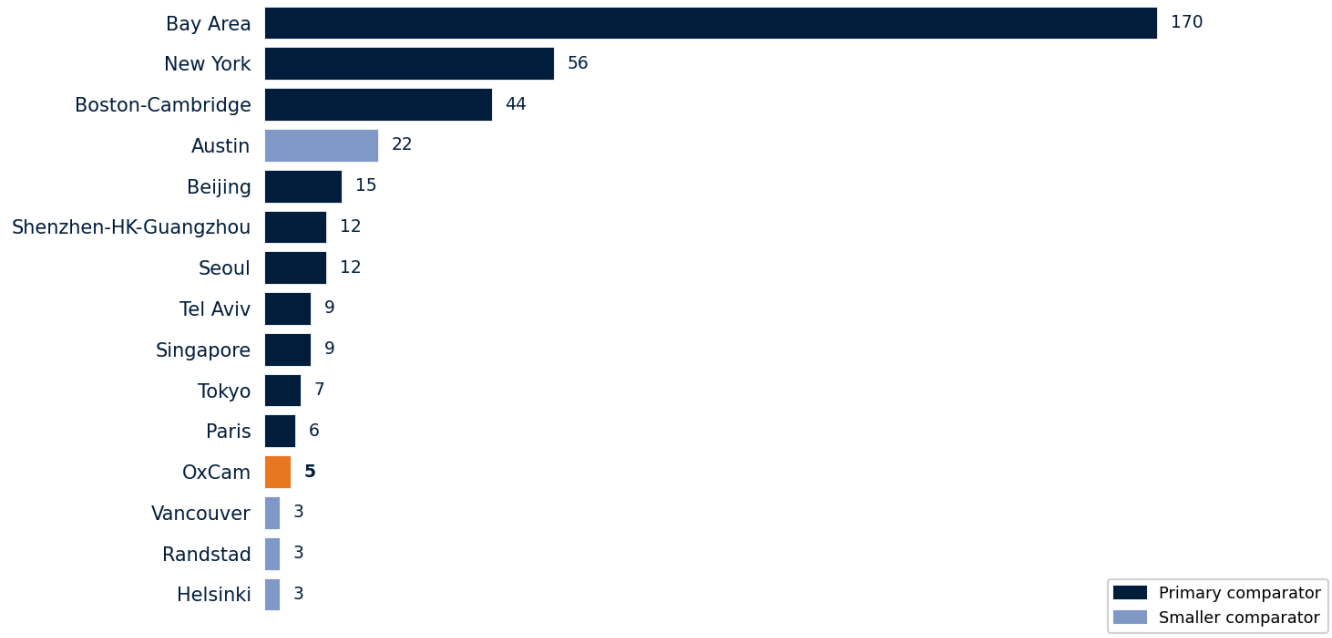
Early-stage funding rounds by innovation cluster, 2025



Source: Dealroom comparison tool (data compiled for finance and investment analysis). Count of early-stage VC funding rounds (Seed and Series A) by HQ cluster, 2025. OxCam = Oxford + Cambridge + Bedfordshire + Luton + Milton Keynes. Shenzhen-HK-Guangzhou = Shenzhen + Hong Kong + Guangzhou.

[3] *From Start-up to Scale-up: Turning UK Innovation into Prosperity and Power | Tony Blair Institute, 2025*

Scale-up funding rounds (≥$100M) by innovation cluster, 2025

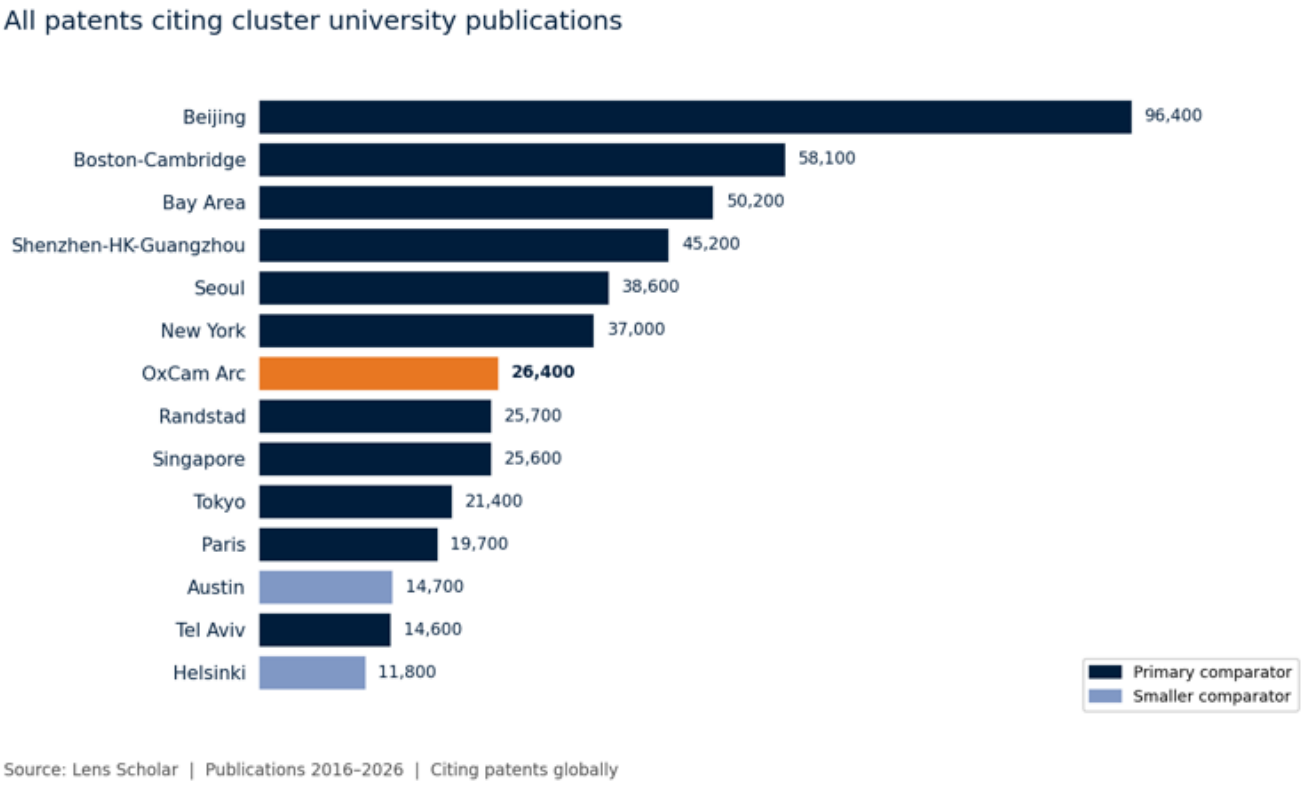


Source: Dealroom comparison tool, May 2026. Count of VC funding rounds ≥$100M by HQ region. OxCam = Oxford + Cambridge + Bedfordshire + Luton + Milton Keynes. Shenzhen-HK-Guangzhou = Shenzhen + Hong Kong + Guangzhou.

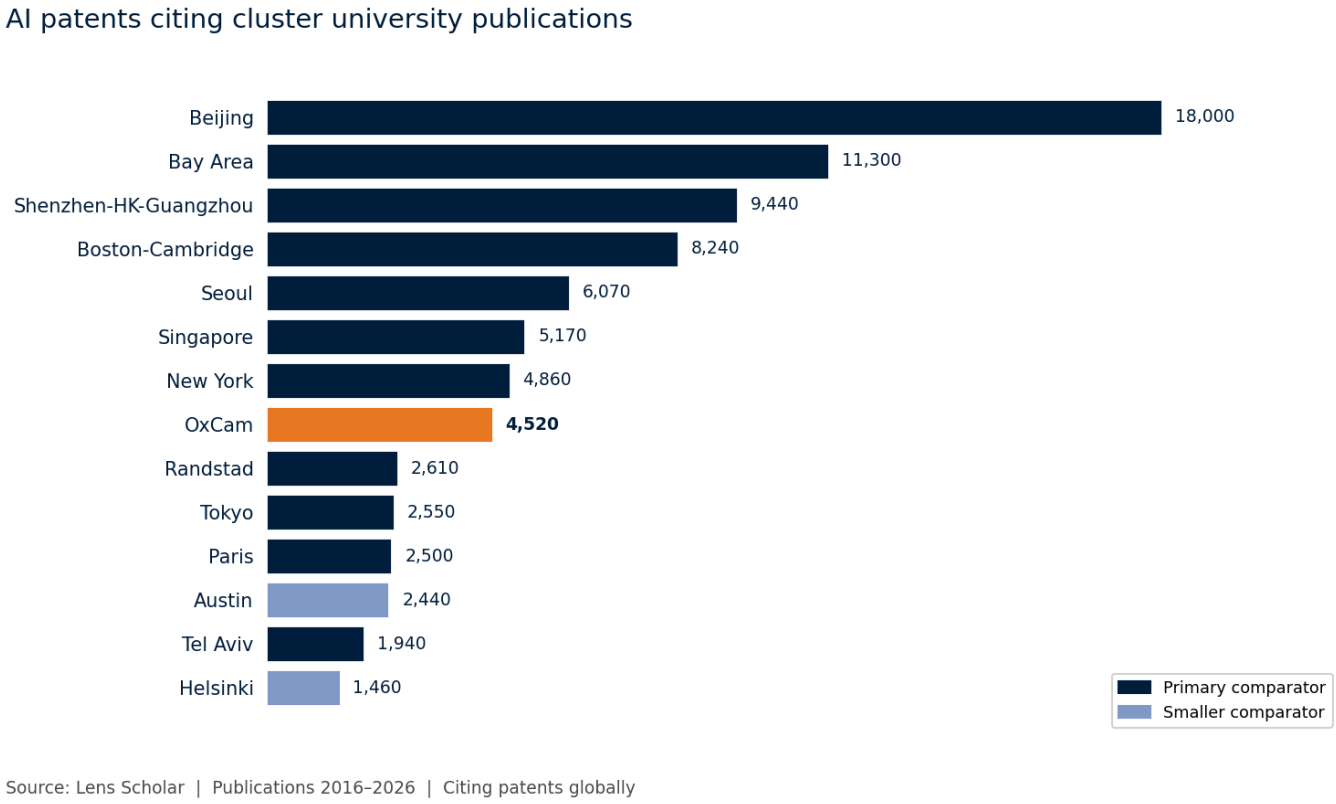
Ideas and companies that scale elsewhere

OxCam excels at turning scientific output into early-stage companies. Its research shapes global technologies, its academics and graduates found some of the fastest growing firms and its spin-out performance is the strongest in the world. However, too few of those companies become scaled firms with headquarters, workforce and long-term value anchored locally.

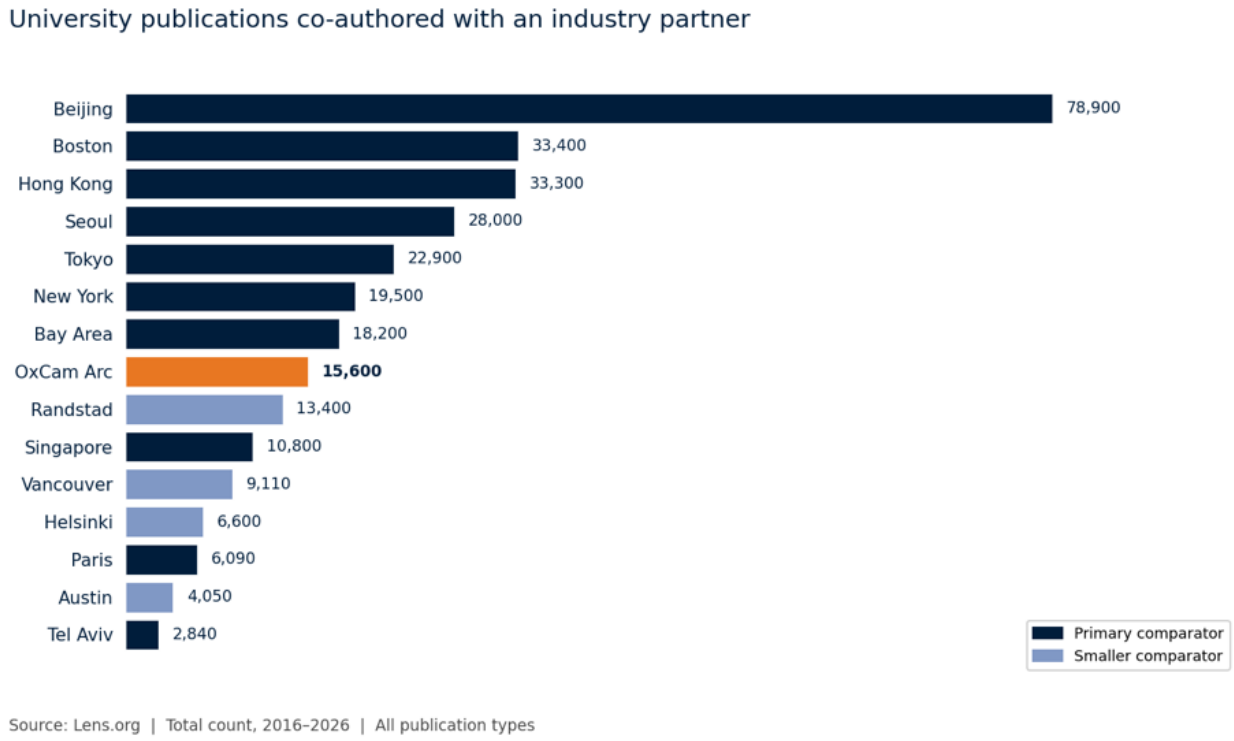
Over the past decade, research from universities in OxCam was cited in over 26,000 patents, 25% more than those from Tokyo and 33% more than those from Paris, despite having fewer universities than either.



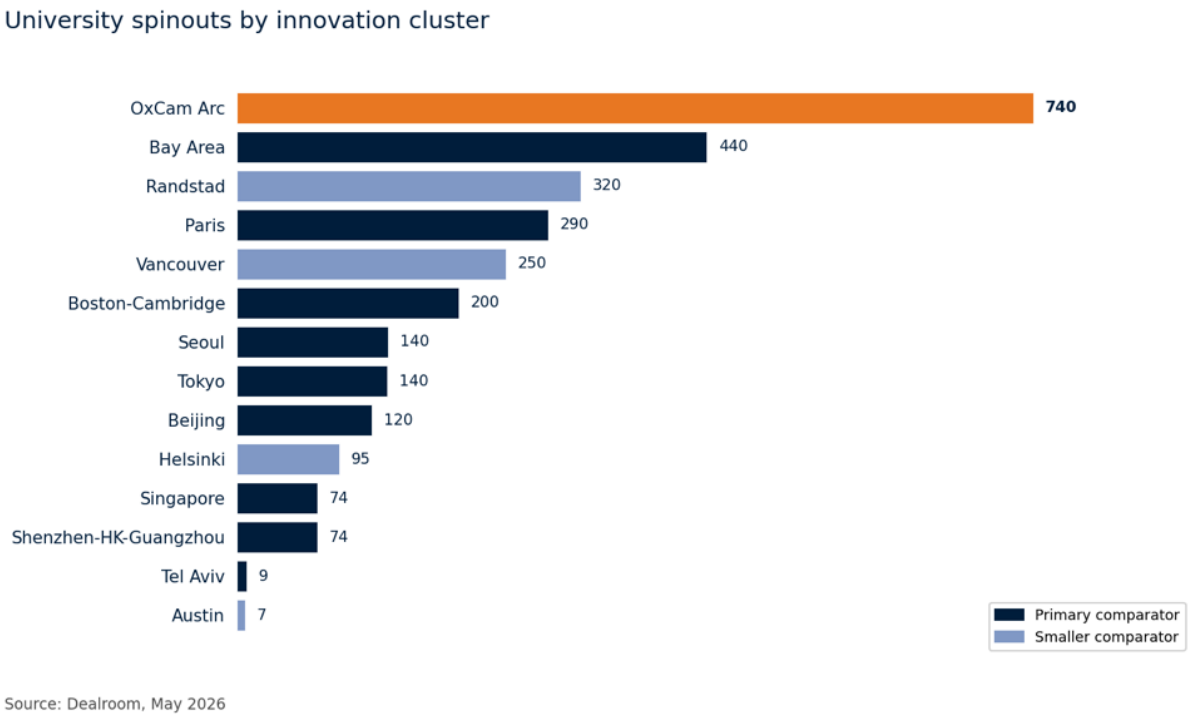
A large proportion of patents citing OxCam university research are AI-related, underlining the corridor's disproportionately large role in shaping frontier technologies. Around 17% of all patents citing OxCam university research are broad AI patents, and over the past decade that research was cited almost twice as many times as research from Tokyo, Paris or Tel Aviv.



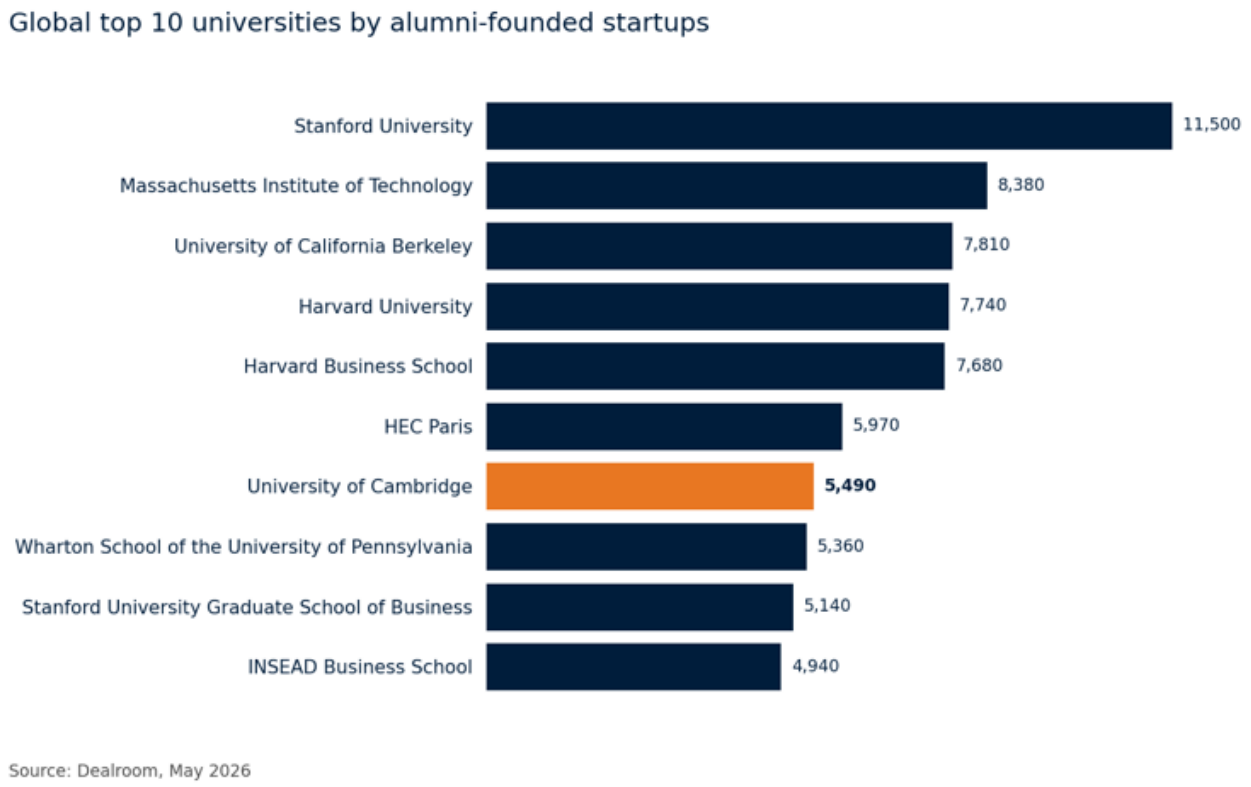
Between 2016 and 2026, universities in the corridor produced 15,600 publications co-authored with industry, placing OxCam ahead of clusters such as Amsterdam, Singapore, Vancouver and Paris, though still well behind Beijing, Boston and Hong Kong, each of whom produced twice as many. Their industry co-authorship rates are strikingly high. Institutional reticence to partner with industry in the UK may be part of the explanation.



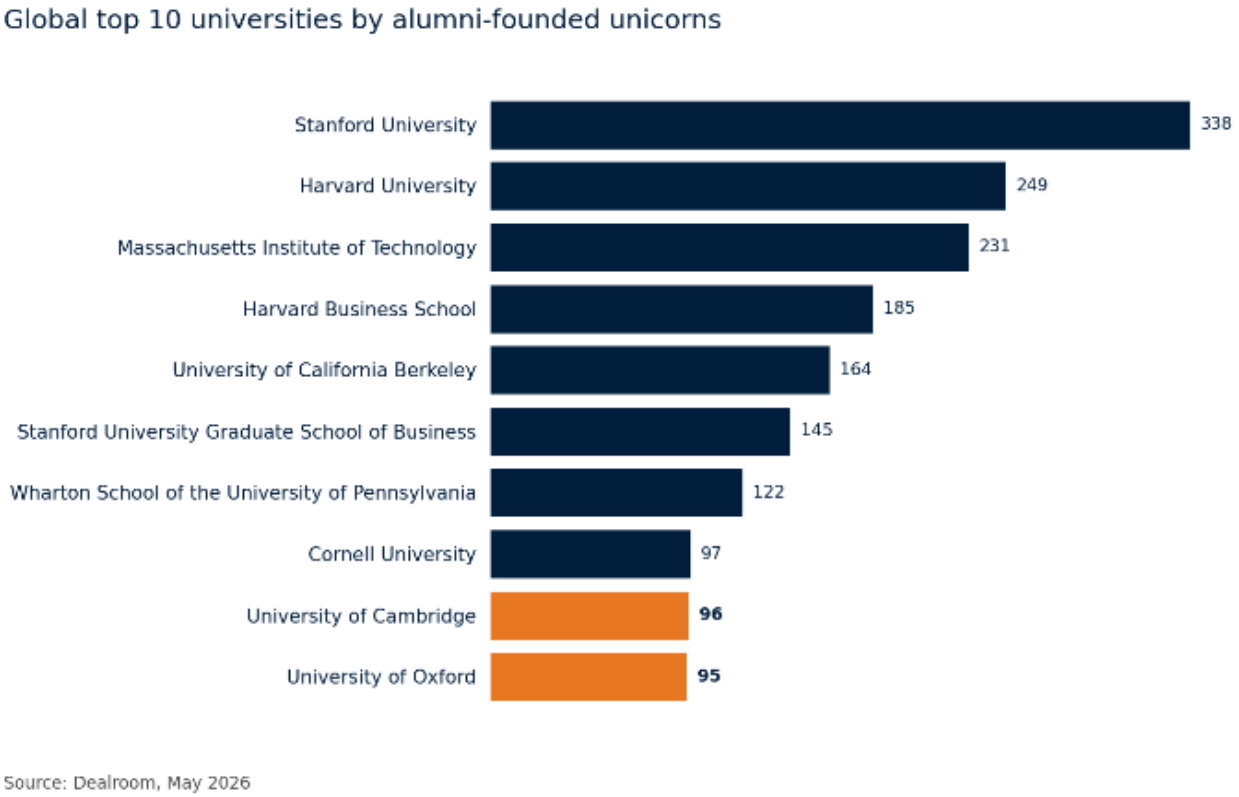
OxCam also leads the world on university spinouts, the most direct measure of research-to-company translation, producing 740 against the Bay Area's 440 and Paris's 290.



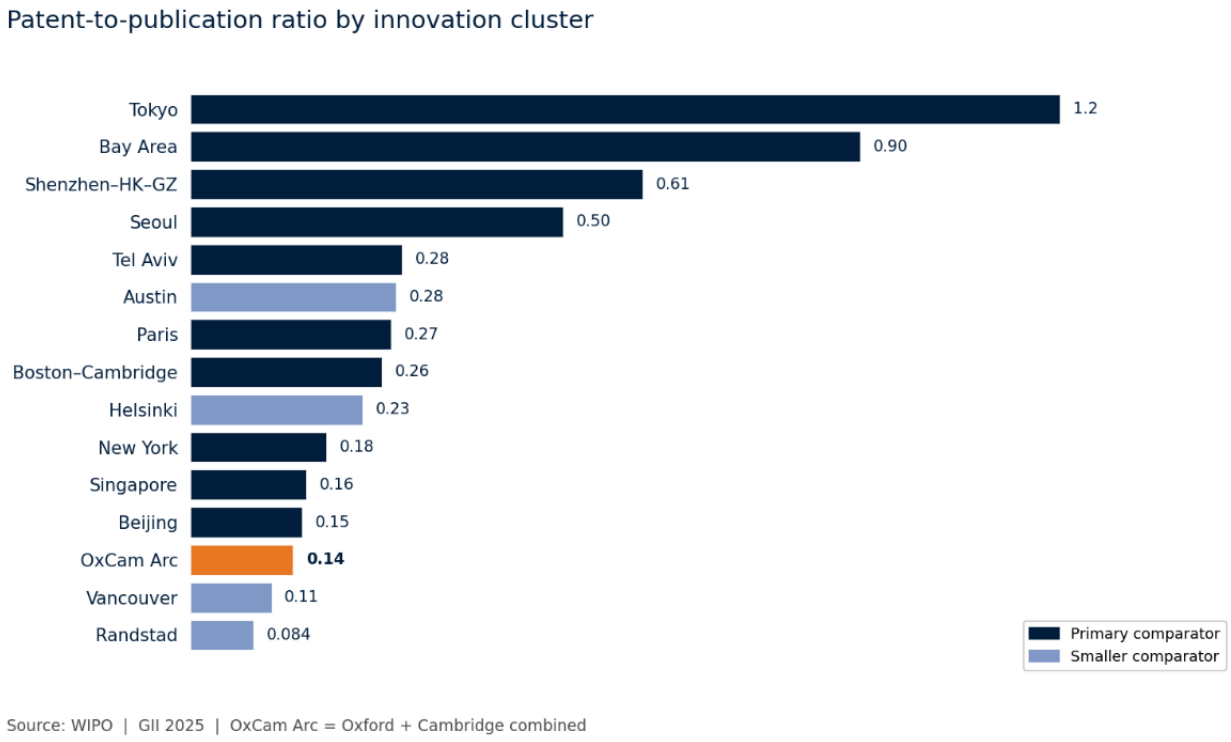
The picture is much the same for alumni-founded companies. Cambridge ranks seventh globally for the overall number of start-ups founded by its alumni. Oxford sits within the global top 20.



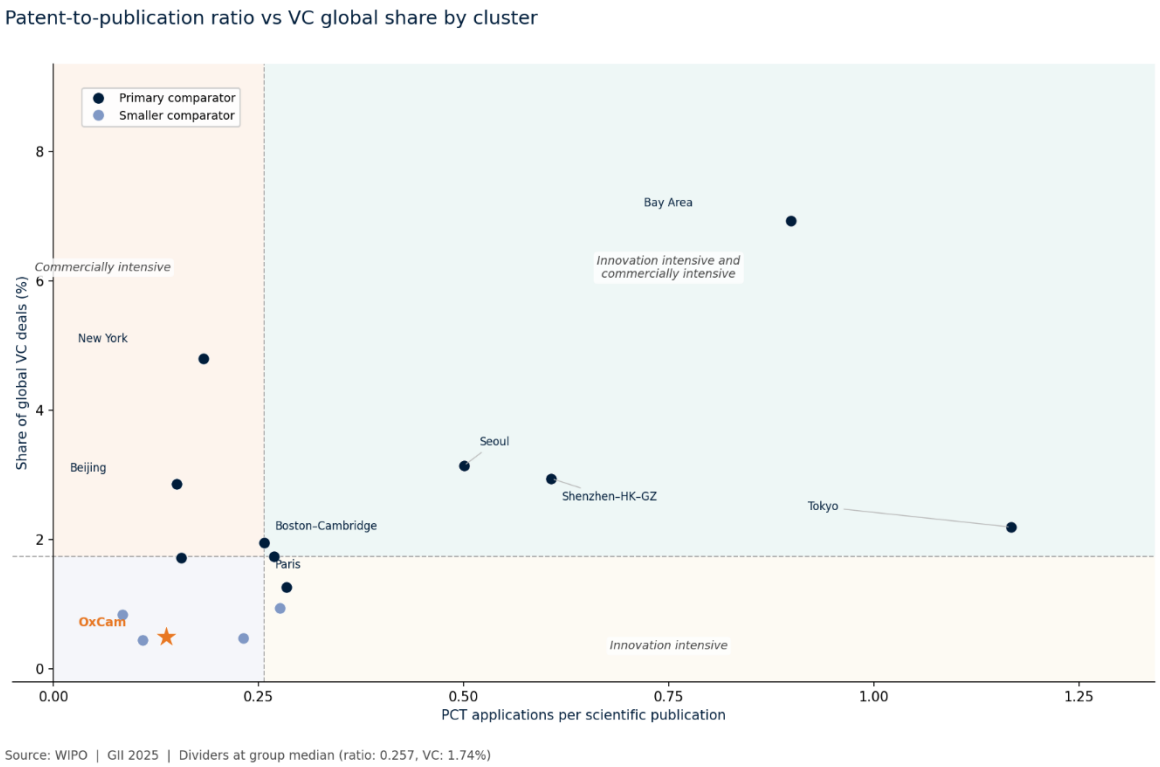
Both universities are in the global top 10 for alumni-founded unicorns. Cambridge ranks ninth with 96, while Oxford ranks tenth with 95.



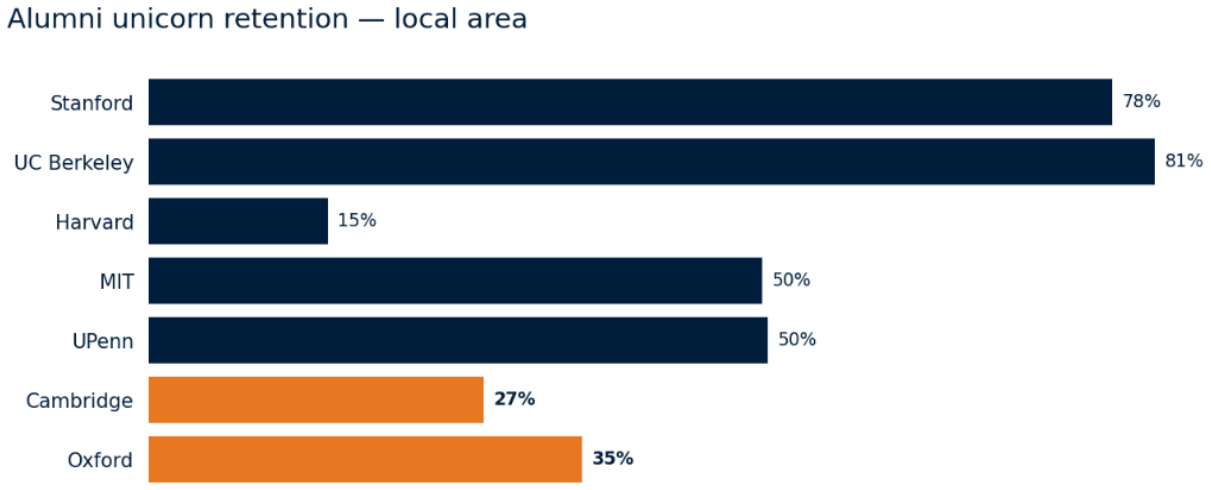
This is an extraordinary base to build from, but the data also shows the corridor is relatively weak at commercialising its world-class research. Leading clusters such as Tokyo and the Bay Area turn a far higher share of their research publications into patents.



Higher patenting relative to publications also tracks with stronger venture capital ecosystems, though patenting alone does not create a VC market. The strongest clusters are better at converting research output into protectable intellectual property, investable companies and then later-stage funding.

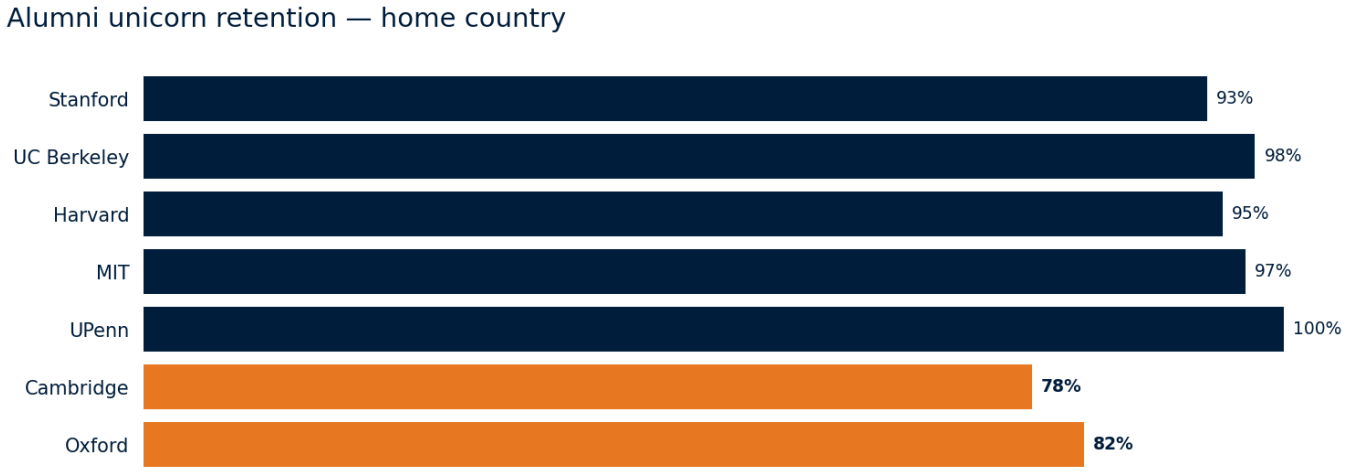


The value from innovation is secured when firms grow, employ more people, raise later-stage capital, build supply chains, locate senior functions and stay. A cluster can lead the world at producing research and start-ups and still lose most of that value if the next stage happens elsewhere. It is happening too often in OxCam, where around two-thirds of the unicorns founded by Oxford and Cambridge alumni are not headquartered locally, against roughly four in five of those founded by Stanford and Berkeley alumni that stay in the Bay Area.



OxCam home area = Oxford + Cambridge cities. UPenn is based in Philadelphia; New York is used as the nearest major hub as Philadelphia does not appear in Dealroom's top cities for UPenn alumni.
Source: Dealroom, May 2026

Nationally the picture is better, with 78% of Cambridge alumni unicorns and 82% of those from Oxford staying in the UK, many having moved only as far as London. It is, however, below leading US universities, where between 93% and 100% of alumni unicorns remain in the country. Roughly one in five OxCam alumni unicorns has left the UK altogether, against fewer than one in ten for Stanford or Harvard.

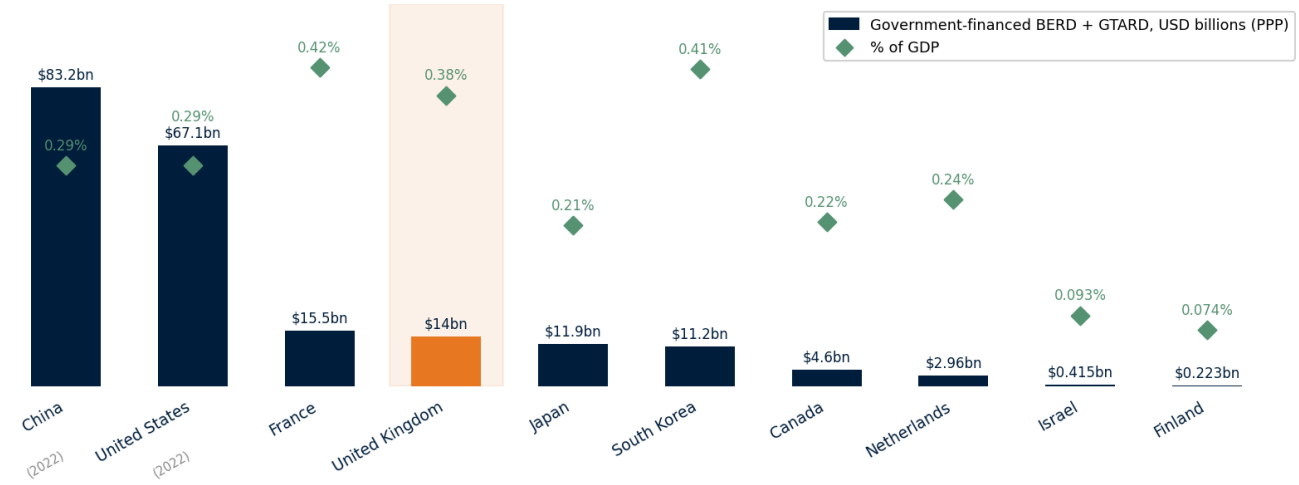


OxCam home country = United Kingdom.
Source: Dealroom, May 2026

Investment too thin to compound

The UK Government invests relatively high levels of public funding into R&D, helped in particular by tax incentives. China and the US are by far the biggest absolute investors, but the UK performs well relative to the size of its economy.

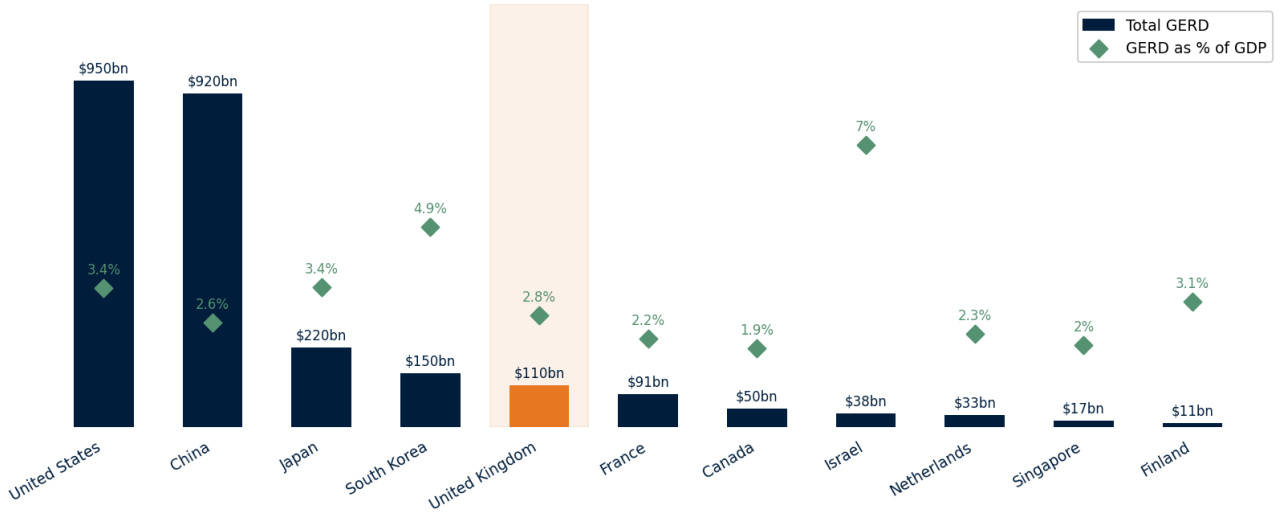
Total government support for business R&D (direct + tax incentives), USD billions PPP



Source: OECD R&D Tax Incentives Database. Most recent available year shown; years other than 2023 annotated below axis.

Once private investment is included, the gap with the US and China widens. They invest around eight times as much in R&D as the UK, driven by larger concentrations of business and applied R&D activity as well as sheer economic scale. Japan and South Korea also have much higher private investment, with South Korea putting just under 5% of GDP into R&D.

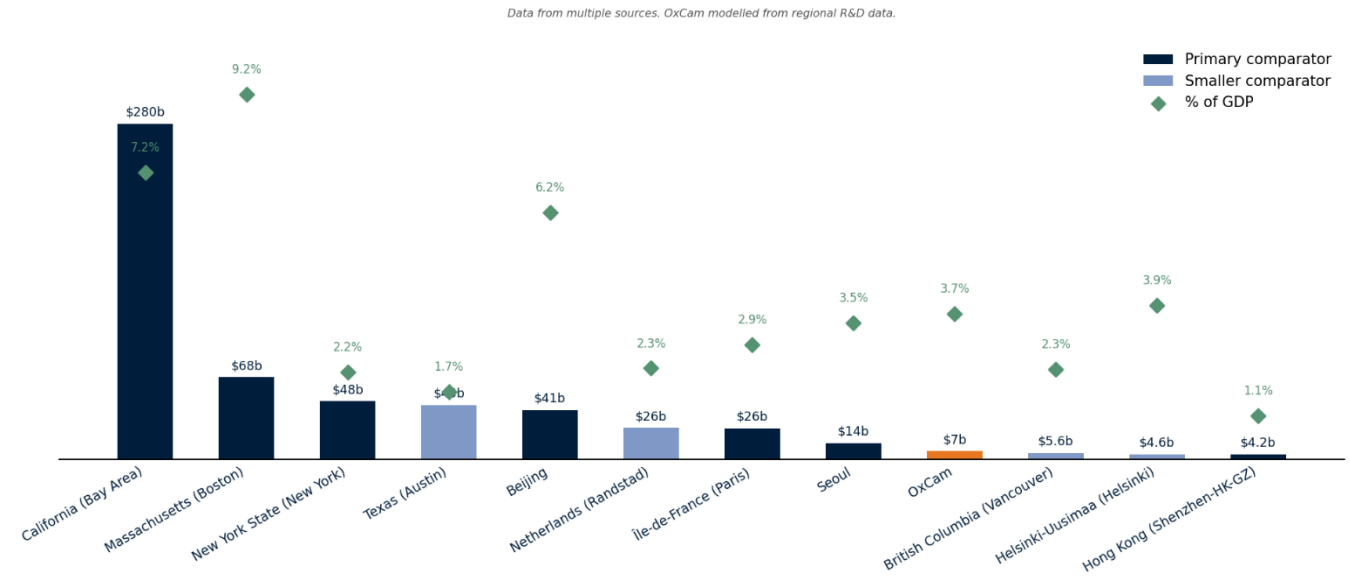
Total R&D expenditure by country



Source: OECD MSTI 2023. USD billions, PPP-converted, current prices.

A similar pattern occurs at cluster level. Estimated against the most granular regional figures available in national statistical databases, OxCam's total R&D expenditure in 2023 was around $7.0 billion, equivalent to 3.7% of regional GDP. That puts OxCam ahead of New York, Austin, Paris, Amsterdam and Vancouver on R&D intensity.

Total R&D expenditure by city/region



Source: multiple national statistical sources. Absolute values converted to USD millions using 2024 annual-average exchange rates (Fawaz Ahmed Currency API, H2 2024 sample average). US state data is natively in USD. State-level proxies used for Bay Area, Boston, New York, Austin.

In absolute terms, though, it is far smaller. The Bay Area invested $277 billion in 2023, Boston $66 billion, New York $48 billion, Austin $45 billion and Beijing $41 billion. Each of those figures is the product of sustained, concentrated investment into an already successful innovation economy. The National Institutes of Health and Department of Defense underpinned major research activity in Boston and the Bay Area, and the Chinese state has directed very large volumes of funding and industrial support into Beijing's research base. Outside the Research Councils the UK has no equivalent, and the National Institute for Health and Care Research and Defence Science and Technology Laboratory operate at a far smaller scale.

Too few anchors and too little demand

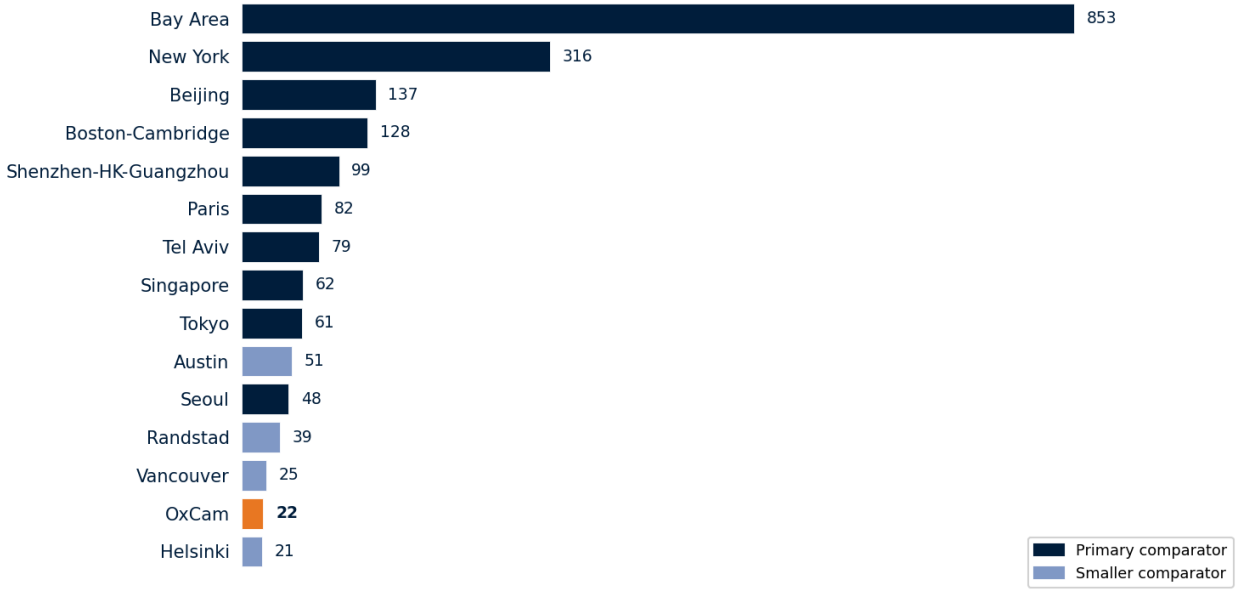
The World Bank assesses business formation in the UK as comparatively straightforward, and financial regulation and capital market openness compare favourably with international peers.

Overall B-READY Score, 2025

Source: World Bank B-READY 2025. Scores 0–100 (higher = better). Country-level data. Not covered by B-READY 2025: France, Japan, China, Netherlands, Finland.

Although OxCam is a relatively easy place to start and operate a company, the market around those companies is not yet deep enough to support them to grow locally at the level seen in leading global clusters. This can be seen in measures of start-up ecosystem depth, which capture factors such as start-up activity, access to investors and accelerators, ecosystem connectivity and the wider support environment available to early-stage firms. On these measures, OxCam ranks similarly to Vancouver and Helsinki, but remains some distance behind larger and denser clusters like the Bay Area and New York.

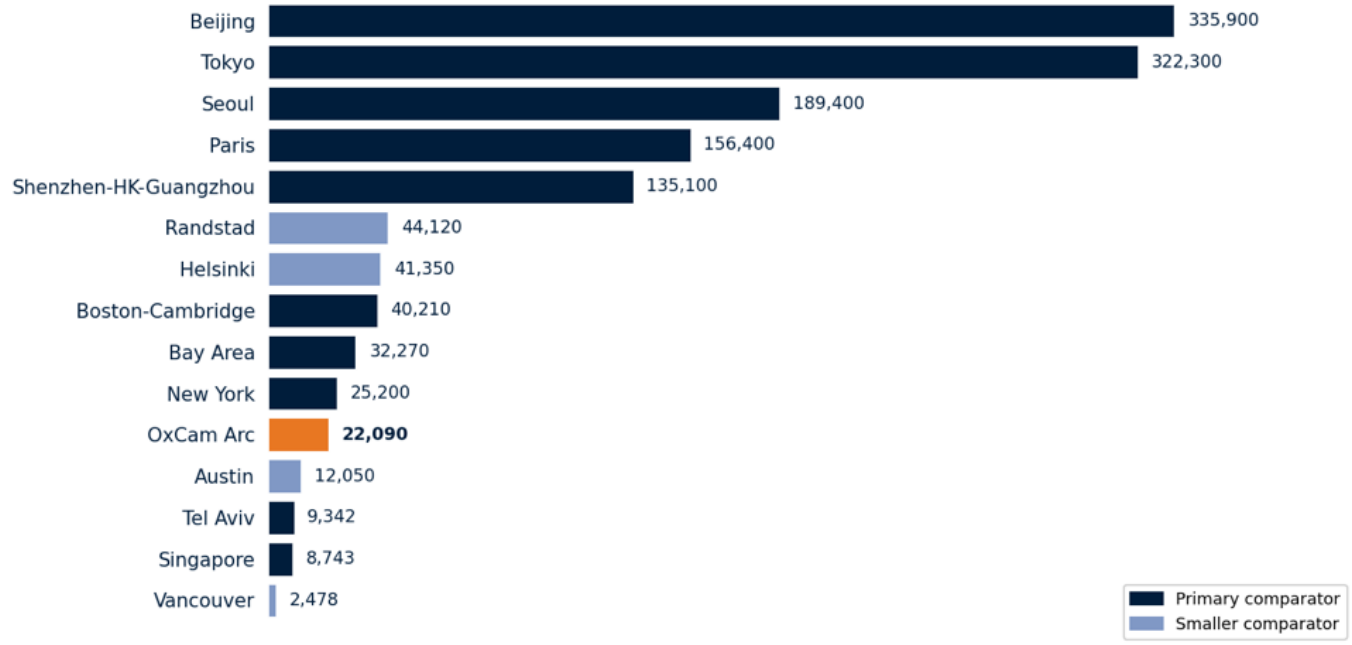
Start-up ecosystem strength by innovation cluster, 2025



Source: StartupBlink Global Startup Ecosystem Index 2025. Score = sum of three sub-scores — Quantity (startups, investors, accelerators, coworking spaces, meetups), Quality (unicorns, exits >$1B, funding), Business Environment (Pantheon companies, global influencers, startup events). OxCam = Oxford + Cambridge (UK) combined. Shenzhen-HK-Guangzhou = Shenzhen + Hong Kong + Guangzhou combined.

The data shows that despite OxCam producing large numbers of ideas and founders, the ecosystem around the firms they start – later-stage investors, experienced operators, corporate partners and customers – is thinner than in places where start-ups more routinely become global companies. Specialist services are another important feature of global innovation clusters on which OxCam underperforms. Patent attorney location is only a proxy, and OxCam firms can draw on advisers in London, but the data below suggests the local layer of IP, legal, regulatory and commercial expertise is less dense than in leading clusters.

Number of global patents using patent lawyers from cluster

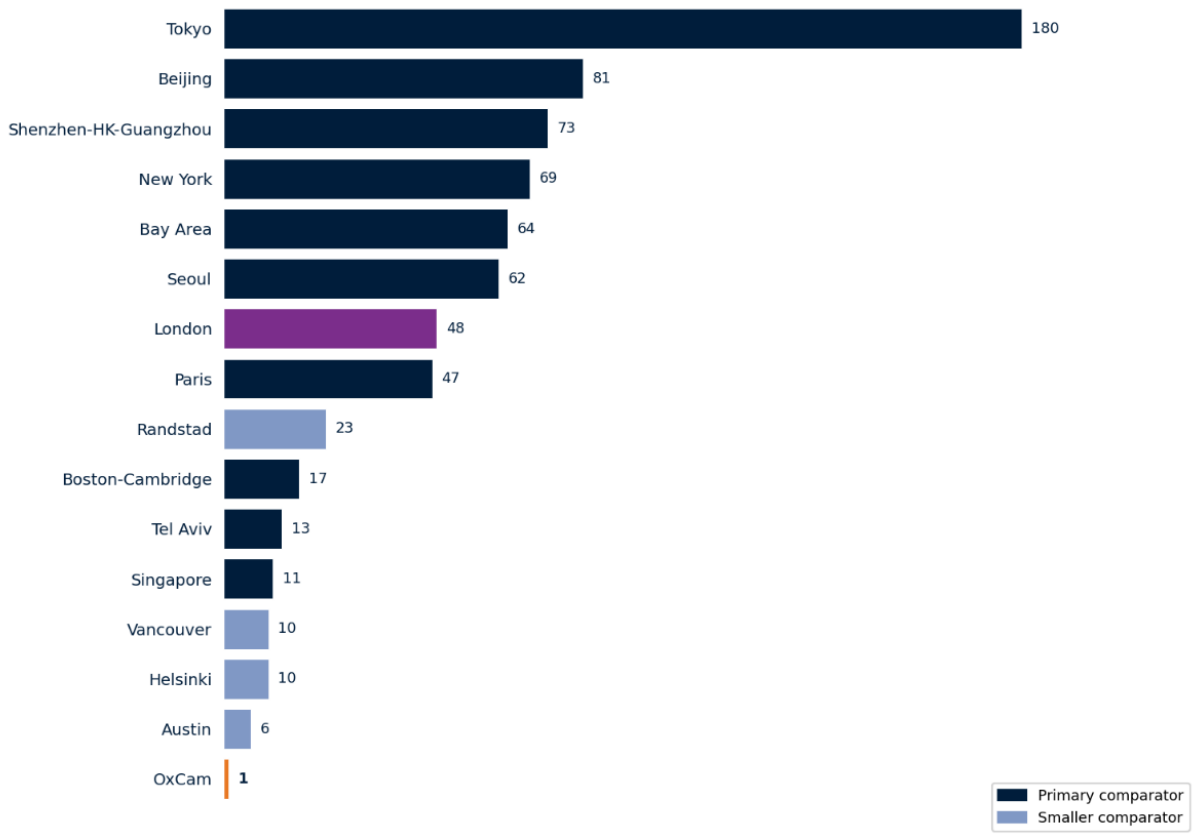


Source: Lens.org. Agent address filter. 2016–2025.

Corporate depth in OxCam is also relatively weak. AstraZeneca is the only Forbes Global 2000 company headquartered in the corridor, putting OxCam last among comparator clusters.[4] Six of the ten largest global tech companies have a presence in OxCam, and many global technology, life sciences and advanced engineering firms maintain offices, R&D laboratories, engineering centres or acquired subsidiaries in the corridor, concentrated in and around Cambridge. Those operations do much of the work large, headquartered companies do, like sustaining supplier networks, training managers, running joint development programmes and attracting specialist services. But private demand in OxCam is shallower than in clusters of comparable research strength, and public demand does not make up the difference.

[4] ARM is not currently in the Forbes Global 2000. The list ranks companies on four equally weighted measures – sales, profits, assets and market value – and a company must pass a minimum threshold on at least one of them. ARM is headquartered in Cambridge and is significant to the corridor, but its revenue and asset base sit below those thresholds despite a high market valuation.

Forbes Global 2000 companies by innovation cluster, 2025



Source: Forbes Global 2000, 2025 edition.

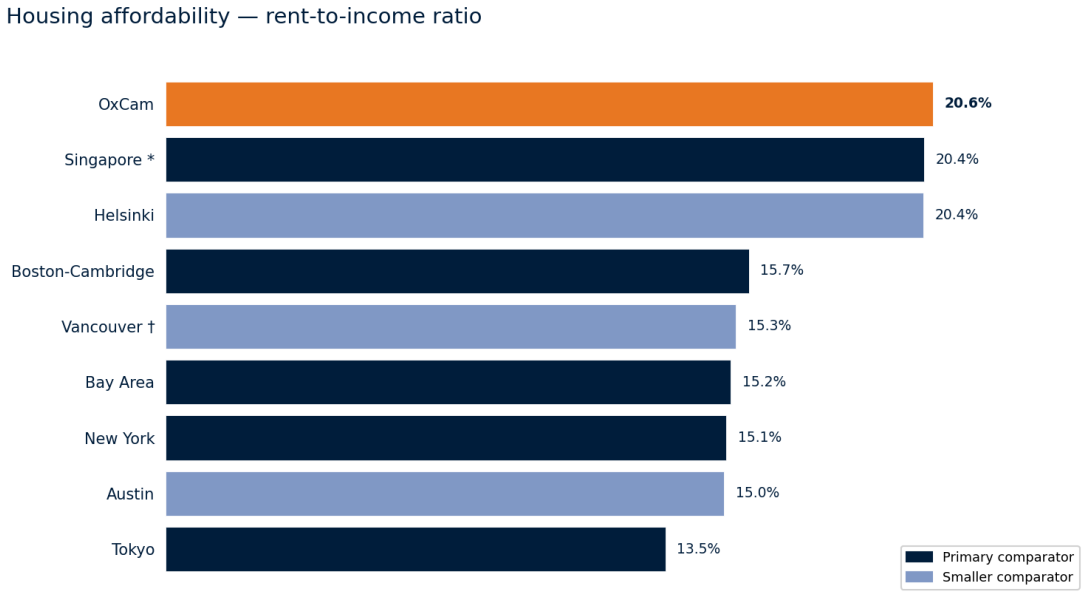
Leading clusters often have sophisticated public buyers willing to purchase new technologies early, through defence procurement, healthcare systems or public purchasing of frontier technology. The UK sits below several European peers on public procurement spending as a share of GDP, but the structure of that demand matters more than the total. In life sciences, firms face fragmented adoption routes across regulators, NICE, NHS England, integrated care boards and individual trusts, which weakens the UK's ability to act as an early customer for the technologies OxCam is good at producing.

Infrastructure holds the corridor back

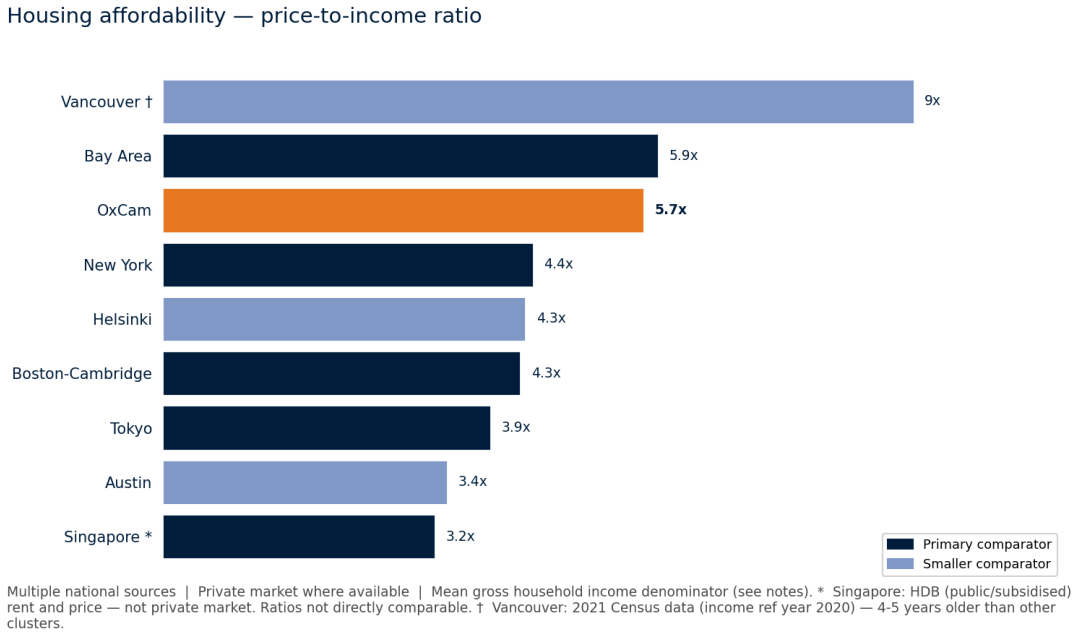
Across a range of measures related to the cost, availability and quality of local infrastructure, OxCam trails other global innovation clusters. These pressures limit opportunities for workers to live locally and move around the corridor; and for firms to get the space, power and connections they need to grow.

On rental affordability, OxCam performs worse than every comparator cluster. Rents absorb close to a quarter of average local incomes in the corridor, compared with around 15% in the Bay Area. The Bay Area's apparent affordability partly reflects the much higher wages generated by its technology economy, but it

underlines the core issue. OxCam combines high housing costs with a smaller and less productive local economy, leaving many workers facing London-style costs without Bay Area-level earning power.

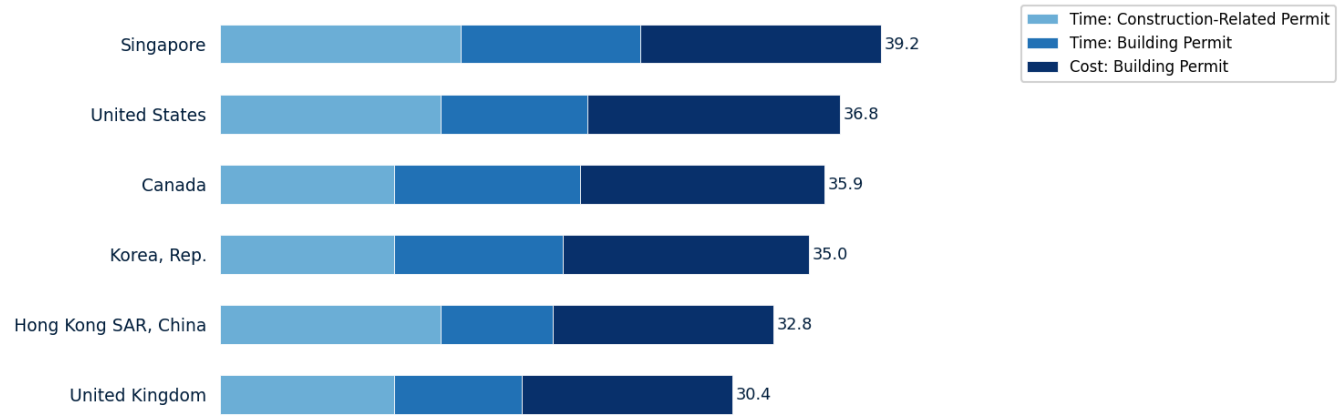


The problem is most acute in OxCam's largest cities, where Oxford and Cambridge are almost as unaffordable as London on rental measures. Buying a home is also difficult. OxCam's house-price-to-income ratio is among the highest in the comparator set. This makes it harder for workers to put down roots, particularly as they move into their thirties and begin making decisions about children, schools and where to settle down long-term.



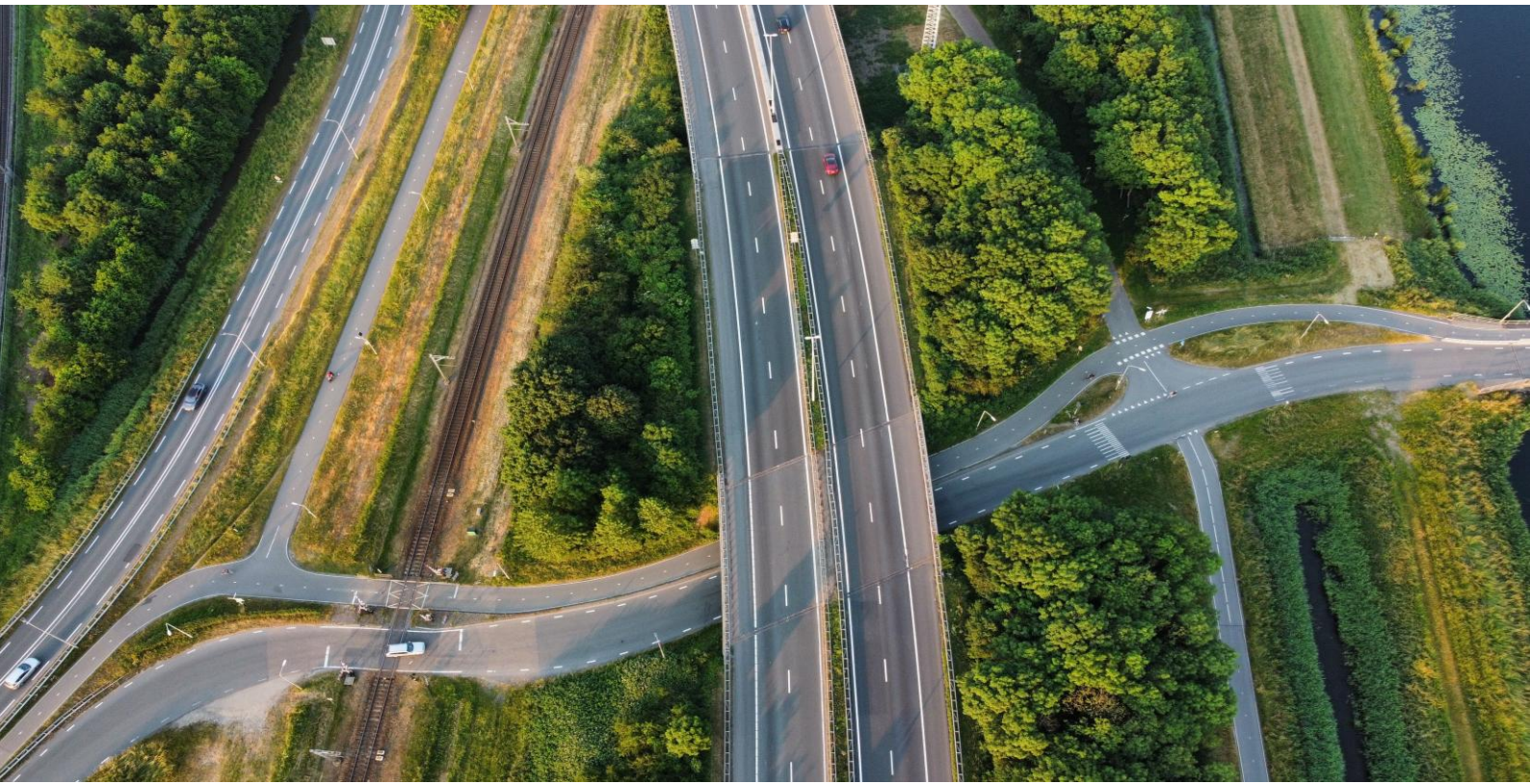
World Bank indicators show the UK underperforms several comparator economies on the speed, predictability and administrative complexity of construction approvals. This increases the time and risk of delivering new homes and commercial space alike. Overall supply of specialist workspace is not currently a constraint, though delays to planning approvals and high construction costs add uncertainty for investors and slow the expansion of firms already in the corridor.

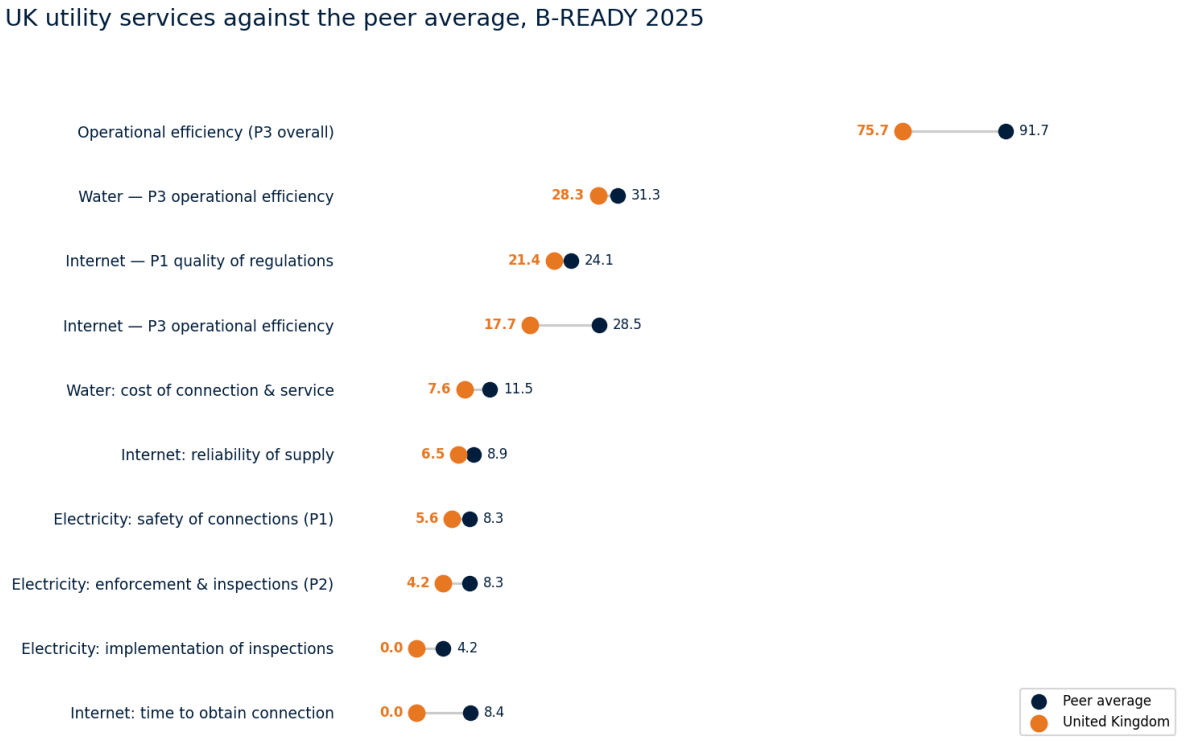
Construction permitting across key comparators, B-READY 2025



Source: World Bank B-READY 2025, Pillar 3 Operational Efficiency sub-scores. Scores 0–100 (higher = better). Not covered by B-READY 2025: France, Japan, China, Netherlands, Finland.

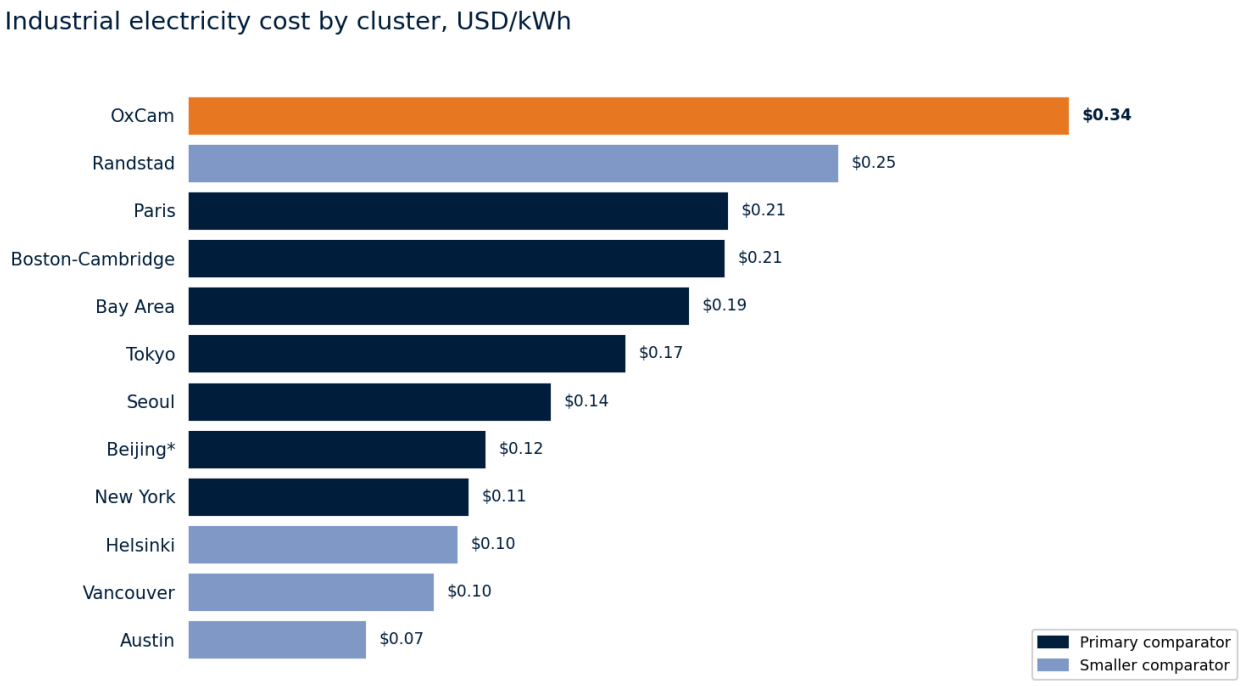
Utility delivery creates a similar constraint. When development is permitted, firms need electricity, water and digital connections delivered quickly and reliably. On World Bank utility indicators, the UK performs below the peer average on operational efficiency and several connection-related measures, including internet connection speed and electricity inspection processes. National water scores look stronger than some other utility measures, but this masks the local water constraints facing parts of the corridor, particularly Cambridge.





Source: World Bank B-READY 2025. Scores 0–100 (higher = better). Country-level data.

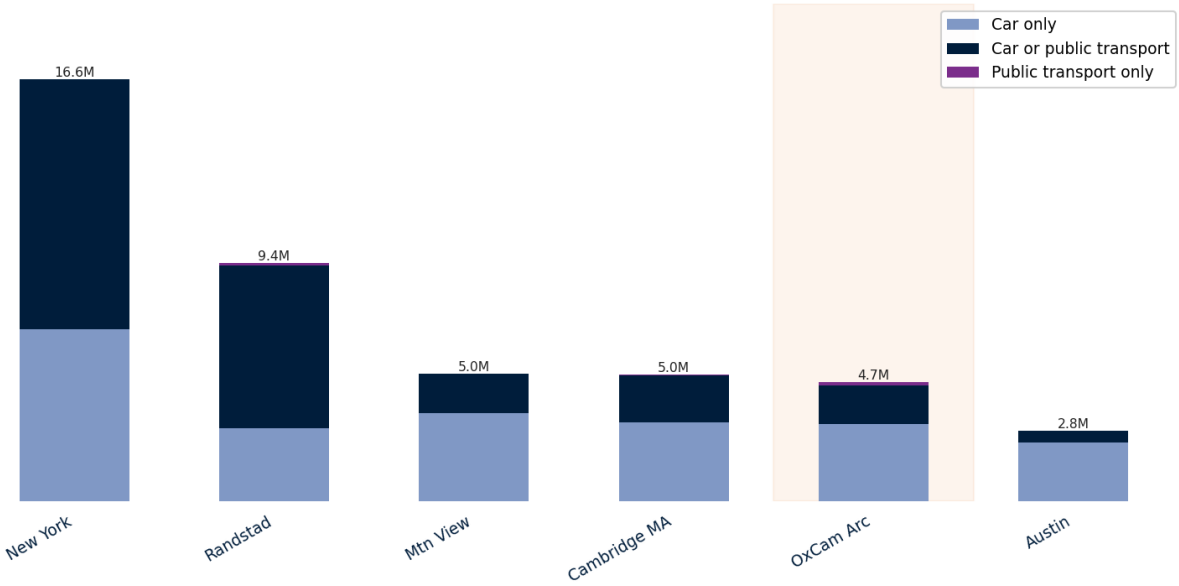
The cost of industrial electricity in OxCam is around $0.34/kWh, over 60% higher than in Paris and Boston, roughly 80% higher than in the Bay Area, and, extraordinarily, almost five times the level in Austin. Data centres, advanced laboratories, semiconductor facilities and biomanufacturing plants all require large and reliable electricity supplies, and compute-intensive industries are sensitive to energy prices and grid capacity. OxCam's high energy costs fall particularly hard on the sectors expected to drive future growth.



Source: EIA (US); DESNZ/IEA (international). *Beijing: proxy tariff, commercial+industrial combined.

Weak east-west connectivity and poor last-mile links reduce the number of homes, schools and communities able to access jobs in the corridor. This matters for family life as much as productivity. If people cannot reach jobs without long, unreliable journeys, the effective labour market shrinks. Compared with polycentric clusters such as the Randstad, OxCam lacks the combination of high-frequency rail, dense road infrastructure and integrated local transport that allows labour markets to operate at larger scale. Successful polycentric clusters combine strong road and rail rather than relying on one mode.

Commutable catchment population — 60-minute threshold

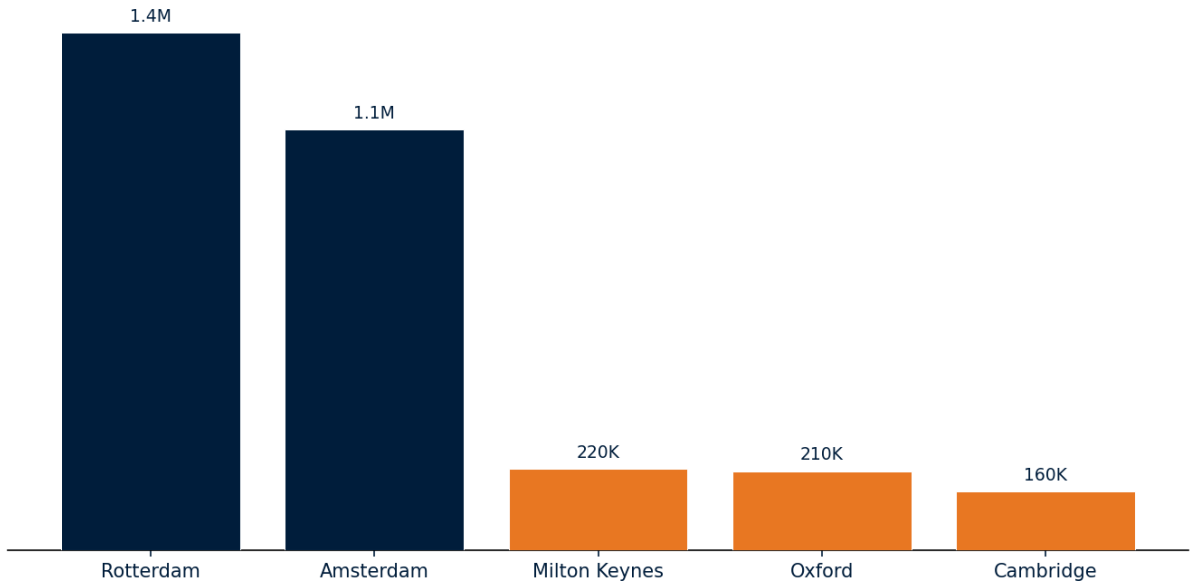


Source: TravelTime isochrones; ONS/US Census/CBS population data.

The Randstad has twice as many people within 60 minutes of one of the key innovation hubs as OxCam, a much larger share who can reach two of these hubs, and a higher proportion who have the option of commuting by either car or public transport. Geography explains part of this, since the Randstad's hubs sit closer together (about 36 miles apart as the crow flies, 48 by road) than OxCam's (66 miles crow flies, 82 by road), but the gap in rail and road quality still explains much of the difference.

In Amsterdam and Rotterdam, the final 10 minutes of a 60-minute public transport journey bring more than one million additional residents within reach of both cities. In Oxford, Cambridge and Milton Keynes, the equivalent figure is closer to 150,000-220,000. The Randstad’s advantage comes from the density and reliability of local public transport networks connecting homes, stations and employment centres into one system, along with faster intercity rail.

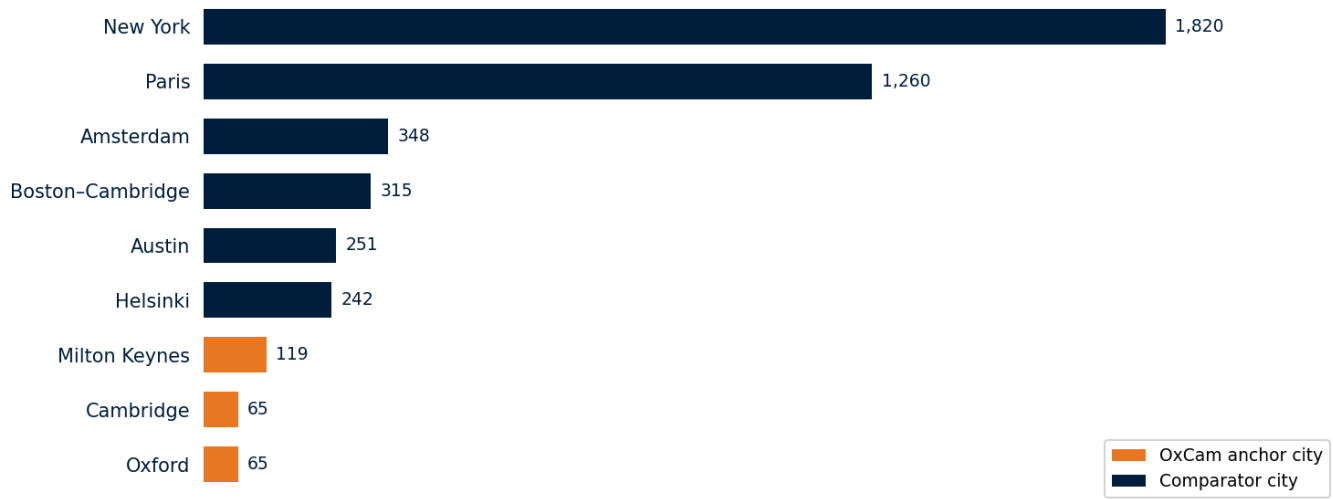
Extra people reached by public transport in the final 10 minutes of a 60-minute commute



Source: Recreated by Public First. Public transport isochrone analysis.

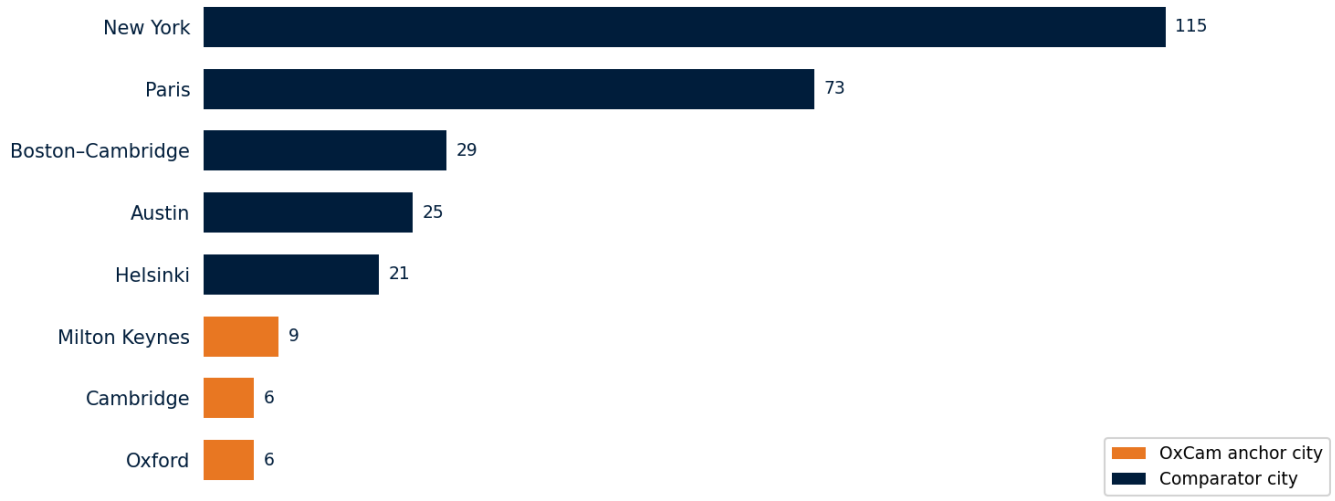
Public services are part of the same labour market problem. On per-resident counts of schools and hospitals, Oxford, Cambridge and Milton Keynes perform reasonably well against comparator cities, but in absolute terms their stock is much smaller. If the corridor is to take substantial population growth and retain workers as they move through different life stages, public service provision will need to grow alongside housing and transport. Otherwise, new development will be harder to sustain politically and less attractive to the workers firms need.

Total schools



Source: OpenStreetMap (amenity=school), 2025. Same city selection as hospital count chart.

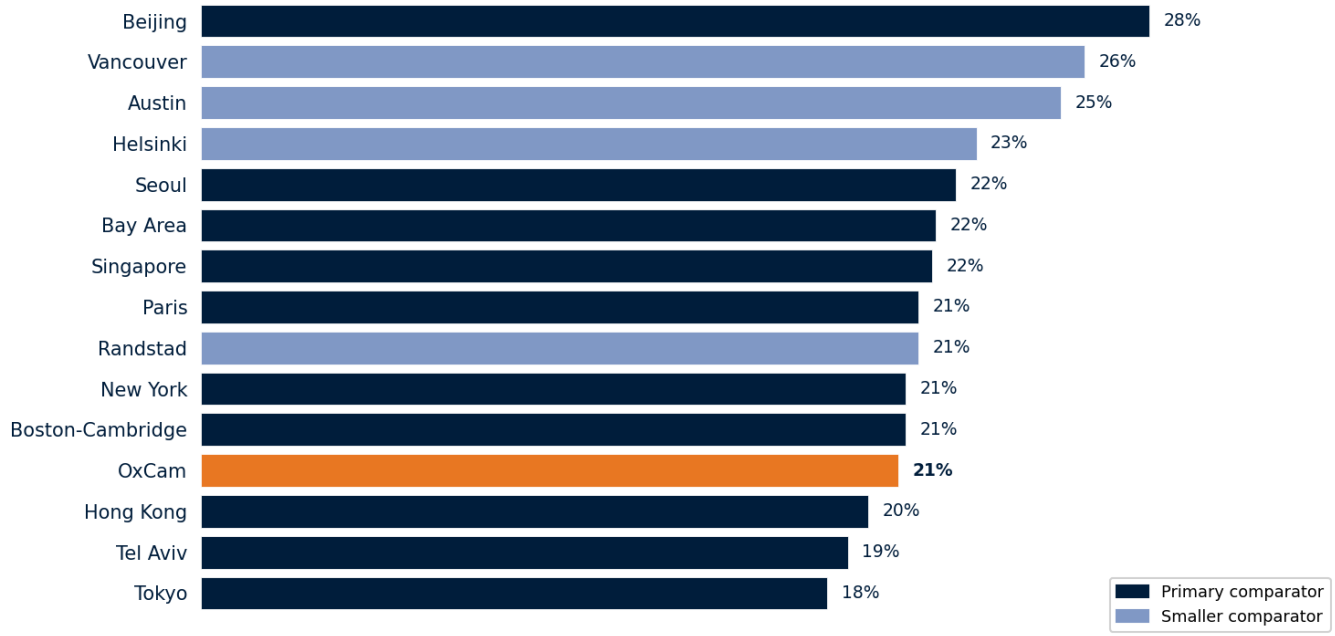
Total hospitals



Source: OpenStreetMap (amenity=hospital), 2025. Cities with inconsistent hospital tagging excluded.

The impact of insufficient infrastructure in OxCam is evident in the relatively low share of younger working-age adults compared with many leading innovation clusters. Scaling firms depend on workers in their late twenties and thirties, as founders and as the operational and technical staff behind growth. They are the group most exposed to housing costs and childcare pressures.

Share of population aged 25–39



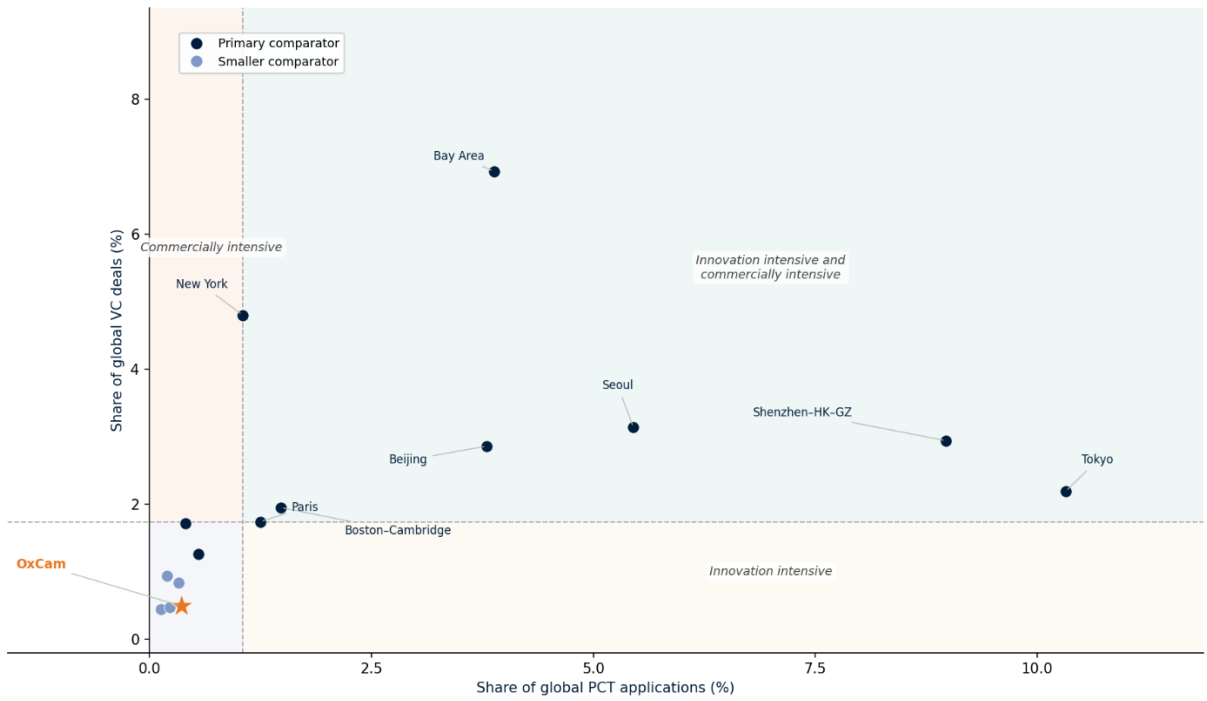
Source: OECD TL3; SingStat; HK CensusStatd; Beijing Yearbook. 2024.

04 What successful clusters do

The data shows OxCam lags the world's leading innovation clusters on a range of factors and measures. Closing those gaps at the scale and pace needed for the corridor to become a top 10 global innovation cluster requires understanding the different ways those leading clusters succeeded.

The Bay Area is the deepest venture capital ecosystem in the world, with a larger share of global venture capital deals than any comparator. Beijing, Tokyo and Seoul combine very large research and engineering bases with substantial industrial depth. In Boston, world-class universities sit next to unusually strong life sciences commercialisation and a healthcare system that buys from them. Austin shows how a newer cluster can grow rapidly when housing, infrastructure and business conditions are favourable. They have all emerged from different industrial structures, governance models and economic geographies.

Global patent share against global VC share, by cluster



Source: WIPO | GII 2025 | Dividers at group median (PCT: 1.05%, VC: 1.74%)

OxCam should not copy any one of these places. Their histories, geographies and political systems are too different. The more useful question is what capabilities they have built, and across the highest-performing clusters the same patterns appear.

They convert knowledge into commercial assets

Universities and research institutes provide the foundation, but turning discoveries into intellectual property, companies and investable propositions depends on the institutions and networks around them – technology transfer teams, applied research bodies, appropriate commercial space, specialist investors, experienced operators who can help scientific founders build companies and professional services that understand high-risk science and technology.

Boston shows how this works in life sciences, where universities, hospitals, specialist investors, shared lab infrastructure and healthcare demand sit close together. The Bay Area combines university research with deep investor, founder and professional networks, and generates 0.9 patents for every scientific publication, more than three times the rate of most comparator clusters, and behind only Tokyo. Shenzhen demonstrates a different model, where engineering and production capability allow firms to move rapidly from idea to prototype to product.

They provide capital at every stage of firm growth

Leading clusters have depth and specialisation of capital at every rung from seed to public markets, so firms can stay rather than relocate as they raise larger rounds. Early-stage venture capital on its own does not do that.

The Bay Area remains the clearest example of a mature capital ladder, with deep pools of investors, repeat founders and public market exit routes – it attracted over $150 billion of venture capital investment in 2025, against $1.8 billion in OxCam. Paris shows how the state can help mobilise institutional capital into late-stage technology funds through the Tibi initiative. Hong Kong shows how listing rules can be adapted for sectors such as pre-revenue biotech, where firms need access to public capital before they have conventional profits or revenues.

They create demand as well as supply

Sophisticated early customers, often in the public sector, give fledgling firms a route to market before technologies are fully proven, and absorb technical risk that private customers and investors generally will not take. Demand is a tool of innovation policy in its own right.

Federal procurement helped create early markets for semiconductors and computing in Silicon Valley. In Tel Aviv, defence demand helped de-risk cyber and dual-use technologies. Boston's healthcare system sits close to life sciences research and its specialist capital. Shenzhen applied for 25 times as many patents as

OxCam in 2025, on the back of large domestic demand and dense supply chains allow firms to test, iterate and scale products quickly.

They build physical capacity as it is needed

Firms scale where they can find the space, power and workforce to grow, so successful clusters build capacity ahead of demand. This includes housing, laboratories, commercial space, production facilities, energy, grid connections, water and public services.

Austin shows how improving housing supply can make it more affordable for workers to live near jobs, adding around 120,000 homes between 2015 and 2024 and increasing its housing stock by roughly 30%. Boston built the specialist lab infrastructure its early-stage life sciences firms could not afford. South Korea and Shenzhen show the importance of energy infrastructure to industrial strategy, particularly for semiconductors, batteries, AI and advanced manufacturing. New York combined a subway extension, rezoning and land assembly at Hudson Yards to support commercial growth.

They deepen labour markets through transport connectivity

Transport connectivity determines the size of the labour market firms can draw on, which particularly matters in polycentric regions like OxCam. Separate cities only behave like one economic cluster if workers, firms and institutions can reach each other quickly enough.

The Randstad combines intercity rail, roads, cycling and local public transport to allow multiple urban centres to function as a larger labour market, enabling 3.5 million people to live within 60 minutes' commuting distance of both Amsterdam and Rotterdam. Road-led mobility helped Silicon Valley grow, although car dependence and weak public transport have since become long-term constraints.

They deepen and retain talent across the whole workforce

Clusters need elite researchers, founders, operators, technicians, commercial leaders, regulatory specialists, international talent and the everyday workforce that allows a place to function. The strongest ones keep those people as they build careers, families and companies.

Singapore shows how immigration policies and lifelong learning can be linked to industrial priorities. It has the largest share of highly skilled workers of any comparator cluster at 64%. Austin shows how affordability, culture and tax incentives can help a newer cluster attract and retain mobile workers. China's returnee networks show the value of bringing internationally experienced entrepreneurs, researchers and managers back into domestic ecosystems.

They coordinate and sustain delivery over decades

The world's leading innovation clusters have coordinated research funding, infrastructure, skills and capital availability through changes of government and economic cycles. They addressed their major growth constraints at scale and pace and held direction long enough for firms, investors and institutions to respond.

While leading clusters do not share a system of government, they each benefit from sustained commitment by national and local institutions. Silicon Valley's foundations were laid by decades of federal research funding and procurement rather than private capital alone. Paris has combined national initiatives such as Tibi with long-term investment in Grand Paris Express and the Paris-Saclay research cluster. Austin's growth depended on state and municipal willingness to permit housing and infrastructure at pace. Singapore and Shenzhen have benefitted from strong central direction maintained over decades. The common factor is continuity – firms, investors and workers commit where they believe the direction will hold.

This is the deeper challenge for OxCam. It needs to build the capabilities that let its own strengths compound, at the scale and pace its competitors are moving.

05 The five constraints on OxCam's growth

Five constraints hold the Oxford to Cambridge Growth Corridor back from becoming a top 10 global innovation cluster. Two are national, limiting the UK's ability to scale frontier firms – late-stage capital and routes to commercial adoption. Two are specific to OxCam's geography – infrastructure and transport. The fifth, talent retention, spans both, while the scale and pace of delivery cuts across all five. Each bear on the Oxford to Cambridge Growth Corridor Vision's strategic priorities. The rest of this chapter sets out why.

Capital: the funding ladder narrows when firms need to scale

The Oxford to Cambridge Corridor Vision sets out the ambition to strengthen access to global venture capital and scale-up funding, reducing the leakage of high-growth firms to overseas ecosystems.

OxCam creates investable companies, but the UK funding ladder narrows at the point they need larger, later-stage rounds. Early-stage funding is relatively healthy, supported by tax-advantaged schemes such as SEIS and EIS, public funding through UKRI and the British Business Bank, and a growing range of venture capital funds including LocalGlobe, Balderton and Octopus. Yet despite a pipeline of more than 750 venture-backed scale-ups and 176 unicorns in the UK, data presented to the Government estimated a $30 billion shortfall when compared to Silicon Valley for funding rounds above $100 million.[5] The early-stage picture is also

[5] *CST advice on scale-up finance for innovative science and technology companies - GOV.UK*

weaker in capital-intensive sectors than the aggregate suggests. Biotech firms need substantial funding before there is any clinical evidence to price, and the pre-seed and seed pool is correspondingly thinner.[6]

The contrast with the US is stark where more than 95% of venture capital flows into deals exceeding £25 million,[7] compared with around 80% in the UK. Life sciences show what the shortage of late stage capital means in practice. Equity financing halved in 2025 to £1.9 billion, and the funding that was raised went to a small number of companies rather than spreading across the sector – two rounds alone accounted for almost half the venture capital invested.[8] No UK biotech has listed on a public market for three years, and where firms have found liquidity, it has come through acquisition rather than listing.[9]

This is, in part, why Tech Nation research found 43% of UK founders are actively considering relocating their headquarters outside the UK, with British scale-ups drawn predominantly to the US.[10] Of the start-ups polled, just under 75% identified access to capital as the primary barrier to scaling in the UK.[11] The kind of capital matters as much as the amount. Science-intensive firms need investors with the technical and regulatory expertise to price long-term risk, and that expertise sits with a small number of specialist funds, many in London rather than the corridor. Proximity helps, but access to capital nearby is not the same as depth within the corridor, and firms raising larger rounds still often look to the US.

Commercialisation: too few routes from research to adoption

The Oxford to Cambridge Corridor Vision prioritises accelerating innovation adoption and diffusion across the UK, turning research strength into commercial activity.

OxCam produces world-class research, but the pathway from discovery to market works like an obstacle course. Each stage, from leaving the lab to securing the IP, winning regulatory approval and running a clinical trial, is slower, costlier and more uncertain than in the United States, and at each one the incentive to commercialise abroad gets larger.

Spinout terms and regulation still create friction

British universities have historically taken larger equity stakes than their US peers, reducing the share of ownership held by founders and early employees at the point companies seek further investment. Since

[6] *CST advice on scale-up finance for innovative science and technology companies - GOV.UK*
[7] *Bridging the scale-up funding gap | NatWest Business*
[8] *BioIndustry Association, UK biotech financing 2025, January 2026*
[9] *Capital Issues: Reforming the UK's Capital Markets to Boost Science and Tech | Tony Blair Institute, 2025*
[10] *The Tech Nation Report 2025: Unlocking the UK's Growth Potential | Tech Nation, 2025*
[11] *The Tech Nation Report 2025: Unlocking the UK's Growth Potential | Tech Nation, 2025*

2011, Oxford has averaged a 20% stake and Cambridge 10%,[12] although these levels have fallen sharply since the Government-commissioned 2023 spin-out review.[13] Cambridge's approach is already among the most founder-friendly in the UK and the university has adopted a standardised framework for spin-out agreements, but international institutions go even further. Stanford takes a maximum of 10% and Columbia an average of 5%, and under the professor's privilege in Sweden the academic inventor rather than the university owns the intellectual property outright, removing the equity negotiation altogether.[14] Higher university ownership does not hinder company formation, but it does reduce investor attractiveness.

The direction of travel in the UK is positive, with universities increasingly adopting investor-friendly approaches and greater consistency in spin-out terms. However, variation between and within institutions can still add time, complexity and uncertainty to transactions. As companies seek external investment, greater consistency and continued adoption of best practice could help strengthen the attractiveness of UK spinouts to founders and investors alike.

The slow pace and inflexibility of UK regulation also play an important role in whether firms commercialise locally. Recent improvements to clinical trial approvals show reform can make a real difference. The MHRA halved the turnaround time for trials from over 90 days to around 40,[15] and the UK has begun to recover its position for initiated industry trials. However, the frontier is moving faster than the UK is improving. China's share of global clinical research reached 39% in 2023, ahead of both the United States and the European Union on patient recruitment and development timelines, and analysis by McKinsey finds trial recruitment there runs two to five times faster than US and EU benchmarks.[16] In 2024 China listed over 7,100 trials against roughly 6,000 in the United States. Investors point to Chinese trials that recruit and read out within a year, so companies reach fundraising with human data already in hand, now often a condition of serious backing. Trials bring R&D investment, skilled jobs and early access to medicines, and when they move elsewhere the commercial activity around them follows.[17]

Clinical trials are one of the clearest cases of slow and inflexible regulation in the UK, but not the only one. Frontier firms often deal with several regulatory systems at once, across health, data, finance, intellectual property and digital. Where approval routes are slow or uncertain they face higher costs and longer timelines before they can test and deploy products. Other countries have adapted faster. Japan, for example, amended the Copyright Act to enable the use of copyrighted works for AI training without a licence.[18] Singapore established a regulatory sandbox to relax legal and regulatory requirements and encourage the

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[12] *Spotlight on Spinouts 2025 | Royal Academy of Engineering, 2025*

[13] *Average university equity stakes in spinouts fall sharply amid competition for investors*

[14] *VC-friendly terms grease the wheels of US university spinout investing - Global Venturing*

[15] *UK clinical trial approval times twice as fast with AI and reforms - GOV.UK*

[16] *McKinsey & Company analysis of global clinical trial activity, 2025*

[17] *Association of the British Pharmaceutical Industry, UK Industry Clinical Trials: Translating Actions into Impact*

[18] *Flexible Copyright Exception for 'Non-Enjoyment' Purposes – Recent Amendment in Japan and Its Implication | GRUR International | Oxford Academic*

growth of fintechs.[19] It later followed with a generative AI sandbox. This approach led to a growing AI hub, which has attracted billions in tech investment.

The commercial support layer is too thin

Scaling companies need lawyers, patent specialists, accountants and tax advisers experienced in deal negotiations and complex funding rounds. In Silicon Valley, law firms have been built around the scale-up pipeline. London has a strong professional services ecosystem, but it does not bleed out across OxCam at the level required. Founders therefore rely on expertise located elsewhere, and US-led investment rounds pull companies towards American legal networks by default.

The same problem appears in operational and commercial leadership. Scientific founders often need experienced executives who can build teams, design go-to-market strategies, negotiate with regulators and investors, and move a company from research project to commercial organisation. OxCam has examples of this talent, but not yet at the density of a cluster like Boston. Flagship Pioneering, a venture fund, builds companies in-house, hiring scientific founders into an organisation rich with commercial and operational expertise. This has created an anchor organisation which attracts the needed talent – both scientific and operational – globally.

Boston's Kendall Square works well because MIT, the Broad, Mass General, LabCentral, the Engine, Atlas, Third Rock and Flagship Pioneering sit within a 15-minute walk of each other. Founders, investors, lawyers, recruiters, executives and academics encounter each other repeatedly. Despite hosting multiple innovation campuses, OxCam does not have this inter-sectoral mix in the same way.

Demand is too fragmented to act as a lead market

In life sciences, AI, defence technology and advanced manufacturing, early customers help firms test products, define performance requirements and secure first revenues. OxCam does not have that demand environment at sufficient scale. The NHS should be one of the UK's biggest commercialisation advantages, particularly in life sciences and health technology where firms need very large upfront capital long before products reach market, but procurement and adoption are too fragmented and risk-averse. A company can receive regulatory approval and still face separate adoption decisions at several levels of the health system before a product reaches patients. Although steps have been taken to improve this, such as the Health Innovation Networks, other healthcare systems have demonstrated a nimbler and more open approach – with South Korea generally seen as leading in this field.

Defence faces a comparable gap between capability and procurement, even though the corridor already holds significant capability in autonomy, sensing, secure communications and advanced materials. Some

[19] *MAS Issues "Regulatory Sandbox" Guidelines for FinTech Experiments | Ministry of Digital Development and Information*

firms have bridged it such as Alloyed, an Oxford university spinout founded by materials engineers in 2017, which has developed low-cost turbojet engines with the Ministry of Defence, going from concept to flight-ready in less than seven months. However, that came through a bespoke co-investment arrangement with the MoD's Strategic Capabilities Office, negotiated by one firm on one programme. The Defence Industrial Strategy has created Regional Defence and Security Clusters and five Defence Growth Zones with the aim of concentrating this activity and linking it to procurement, but the corridor's research base and firms remain largely outside them.

The distinguishing feature of the world's leading clusters is not how much they spend but how deliberately they spend it. The United States and Israel use public purchasing deliberately to build domestic industrial capability, rather than treating each contract as a separate question of value for money. The UK spends comparable sums to less effect.

Talent: strong at attracting, weak at retaining

The Oxford to Cambridge Corridor Vision sets an objective of 6% skilled worker growth across 2030-35.

OxCam already attracts some of the best students and academics in the world, some of whom go on to found successful companies. The challenge is whether enough of that talent – and the wider workforce around it – stays in the corridor and the UK as firms grow. This means retaining entrepreneurs tempted abroad, international researchers looking to relocate, graduates who may leave for deeper labour markets, technicians and operators priced out of the local housing market, and families deciding whether to put down roots in Oxford, Cambridge, Milton Keynes or the places between them.

Oxford and Cambridge both rank among the world's leading universities for alumni-founded startups and unicorns, but as Chapter 2 showed, too much of the value that talent creates leaves the corridor. When companies scale elsewhere, they take senior jobs, headquarters functions, investor relationships and commercial leadership with them, weakening the ecosystem of operators, advisers, managers and repeat entrepreneurs that successful clusters rely on. The pull is domestic as well as international. Wayve, one of the UK's leading autonomous driving companies, moved from Cambridge to London as it grew. A country can produce talented founders and still lose the value they create if growth capital, early customers and commercial networks are all easier to find somewhere else, and the personal incentives to build long-term wealth are stronger there too.

Retaining the broader workforce is similarly hard with the corridor suffering from a relatively low share of younger working-age adults compared with leading innovation clusters, precisely the group that supplies the early employees who move into management, the technicians who operate complex facilities and the commercial staff who take products to market. Affordability is one of the clearest reasons why retention is so

difficult, particularly for workers outside the highest-paid occupations, not least the nurses, teachers and other staff fundamental to high-quality public services.[20]

Infrastructure: too few homes, workspaces and utilities

The Oxford to Cambridge Corridor Vision looks to align housing, infrastructure and public services with long-term economic and population growth.

The difficulty of building enough homes, commercial space, and energy and utility infrastructure is one of the key constraints to economic growth in OxCam. Development viability, water stress, grid constraints and slow, uncertain planning make it harder for firms to expand and harder for workers to live near the jobs being created.

Housing delivery is constrained

Zoopla research finds that in much of the corridor the cost of delivering new homes now exceeds achievable sales values, due to a combination of higher construction costs, financing pressures and infrastructure requirements.[21] Nationally, the average cost of building a new home is estimated to have increased by around £76,000 since 2020,[22] weakening development viability across large parts of the region.

Water supply compounds the problem. Parts of the corridor, especially around Cambridge, are already under water stress, and concerns over abstraction levels, environmental sustainability and long-term supply capacity increasingly shape planning and development decisions.

Supply-side factors are not the only constraint to housing delivery in OxCam. A large stock of consented homes is not being built out, in part because demand has been subdued for some time. Job creation drives housing demand, so a stronger local economy is itself one of the most effective routes to faster housing delivery. Planning reforms will help in high-pressure areas, but viability, infrastructure constraints and weak effective demand together keep delivery well below what long-term economic growth requires.

Commercial space needs to keep pace with frontier industries

Scaling companies need the right space in the right location, with the right utilities and transport around it, at the point they need it. Requirements vary sharply by sector and are changing quickly. Compute-intensive firms and robotics companies need large amounts of power and ventilation. Biological and chemical

[20] *Building on the Blueprint: Skills for the Growth Corridor | Arc Universities Group, 2025*
[21] *Homebuilding Viability Report 2025 | Zoopla, 2025*
[22] *Viability Report | Home Builders Federation, 2026*

sciences need wet labs, clean rooms, bioprocessing capacity or small-batch manufacturing space. Satellite assembly, aerostructures and precision engineering need large-footprint industrial space, heavy power and specialist testing facilities.

Supply of commercial space has risen markedly over the last decade, but long planning timelines and uncertain utility connections create a lag between need and delivery. That adds cost and uncertainty for developers deciding whether to invest in sites and promote them through the planning system, and for firms deciding whether they can expand within the corridor. The many layers of local government make it harder still. Unitary councils, county councils, combined authorities, development corporations, utilities and regulators all shape whether sites come forward, and major decisions often need alignment across authorities with different political priorities and planning frameworks. For investors and firms, the result is a system that is hard to read and slow to give any sense of certainty. As frontier industries evolve their space needs will keep shifting, so the corridor needs a more flexible system for delivering specialist facilities.

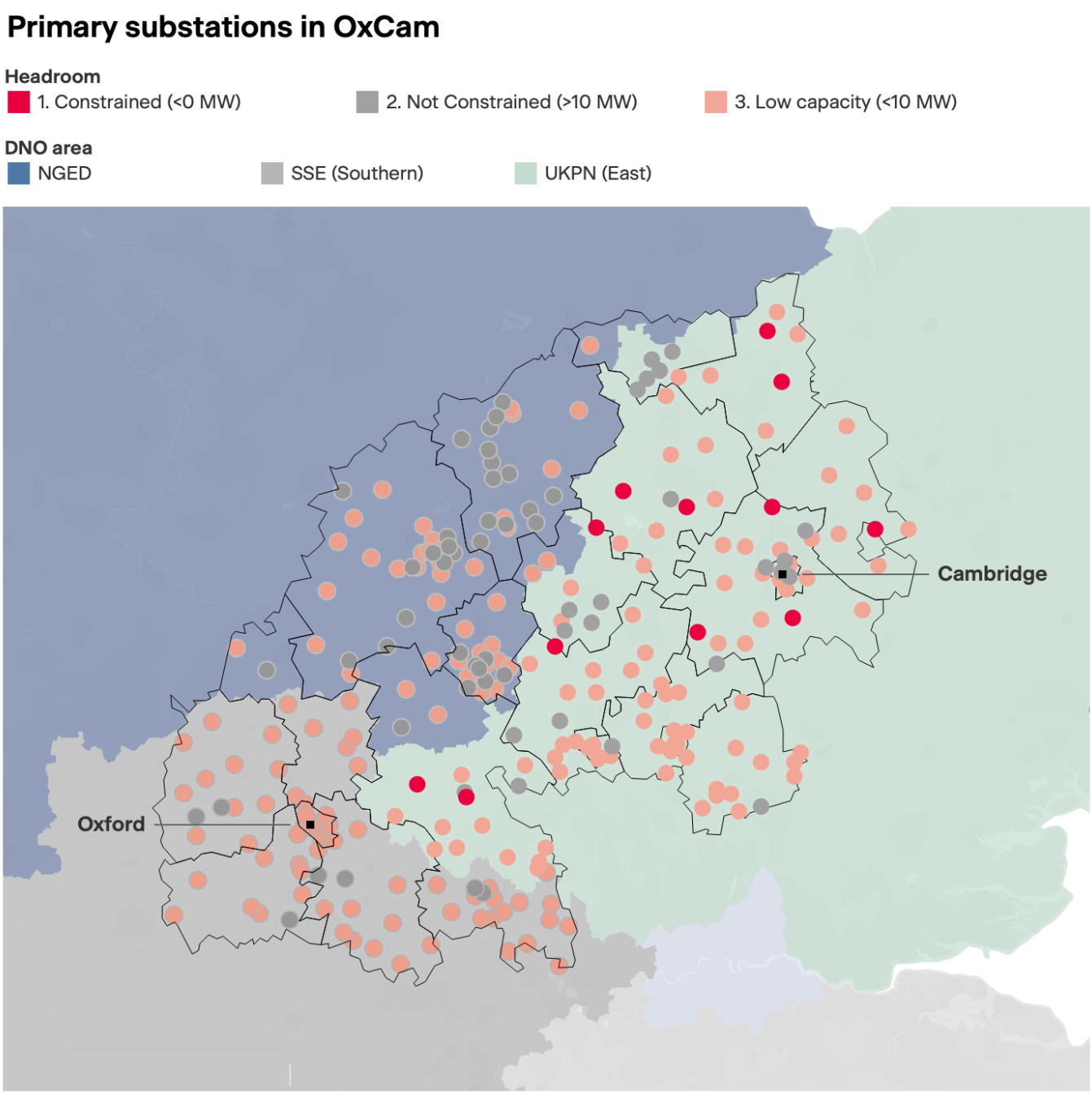
Grid capacity is becoming a binding constraint

For many frontier firms the immediate issue is not only the price of electricity but whether enough power can be connected quickly to the sites where they want to grow. Data centres, advanced laboratories, robotics facilities, biomanufacturing plants and advanced manufacturing sites all need substantial, dependable supply, and firms that cannot secure connections on commercially useful timelines are less likely to expand in OxCam. OpenAI recently paused plans for a major UK data centre project, citing energy costs and regulatory barriers as constraints on long-term infrastructure investment.[23]

Several Grid Supply Points (GSPs) across the corridor – including Cowley, Loudwater and East Claydon – are already constrained. GSPs connect the transmission network to lower-voltage distribution networks, so constraints at this level limit the ability to connect additional demand or generation without upstream reinforcement. In some areas, fault-level constraints mean projects above 1MW must undergo Transmission Impact Assessments, adding cost and delaying connections.

OxCam also suffers from institutional fragmentation, spanning three Distribution Network Operator areas, UKPN, SSEN and NGED, which complicates infrastructure planning. As the National Energy System Operator has noted, this adds resourcing pressure and obliges local authorities to deal with several network operators when drawing up spatial energy plans.

[23] *OpenAI pauses UK data centre deal over energy costs and regulation | BBC News, 2026*



Transport: not yet one integrated corridor

The Oxford to Cambridge Corridor Vision's first priority is to integrate the corridor into a single innovation ecosystem and labour market, with infrastructure like East West Rail the backbone.

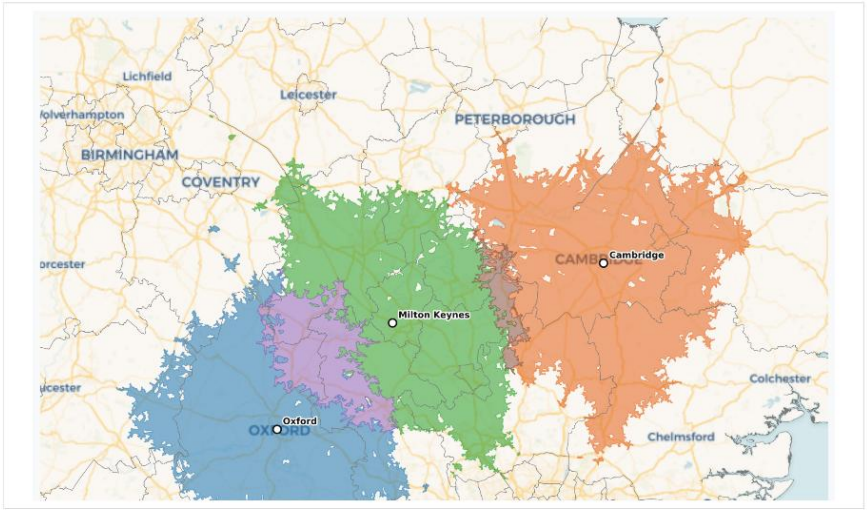
Oxford, Cambridge and Milton Keynes are individually successful economies, but no continuous railway or high-quality road connects them. An end-to-end public transport journey through the corridor takes 3.5 hours, and journey times between the three cities all exceed the 45 minutes commonly held to be an easily commutable distance. That limits interaction between firms, universities and workers in different centres.

OxCam operates more as a collection of local economies linked individually to London than as one integrated ecosystem.

The Randstad shows what transport integration does for labour market depth in a large, linear, relatively low-density geography with no dominant centre. High-frequency rail, dense motorway infrastructure and strong local connectivity put 3.5 million people within 60 minutes of both Amsterdam and Rotterdam. In OxCam, just 406,000 people are within 60 minutes of at least two major centres. Randstad firms can therefore recruit from a far wider pool, and workers can reach opportunities in several cities.

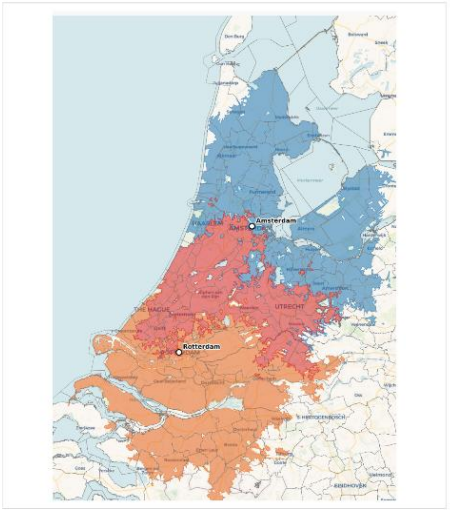
406,000

people are within 60 minutes of at least two OxCam cities



3.5 million

people are within 60 minute commuting distance of both Amsterdam and Rotterdam



The places that would particularly gain from better connectivity are the towns between the three cities. Bedford, Bletchley, Bicester, Aylesbury and Tempsford sit close to two major economies but are currently well connected to neither, which limits both the jobs their residents can reach and their ability to attract employers and housing investment on their own.

Fully completing East West Rail and the dual carriageway link from Cambridge to Milton Keynes with the A428 Black Cat improvement are important steps. East West Rail would roughly double the labour markets Oxford, Milton Keynes and Cambridge can each draw on, make it possible to live along the corridor and reach Oxford, Cambridge or London in around 45 minutes, and connect five main rail lines so that journeys to cities such as Manchester and Liverpool also become easier. Door-to-door connectivity would still need strengthening further, including first- and last-mile links, connections to other rail corridors and interurban road capacity.

Connectivity beyond the corridor matters as well. OxCam and the Manchester–Liverpool corridor are poorly linked, with journeys running through London or across slow cross-country routes, when better connections would let each draw on the other's specialisms, suppliers and labour. International links matter for the same reason. Oxford Airport provides business aviation capacity and supports an aviation training and maintenance cluster and belongs inside a corridor-wide transport strategy rather than outside it. Expanding routes from Stansted, which now links directly by rail to the new Cambridge South station, particularly to the US East Coast, would help too.

Transport investment in OxCam is meanwhile going backwards, with recent spending decisions cancelling six of eight large local major road schemes and Major Road Network projects across the corridor. Consequently, National Highways modelling shows access to jobs declining by 2030 without action. The only new scheme under investigation is an upgrade to M1 Junction 13, near Milton Keynes and the site of the planned Universal Studios development, which will itself place large new demands on housing, transport and infrastructure across the surrounding area.

Delivery: too slow to compete

The Oxford to Cambridge Corridor Vision calls for more coordination and quicker, joint leadership across local and central government, industry and academia.

OxCam is in a global race for investment, talent and frontier firms, and policy ambition is not enough to win it. Firms deciding where to locate laboratories, data centres, manufacturing facilities or senior teams decide on speed and certainty as much as the high-level support of national governments. They ask whether the government's rhetoric is matched by its delivery, and in the UK's case the answer is too often no. Where technology cycles are short and capital is mobile, a delay of several years is the difference between a company growing in OxCam and growing elsewhere.

Locally, that means confidence that sites can be permitted, utilities connected, homes built and transport links delivered. Nationally, it means confidence that R&D programmes, regulatory reforms, procurement pathways, grid investment and capital market reforms will move quickly enough to affect real investment decisions. Shifting policy, changes of focus between successive governments and local inertia during electoral cycles all weigh on investor sentiment.

The Greater Cambridge Development Corporation illustrates the problem. A minister first proposed it in late 2023 as a way to accelerate development and land assembly, and to plan development over longer timeframes than fragmented governance allows. The Government took close to three years to confirm it would be created, and its plan will not follow until 2029. A new local plan for Greater Cambridge is being adopted now, so the immediate priority is accelerating build out within it, at Cambridge East, the Biomedical

Campus and Cambridge Science Park. Similar ambitions have been set out for Greater Oxford, but design and implementation there are less developed still.

Development corporations can be highly effective. The regeneration of London Docklands was led by a development corporation with planning powers and backed by transport investment and long-term commitment. It reshaped the economic geography of east London. Shenzhen's designation as a Special Economic Zone in 1980 did the same at far greater scale, creating the conditions for one of the world's leading manufacturing and innovation ecosystems. The UK's more recent zone-based cluster policies have been thinner. Enterprise Zones, Freeports and Investment Zones have relied on narrower tax incentives and incremental planning flexibilities, without the delivery mechanisms or infrastructure investment needed to shift internationally mobile investment at the scale and pace required.

OxCam needs more than recognition as a national priority. It needs decisions taken quickly enough, consistently enough and with enough authority to impact firms and investors before they choose somewhere else. Long-term commitment matters because clusters compound over decades. Speed matters because the investment decisions are being made now.

06 How leading clusters overcame similar constraints

OxCam's growth constraints are not unique. The world's leading innovation clusters have all faced pressure on capital, commercialisation, talent retention, infrastructure and transport as they expanded, and the most successful clusters addressed them at scale and pace. Many of those pressures have not gone away – for example, housing affordability remains a major constraint in Silicon Valley.

This chapter examines how the world's leading clusters responded to the constraints OxCam faces now, and what that experience suggests OxCam should do about them.

Cluster	Main lesson for OxCam
Paris	Institutional capital and coordinated innovation policy
Hong Kong	Capital markets reform
Austin	Housing growth, energy infrastructure and pro-growth investment environment
Boston	Life sciences commercialisation
Silicon Valley	Deep capital markets, ancillary military technology and autonomous mobility
Tel Aviv	Demand-side pull through defence procurement
Shenzhen	Production capability and rapid scaling
Singapore	Talent attraction and delivery coordination
Randstad	Polycentric transport integration and vocational skills and career pathways
China	Global talent networks
New York	Transport-led commercial development
Beijing	Speed of delivery
South Korea	Grid investment around frontier industries

Capital: Building the funding ladder

Paris: mobilising institutional capital into late-stage technology funds

Paris is home to universities that produce world-class research and start-ups, but with a limited pool of capital at their disposal many homegrown companies struggled to scale, often forcing relocation abroad or acquisition by American or Asian buyers. The Tibi Initiative was established by the French government in 2020 to fill that gap, encouraging insurers and pension funds to allocate capital to late-stage tech and growth-equity funds. By granting the 'Tibi' label to participating funds, the state does not direct individual investments but moves capital towards gaps in the innovation pipeline. Tibi 1, the first phase (2020-2022), allocated €6.4 billion to late-stage venture and growth-equity funds. The second phase, Tibi 2, launched in 2023, set a €7 billion target for 2023-2026 and is running ahead of it. A third phase was announced this year, Tibi 3, of around €13 billion, extending the model to pan-European funds.

In 2025 Paris attracted $5.5 billion in venture capital funding, outperforming comparable clusters such as Seoul, Tel Aviv, Tokyo, Singapore and OxCam. In doing so France has achieved what the UK's Mansion House Compact aimed – but has so far failed – to achieve and is now home to the deepest growth-equity market in continental Europe and 29 unicorns.

Hong Kong: building a capital ladder for pre-revenue biotech

A biotech firm can have world-class research, valuable IP and a promising clinical pipeline while still having little to no revenue and little to no profits. Conventional listing rules can put public capital out of reach for those firms, pushing them to list in the US. A credible listing route particularly matters because for many of the firms Hong Kong draws on an IPO is often the only realistic exit: few get acquired, and investor terms tend to push founders towards a listing within a fixed period. A plausible route to market at the end also supports funding earlier in the pipeline.

In 2018 Hong Kong Exchanges and Clearing responded by creating a new listing route for pre-revenue biotech. Investability could be shown through the research pipeline, clinical development and intellectual property rather than revenue and profits, substituting scientific evidence for financial evidence. The reform had a profound impact. By the end of 2025 the exchange reported 83 biotech listings under the new regime, raising HK$133 billion (about US$17 billion).[24] The number of healthcare companies listed had risen 147% since the end of 2017, and healthcare market capitalisation had almost quadrupled, from HK$1.1 trillion to

[24] *Consultation Paper on Competitiveness Review | Hong Kong Exchanges and Clearing, 2026*

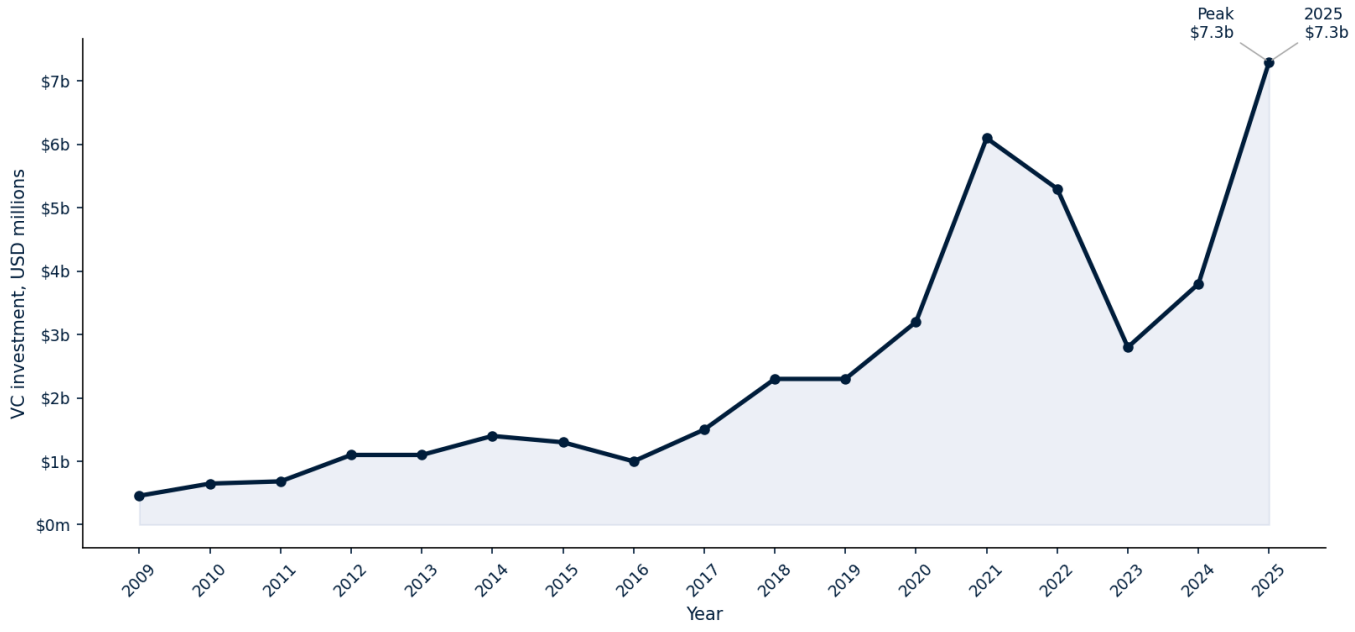
HK$4.1 trillion. The exchange as a whole shifted with it – “new economy” sectors accounted for 48.2% of market capitalisation and 59.4% of turnover by the end of 2025, against 14.6% and 21.6% before 2017.

Austin: building an attractive investment environment over time

Austin shows how a newer – and relatively smaller – cluster can build the environment that scale-up requires. Texas and the city signalled support for innovation and business expansion consistently over decades. A key anchor is the University of Texas at Austin, which spends over $700 million a year on research and runs the Austin Technology Incubator, one of the longest continuously operating university incubators in the US. More than 300 companies have come out of it since 1989, raising over $1.7 billion and contributing more than $3 billion in economic impact.

The Texas Enterprise Fund, created in 2003, offers incentives to firms weighing expansion or relocation and has drawn in Tesla, Samsung and Oracle. It works alongside no state income tax, no state capital gains tax and a permissive approach to regulating autonomous vehicles, drones, crypto and AI. In under 20 years VC investment into Austin has grown from around $500 million to over $7 billion. In 2025, Austin hosted 22 scale-up funding rounds (above $100 million), compared with 12 in Seoul, seven in Tokyo, six in Paris and five in OxCam.

Austin, TX — VC investment trajectory, 2009–2025



Source: PitchBook / Dealroom

Commercialisation: Using early customers to reduce risk

Silicon Valley: federal procurement before VC dominance

Before the Cold War, Silicon Valley had strong universities and a small electronics industry but no large commercial market for what they produced. The Department of Defense, DARPA, NASA and the US Air Force became its major customers for semiconductors, computing and communications technologies.[25] This way, the government acted as a sophisticated early customer, with contracts setting firms concrete engineering and technical problems tied to military and space requirements. Companies such as Fairchild Semiconductor and later Intel grew on repeat demand for ever more advanced components, particularly through missile guidance systems and the Apollo programme. Buyers willing to purchase before a mature commercial market existed let firms move from research into production, building the semiconductor and computing industries the rest of Silicon Valley was later built on.

Boston: life sciences infrastructure around a research base

Early biotech firms need highly specialist space, but wet labs, clean rooms and GMP manufacturing space cost a lot to build and to run, which can push rents above what a firm with little to no revenue can pay. The Massachusetts Life Sciences Initiative was set up to fill this type of gap. The state committed $1 billion over ten years in 2008, renewed with a further $623 million in 2018 and another $1 billion in 2024, taking total commitment to around $2.6 billion over fifteen years.[26] The funding was directed at facilities that start-ups could not finance themselves, and was concentrated on life sciences rather than spread across multiple sectors. Boston has now cemented itself as the world's leading biotech cluster.

Tel Aviv: defence procurement as a market maker

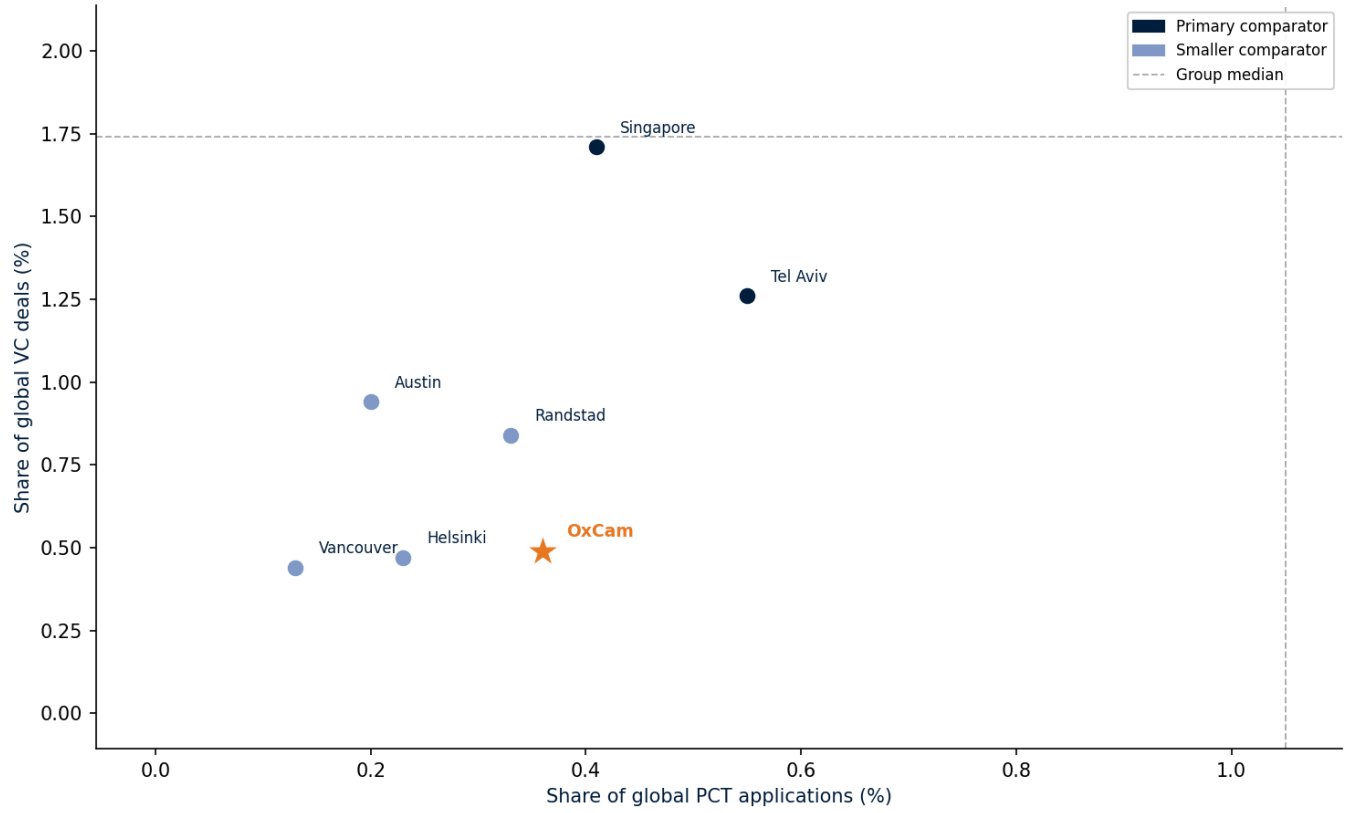
Israel's technology sector grew against long-standing security challenges, a small population and thin early-stage venture capital, so defence procurement became a central mechanism for scaling innovation. The Ministry of Defence and the IDF acted as early customers for cybersecurity, surveillance, communications and drone technologies, funding product development and absorbing technical risk that private investors would not have taken.[27] Programmes such as Innofense lowered the barriers to working with the sector, taking start-ups through a four month proof-of-concept in an unclassified environment before connecting

[25] *How Government Helped Spur the Microchip Industry | FedTech Magazine, 2018*
[26] *A History of Leadership | Massachusetts Life Sciences Center*
[27] *Is Israel the "Start-Up Nation" Because of Its Unique Security Situation?*

them to the IDF, the largest defence contractors and venture capital. Procurement gave firms early revenue, real-world testing and technical credibility, which in turn attracted private investment and drove exports.

The result is one of the world's most concentrated cybersecurity ecosystems, built around defence and dual-use technologies, which attracted more than $4.5 billion in venture capital in 2025 – more than double OxCam – and takes a larger global share of patent applications. Mandatory military service also helped create Tel Aviv's technical talent pipeline. Alumni of Unit 8200, the IDF's signals intelligence division, have founded more than 1,000 start-ups including Check Point, CyberArk, and Wiz.

Patent and VC share among below-median clusters



Source: WIPO | GII 2025 | Clusters below group median on both axes

Shenzhen: demand as a test bed for rapid iteration

Shenzhen's development started without the university research base Silicon Valley or Boston could draw on. Instead, rapid growth was supported by integration into global supply chains and access to an exceptionally large domestic market, which let firms test, refine and commercialise products at speed. Dense local manufacturing capabilities cut the time from prototype to mass production, and firms could scale as soon as a product proved commercially viable. Over time Shenzhen evolved from a manufacturing hub into one of the world's leading centres of industrial and technological capability, particularly in batteries, electric vehicles and advanced electronics.

Talent retention: Deepening the workforce

Austin: building a place people want to move to

Austin's growth as a technology hub has been reinforced by a distinctive identity built around live music, entrepreneurship, informality and openness to experimentation. South by Southwest projects that identity internationally, bringing technology firms, investors, entrepreneurs and creative industries together each year, and the absence of state personal or corporate income tax sharpened the city's appeal to mobile workers and relocating firms during its fastest-growing years. Soft power helps a mid-sized city to compete with other much larger centres. Clusters compete on research, infrastructure and capital, but also whether people want to live there.

Singapore: building talent policy around growth priorities

With a small population and limited natural resources, Singapore could not rely solely on its own labour market to support the growth of sectors such as semiconductors, advanced manufacturing, biotechnology and digital services. It paired domestic workforce development with an explicit strategy to attract internationally mobile talent into priority industries.[28] The Economic Development Board, Enterprise Singapore and A*STAR coordinate attracting firms, developing research capability and supporting workforce training around that same small number of strategic sectors.

The visa system is designed a similar way. The Employment Pass gives skilled workers fast, predictable access, while Tech.Pass and the Overseas Networks & Expertise (ONE) Pass target experienced founders, engineers, investors and senior technology professionals. Around 4,000 applicants were approved under the ONE Pass in its first year.[29]

Singapore: lifelong skills provision

Singapore introduced SkillsFuture in 2015 to support lifelong learning and mid-career retraining across the workforce. Citizens receive credits they can spend with accredited providers throughout their careers, including short technical and professional courses tied to changing industry demand.[30] The focus is on modular, stackable learning rather than multi-year qualifications, and courses are coordinated with the sectors Singapore has identified as strategic priorities: advanced manufacturing, digital technologies and life sciences.[31] That shortens the lag between technological change and training provision.

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[28] *OECD Reviews of Innovation Policy | OECD*
[29] *Oral Answer to PQ on ONE Pass | Ministry of Manpower, Singapore, 2025*
[30] *SkillsFuture | Government of Singapore*
[31] *OECD Skills Strategy Southeast Asia | OECD, 2023*

The Randstad: employer-led vocational pathways

Vocational and applied education pathways play a major role in workforce development in the Randstad, particularly in engineering, advanced manufacturing and the technical sectors tied to the area's industrial strengths. Employers and industry bodies help shape training provision and identify workforce requirements, so education responds more quickly to changing demand.[32] Vocational education carries higher labour market status than it traditionally has in the UK and is more closely integrated with regional industrial specialisation. This has supported highly specialised ecosystems, including the semiconductor and advanced engineering supply chains around ASML.[33] The result is a broader, more adaptable labour market that firms can recruit from across a dispersed geography. The UK Government has pledged reforms in the same direction, with technical education pathways from Year 10 linking training to locally available jobs and putting vocational routes on an equal footing with academic ones.

China: "haigui" returnees and global talent networks

Over the past two decades large numbers of highly educated Chinese nationals who studied or worked abroad – the "haigui" or "sea turtles" – returned to found companies, lead research programmes and scale technology businesses, bringing technical expertise, managerial capability and international research networks from ecosystems such as Silicon Valley. The pull was partly the growing attractiveness of China's domestic market, and partly deliberate policy – the Thousand Talents Plan and regional talent schemes offered financial incentives, research funding and housing support.[34] In Beijing's Zhongguancun hub, returnee entrepreneurs founded a high share of high-technology firms and connected domestic companies to international capital, research networks and managerial practices.[35] They acted as "bridging actors" between Chinese and international ecosystems, diffusing commercial practice and market connections into domestic firms as much as technical knowledge. This supported the emergence of Beijing and Shenzhen as world leading clusters.

Infrastructure: Expanding capacity to grow

Austin: building homes to support economic growth

Rapid growth in high-skilled sectors pushed Austin's housing costs up sharply. Between 2010 and 2019 rents rose by almost 93% and house prices by more than 80%, among the fastest increases in the United

[32] *Vocational Education and Training in the Netherlands | OECD*

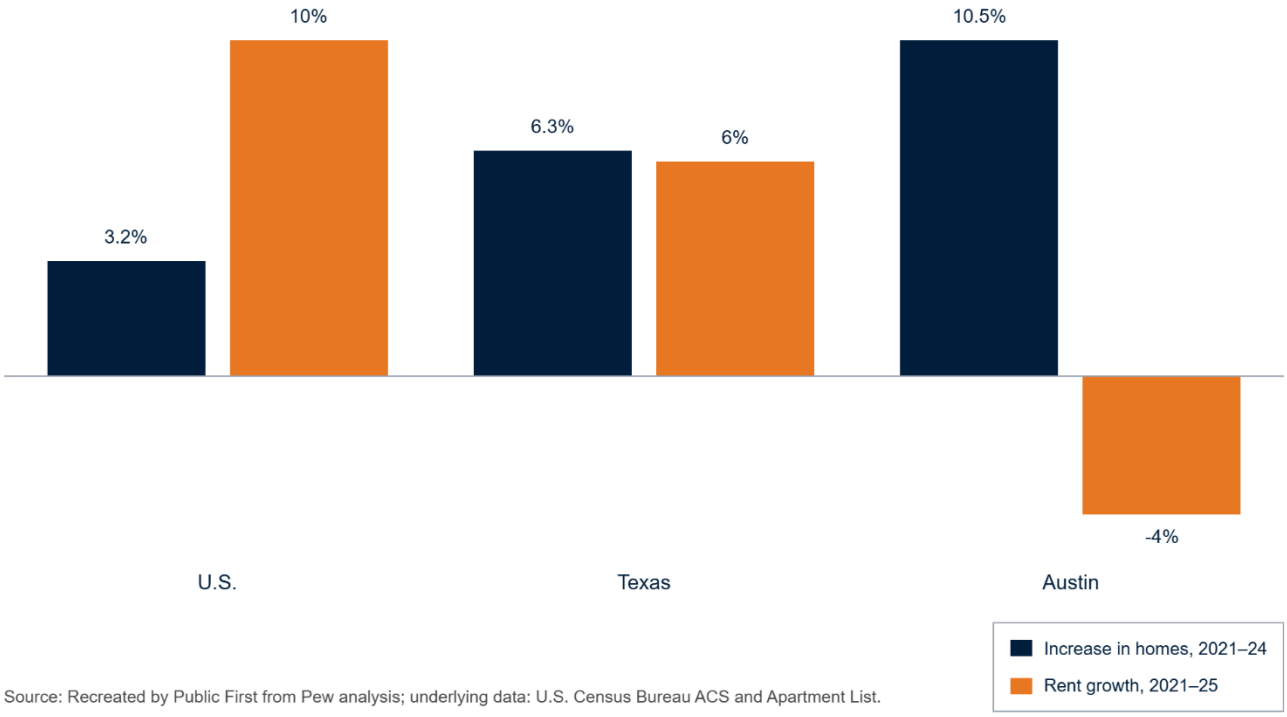
[33] *Vocational Education and Training and Employer Engagement: An Industry-Led Sectoral System in the Netherlands | International Journal of Training and Development, v14 n1 p16-31 Mar 2010*

[34] *Can China Bring Back the Best? The Communist Party Organizes China's Search for Talent | The China Quarterly, 2013*

[35] *Returnees and innovation: evidence from Chinese publicly listed firms | Science and Public Policy, 2024*

States.[36] The city has now relaxed constraints on development – expanding zoning flexibility, permitting greater density and cutting regulatory barriers to construction, particularly for central and multi-family schemes. Vertical Mixed Use zoning allowed housing within commercial areas and cut setback and parking requirements, putting more homes close to jobs. Accessory dwelling units drove small-scale infill across residential areas, and in 2023 the city removed minimum parking requirements citywide, lowering construction costs and freeing up land. 'Density bonus' programmes let developers build taller and denser in exchange for Affordable Housing – Austin's 'Affordability Unlocked' reform waived restrictions on height, parking, unit caps and minimum lot sizes where schemes included income-restricted homes.

Rates of homebuilding and rental growth in the United States, Texas and Austin



Source: Recreated by Public First from Pew analysis; underlying data: U.S. Census Bureau ACS and Apartment List.

The reforms had a remarkable effect on Austin's housing market. Between 2015 and 2024, the city added around 120,000 homes, increasing housing stock by roughly 30%. Rental pressure then eased, particularly in large apartment developments and lower-cost units. Median rent for a one-bedroom home fell from 95% of area median income to 84% by 2024.[37] By comparison, Cambridge added around 6,900 net new homes over the same period – roughly 13% of its housing stock – and Oxford around 2,600 new homes, roughly 4%.

[36] *Austin's Surge of New Housing Construction Drove Down Rents | Pew Charitable Trusts, 2026*
[37] *Austin's Surge of New Housing Construction Drove Down Rents | Pew Charitable Trusts, 2026*

New York: transport-led development to create commercial capacity

By the early 2000s, Midtown Manhattan was running out of office space while large parts of the Far West Side sat underused and poorly connected to the rest of the city. Extending the No. 7 subway line to 34th Street-Hudson Yards made large-scale redevelopment commercially viable, and rezoning, land assembly and public investment in local infrastructure helped turn the area into major new office, residential and mixed-use buildings. A dedicated financing structure, the Hudson Yards District Improvement Fund, paid for the subway extension, parks and public realm.[38] The area now hosts technology, finance, media and professional-services firms, including Meta, BlackRock and Salesforce.

Beijing: accelerating R&D investment through state coordination

In Beijing, the speed of delivery and local state coordination has helped the city to become one of China's leading centres for biotechnology, AI and advanced research. The ability of municipal government to coordinate land, infrastructure, planning approvals and investment support around strategically important projects has been key, reducing uncertainty for large R&D-intensive firms seeking to expand. One example is AstraZeneca's decision to establish a major R&D centre in Beijing. Municipal authorities moved rapidly to support the project, helping coordinate approvals, infrastructure and development requirements within a relatively short timeframe (months rather than years).

South Korea: planning power supply around frontier industries

AI infrastructure and advanced semiconductor manufacturing need very large, very reliable electricity supplies, and their growth has put mounting pressure on South Korea's grid around Seoul and the major industrial regions. Concerns emerged that electricity bottlenecks could slow investment or push production elsewhere. In response the long-term electricity strategy of KEPCO, the majority-state-owned utility company that provides almost all Korean generation, decided to tie transmission investment directly to strategic industrial growth. Around 73 trillion won (roughly £38 billion) of grid investment is planned to 2038.[39] The funding will enable the delivery of more than 10GW of additional supply for the Yongin semiconductor cluster by 2031 and a 'West Coast Energy Expressway' linking generation in Honam and the western regions to Seoul and the main industrial centres. By reducing uncertainty about future supply, South Korea's approach has helped support the development of advanced manufacturing capability around Seoul and the wider industrial corridor.

[38] *Rezoning | Hudson Yards Development Corporation*

[39] *KEPCO Earmarks 73 Tril. Won for Power Grid Upgrade, Funding Remains Uncertain | Business Korea, 2025*

Shenzhen: national grid investment behind industrial scale

China's ultra-high voltage transmission network moves power from hydro, solar and wind generation in the western inland provinces to the manufacturing and urban regions of the east coast. Combined with rapid growth in generation and storage, this means Shenzhen draws on an energy system operating at a regional rather than local scale, and has made industrial electrification cheaper.[40] Shenzhen and the wider Greater Bay Area now have reliable power for dense concentrations of factories and supply chains. That has supported rapid scaling in batteries, electric vehicles and advanced electronics, sectors where the cost and availability of electricity are fundamental to competitiveness.

Transport: Deepening the labour market

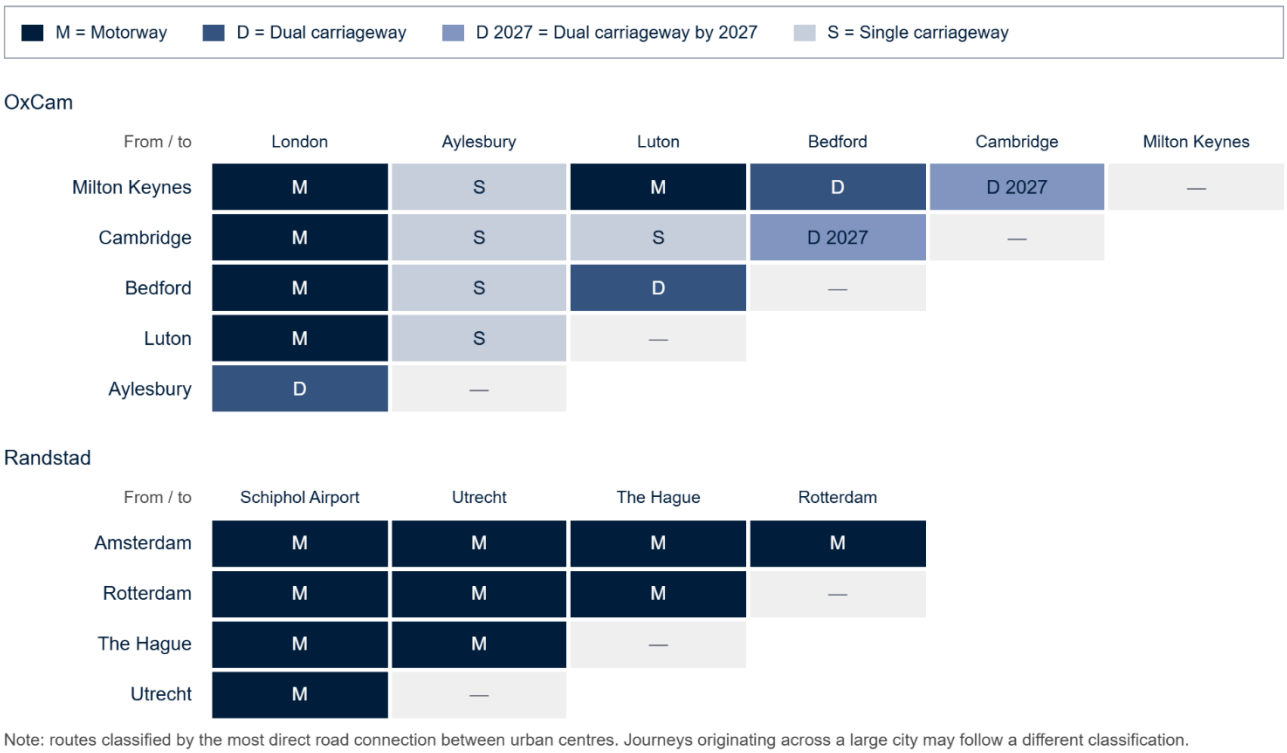
The Randstad: making a polycentric cluster one labour market

The Randstad works as a network of four urban centres, Amsterdam, Rotterdam, Utrecht and The Hague, linked by dense transport infrastructure and coordinated spatial development. The Dutch approach is usually described as rail and cycling-led urbanism, but it is better understood as multimodal abundance with extensive cycling infrastructure and high-capacity intercity rail alongside one of the densest motorway networks in Europe.

With that many ways to move between cities, the region functions as a single labour market despite its dispersed geography, and 3.5 million people live within 60 minutes of both Amsterdam and Rotterdam. Within cities, first- and last-mile journeys that would rely on buses or cars elsewhere are made by bike, with tram, metro and light rail in the larger centres. Between cities, intercity rail linking Amsterdam, Schiphol, Rotterdam and Utrecht run at frequencies and speeds well beyond most UK interurban routes outside London, with motorways carrying rapid point-to-point travel across the region. Critically, all of it is planned alongside housing and commercial development, so people can live across a wider geography and still reach jobs, universities and amenities in several cities.

[40] *How Xi sparked China's electricity revolution | Financial Times, 2025*

The Randstad's urban centres are better connected by road than OxCam



Note: routes classified by the most direct road connection between urban centres. Journeys originating across a large city may follow a different classification.

Silicon Valley: mobility without integration

Silicon Valley's growth was enabled by mid-20th-century road investment, particularly the Bayshore Freeway and Interstate 280, which strengthened connections between San Francisco, Palo Alto, San Jose and the wider Bay Area labour market. Roads and near-universal car ownership let skilled workers move relatively easily between firms across a dispersed geography and let firms recruit from a much wider pool, which mattered increasingly as aerospace, semiconductor and computing firms clustered around Stanford and spread across the region. But land use and transport planning evolved independently, leaving a car-dependent system that has proved hard to retrofit with effective public transport.

Silicon Valley has more rail than most US metropolitan areas and uses it less – Caltrain runs an important north-south corridor through the Valley on modest ridership, and light rail and metro investment has not displaced the car. More recently the Valley has become a testing ground for autonomous vehicles, with Waymo running public robotaxi services across parts of the Bay Area. The long-term impact is uncertain, but autonomous mobility could matter for OxCam, where fixed-route public transport struggles to serve lower-density interurban journeys – and Milton Keynes has particular expertise here, including its Ohmio Shuttles.

Delivery: Coordinating for long-term growth

Shenzhen: learning by doing at industrial scale

Shenzhen is not directly comparable to OxCam institutionally or politically, but its growth into one of the world's leading innovation clusters shows what long-term commitment from national government can do. Designated a Special Economic Zone in 1980 as a controlled environment for foreign investment and export-led manufacturing growth, it focused initially on building production capability rather than attempting to lead immediately at the technological frontier. Deep integration into global supply chains, particularly through relationships with firms such as Apple and its suppliers, allowed domestic firms and workers to acquire practical expertise in process engineering, quality control and logistics, which over time created the foundations for more advanced technological capability.

The model emphasised ecosystem development rather than a small number of 'national champion' firms. In electronics, batteries and later electric vehicles large numbers of firms were allowed to enter, compete and scale; weaker firms exited while stronger firms accumulated capability and scaled production. Huawei and BYD emerged from this environment rather than being the focus of policy from the beginning. Co-locating design, engineering and manufacturing reduced the cost and time required to move from prototype to production. Shenzhen has become one of the world's leading centres of industrial and technological capability, particularly in batteries, electric vehicles, solar technologies and advanced electronics, because innovation in these sectors depends on the ability to refine, manufacture and deploy technologies rapidly at scale.

Singapore: coordination as a competitive advantage

Faced with structural constraints around land, energy, population size and natural resources, Singapore treated coordination itself as a competitive advantage. Agencies such as the Economic Development Board (EDB), Enterprise Singapore and A*STAR operate with closely aligned objectives across industrial strategy, research, inward investment and economic planning, coordinating around a relatively small number of national economic priorities rather than focusing narrowly on attracting firms. They can also pilot programmes rapidly, coordinate directly with major firms and scale initiatives once successful. One government-backed AI programme run in partnership with Google generated dozens of prototypes and proof-of-concept projects through intensive short-cycle development support. The country has developed globally strong capabilities in semiconductors, advanced manufacturing, logistics, biotechnology and digital technologies, while remaining attractive to multinational firms and investment. This has depended less on any single policy intervention than on sustained coordination over long periods of time.

Paris: aligning infrastructure, research and capital

Like OxCam, Paris had world-leading universities and research institutes in a region with complex and overlapping layers of local government. Transport, housing and economic development were planned piecemeal across wider Paris. To allow more strategic coordination, the Métropole du Grand Paris, a metropolitan authority covering Paris and its inner suburbs, was created in 2016.

The French government also invested heavily in transport and research infrastructure. Grand Paris Express, one of Europe's largest transport projects, is being built to improve connectivity across the metropolitan region and support new economic centres beyond the historic urban core, such as Paris-Saclay. Station F, opened in 2017, created one of the world's largest start-up campuses, putting workspace, accelerators, investors and corporate partners in a single location. It has since hosted more than 1,000 start-ups and has been home to five unicorns, including Hugging Face.

07 Appendix

Cluster selection methodology

The comparator set is drawn from the World Intellectual Property Organization's Top 100 Science and Technology Clusters ranking, which measures concentrations of patent applications, scientific publications and venture capital activity. The 14 clusters were chosen in two groups.

The first is the WIPO top 10. Where one country has three or more clusters in the top 10, the lowest ranked is replaced by a high performer from another country, so the case studies span a range of national policy environments. This meant Shanghai and Los Angeles were not included.

The second is a group of smaller comparators (Austin, Tel Aviv, Vancouver and the Randstad), drawn from the same WIPO data. They match OxCam on patents, publications and venture capital per capita and rank comparably on overall scale. They are included to widen the range of policy environments the research can learn from, rather than because they sit at the top of the ranking.

London is excluded by design. The policy lessons it offers are already well understood in a UK context, and the value of this analysis lies in what can be learned from comparable clusters elsewhere.

Cluster scorecard methodology

For each theme, we select the most relevant metrics (listed below), rank clusters on each, and attribute a score of 0–100 based on that ranking. Theme scores are then averaged to produce an overall composite score.

- Innovation: Includes metrics on scientific publications, industry collaboration, presence of top universities, university spin-outs, patent applications and AI-specific patent activity.
- Capital: Includes metrics on venture capital investment, average venture capital deal size, volume of venture capital activity and a range of R&D expenditure metrics.
- Commercialisation: Includes metrics on start-up ecosystem strength, a range of world bank business readiness metrics and presence of corporate anchors and leading tech companies
- Infrastructure: Includes metrics on housing affordability, electricity cost, commute time, school density, hospital density and efficiency in construction activities.

- Talent: Includes metrics on the supply of STEM graduates, liveability of the area, supply of young working-age population and availability of a high-skilled workforce.

Ordinal positions on the scorecard are sensitive to the choice and weighting of metrics. The shape of OxCam's profile relative to leading global clusters is not.

Cluster boundaries follow the WIPO definitions rather than administrative ones, and are applied consistently throughout the report. Hong Kong is treated as part of the Shenzhen cluster. Where a cluster is referred to by more than one common name, we use a single form throughout. In some instances, clusters are excluded from metric comparisons due to data availability.

OxCam geographic definition

Across different metrics, OxCam is defined as the counties of Oxfordshire, Buckinghamshire, Northamptonshire, Bedfordshire and Cambridgeshire, encompassing all 18 local authorities within these counties. In some cases, where we map data on infrastructure, we include Hertfordshire and Luton to capture the wider OxCam region.

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