BIDWELLS

Oxford-Cambridge Arc

Beyond the Covid-19 crisis

The Oxford-Cambridge Arc stretches across 2.8m acres. It comprises just 5% of the UK's landmass, but is home to 22% of the nation's science park floorspace.

The region has established a critical mass which is gaining momentum, with the core science, technology and engineering locations of Oxford, Cambridge and Milton Keynes reinvigorating the wider region. These three local economies have been very important in determining the success of the Arc over the past five years.

The importance of this critical mass of expertise and innovation have come to the fore over recent months. The leading position of the Arc's scientists and technology innovators on the international stage has been underlined by the global challenge of COVID-19.

Contributions range from vaccine development and treatments driven by the region's universities and pharmaceutical players, to specialist therapeutic equipment development by a coalition of technology and automotive companies. The common feature of the Arc's COVID-19 response is innovation by global leaders.

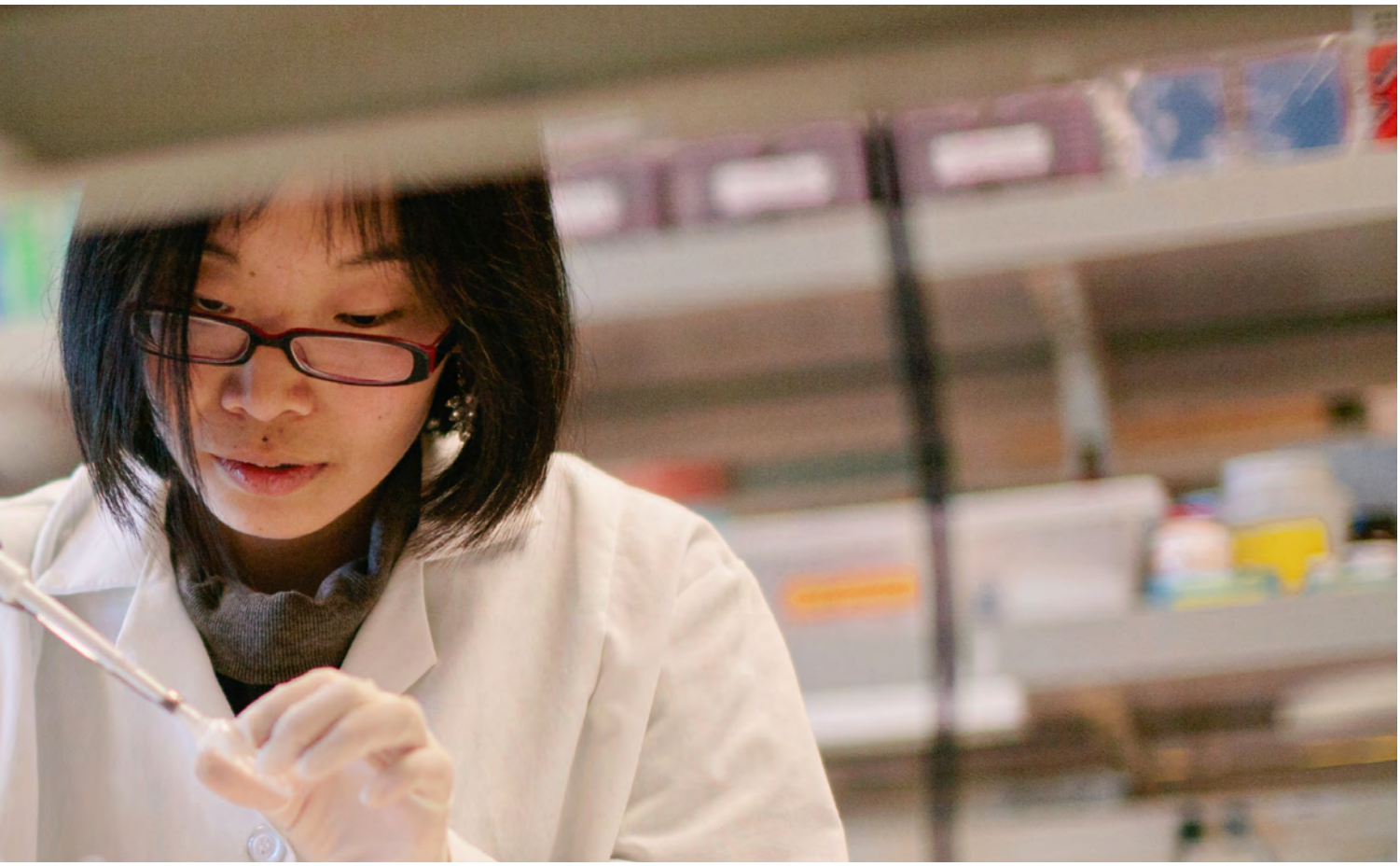
The current crisis will inevitably have both medium and long term implications for the role of the Arc and also how it operates. However, what has become clear over recent months, is both its importance and potential. We estimate the Arc will contribute almost 11% to UK GVA by 2050, up from 6% currently a gain not just for the region but the country as a whole.

Such growth needs to be planned for, however. This not only requires the addition of physical floorspace, but also the need to accelerate accessibility within the core centres, as well support linkages across the Arc.

The Golden Triangle
In 2014, at the Launch of MedCity UK, the then Mayor of London, Boris Johnson, affirmed support for the Golden Triangle of London, Oxford and Cambridge, to host the "world's most powerful life sciences research". He stated the sector would one day match the 'crucial position' of the financial services sector in the nation's economy. Life sciences have failed to disappoint. Biomedical science is the UK's leading knowledge intensive sector.

However, equally significant is the growth of other science and technology sectors, many of which were barely at conception phase in 2014. Robotics, AI, battery technology, space engineering and autonomous vehicles have all shifted from relatively small specialist sectors to rapidly growing industrial categories in their own rights.

Advances in these sectors looks likely to accelerate. Prior to the arrival of the virus, the current government set the ambitious target for investment by increasing its total R&D expenditure to 2.4% of GDP by 2027, with a longer term aspiration of reaching 3%. The



2.4% target represents a significant uplift from the 1.69% of GDP in 2017, shifting the UK from well below the OECD average to slightly ahead.

This translates potentially to around £80bn of additional spending over the coming decade. The public funding will be managed by the new strategic funding agency, UK Research and Innovation (UKRI), which was established in 2018, however leveraged private investment will be essential to the overall increase in funding.

While post-COVID finances will inevitably be tight, it seems likely the Arc's innovative industries will retain a leading spotlight role, albeit in the short-term virus relating activity is likely to see funding at the expense of other areas.

The economic importance of the Arc

This scale of investment has significant implications for the Oxford–Cambridge Arc, which is the focus of R&D activity across a range of innovative and rapidly expanding industries. As a result, the Arc's economy has shifted ahead of the UK average, although the focus for this growth remains in the core markets of Oxford, Cambridge and Milton Keynes. We estimate the Arc now contributes £111bn, reflecting 6% of the UK economy.

The outperformance of the area is underpinned by the growth in the knowledge industries, in particular in the fields of life sciences, healthcare, IT and high tech engineering. The distribution sector has been a major contributor to the Arc's success, focused around the Milton Keynes, M1 south area which has shown an average 7% per annum growth over the last five years.

However, increased funding in the area of life science R&D has been particularly important to the region. Nearly a quarter of all spending has been directed towards health related research (OECD), with the impact of this evident across the Arc, driving a sharp increase in the economic contribution from the scientific business sector.

In 2018 employment in the Professional, Scientific & Technical sector across the Arc grew by 6.1%. This compares with a 1% expansion in employment for the Arc as a whole. Cambridge is a key driver of this growth. Combined, the City of Cambridge and South Cambridgeshire saw a 27% increase in Professional, Scientific & Technical employment over the year, an addition of 8,000 new workers in these sectors.

This growth has driven demand for property across the office, labs and industrial sectors of the Arc. The construction sector saw GVA growth of 38% over the five years to the end of 2018, a pace of expansion second only to the scientific sector.

£111bn

Estimated GDP delivered by the Arc to the UK economy in 2019

Source: ONS, Bidwells

Historic GVA performance of the Arc

	5 Years (2013-18)	10 Years (2008-18)	Long Term (1998-18)
Oxford - Cambridge Arc	4.3%	3.2%	3.9%
Arc High Growth Core	5.4%	3.9%	4.5%
UK	3.7%	2.9%	3.8%

Source: ONS, Bidwells

The challenge of growth

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The pace of growth in the knowledge industries across the Arc is associated with challenges both for the geographical areas involved and the companies operating in these areas. Two thirds of companies in our survey of R&D businesses, undertaken in conjunction with YouGov and Creative Places in 2018, considered the ease of recruiting and retaining staff as a key priority in location decision-making. This explains the outperformance of the core markets, particularly knowledge nuclei of Oxford and Cambridge universities.

This is not the whole story though; 60% of businesses also noted the importance of the availability of suitable real estate and property to grow R&D activity.

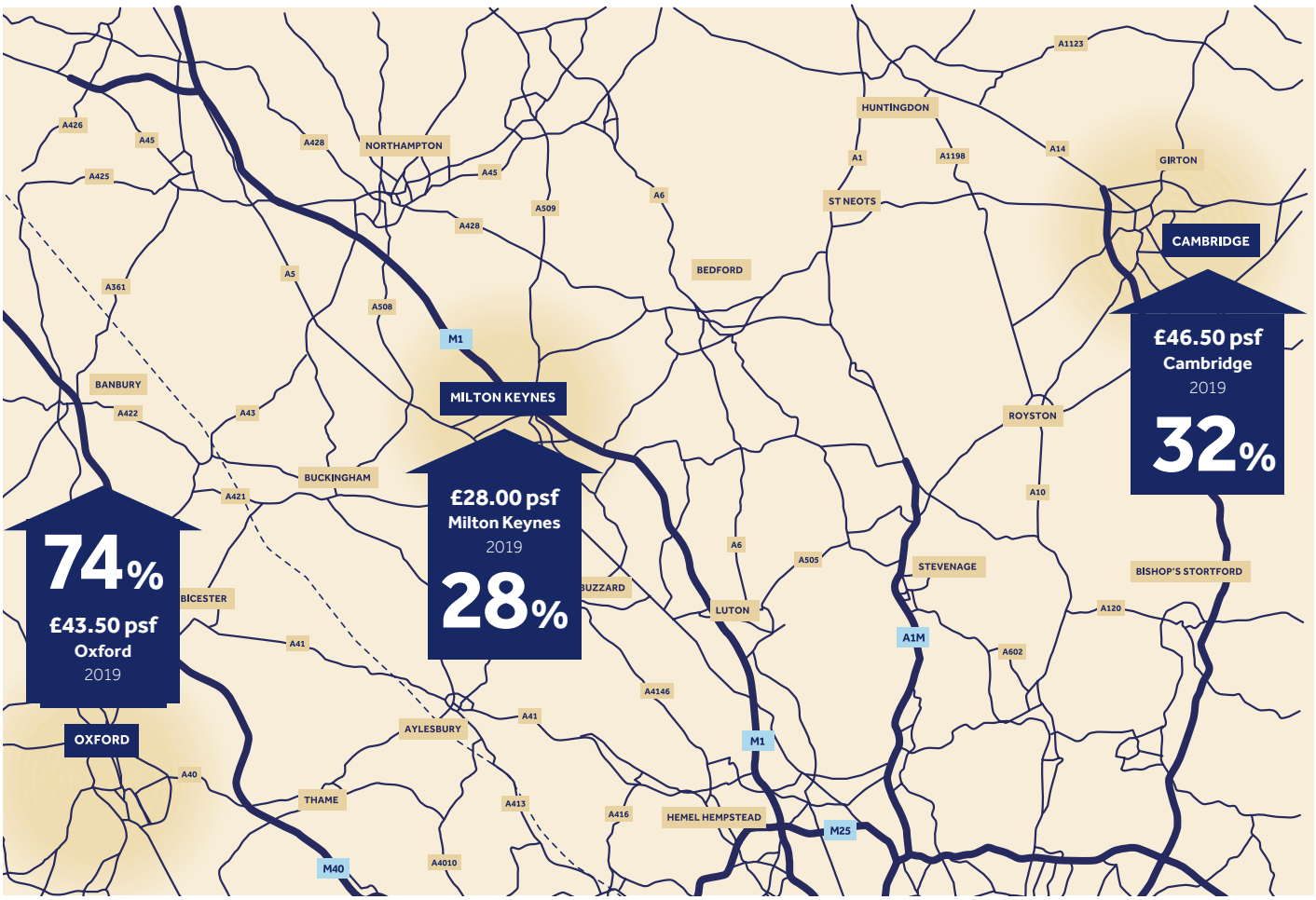
Balancing these often conflicting priorities is a growing challenge across the Arc's core centres, despite the fact that these markets have seen considerable expansion over the last decade. As a whole, we estimate the Arc has a total of 60m sq ft of commercial office and laboratory floorspace, of which 12m sq ft is on science parks. Science park space alone accounts for 22% of the UK's stock of such accommodation. The high representation of public sector and research institute facilities across the Arc adds significantly to this total.

Despite a critical mass of floorspace in Oxford, Cambridge and Milton Keynes, these core markets continue to experience the greatest impact of knowledge industry demand. The availability rate for R&D labs around Cambridge stood at just 4% at the end of 2019, despite the addition of new space, with a similar story in the Arc core office markets.

While some speculative office space is coming forward, the vast majority of this will be let prior to completion. This was illustrated in Cambridge, where Apple has pre-let the 79,000 sq ft 30 Station Road building in the CB1 scheme, prior to demolition of the existing building.

Rental growth over last five years

Source: Bidwells



Office/lab take-up by knowledge industry occupiers (2019)

	Take-up (000s sq ft)	% of total take-up
Oxford	225	60%
Cambridge (offices and labs)	805	84%
Milton Keynes	246	50%

Source: Bidwells

With limited opportunities for occupiers and the focus on key locations for the reasons articulated above, the dynamic has inevitably translated into rental growth across the Arc's core markets. While our survey of R&D companies finds relatively low rent sensitivity in the R&D sector, the rising cost of accommodation has implications for other business sectors important to the wider innovation ecosystem. This inevitably has an impact on location decision making across the market for start-ups, existing companies and those seeking to move to the area in search of the cluster benefits on offer.

68%

Average knowledge industry take-up as a % of total take-up over last three years across the Oxford and Cambridge office markets

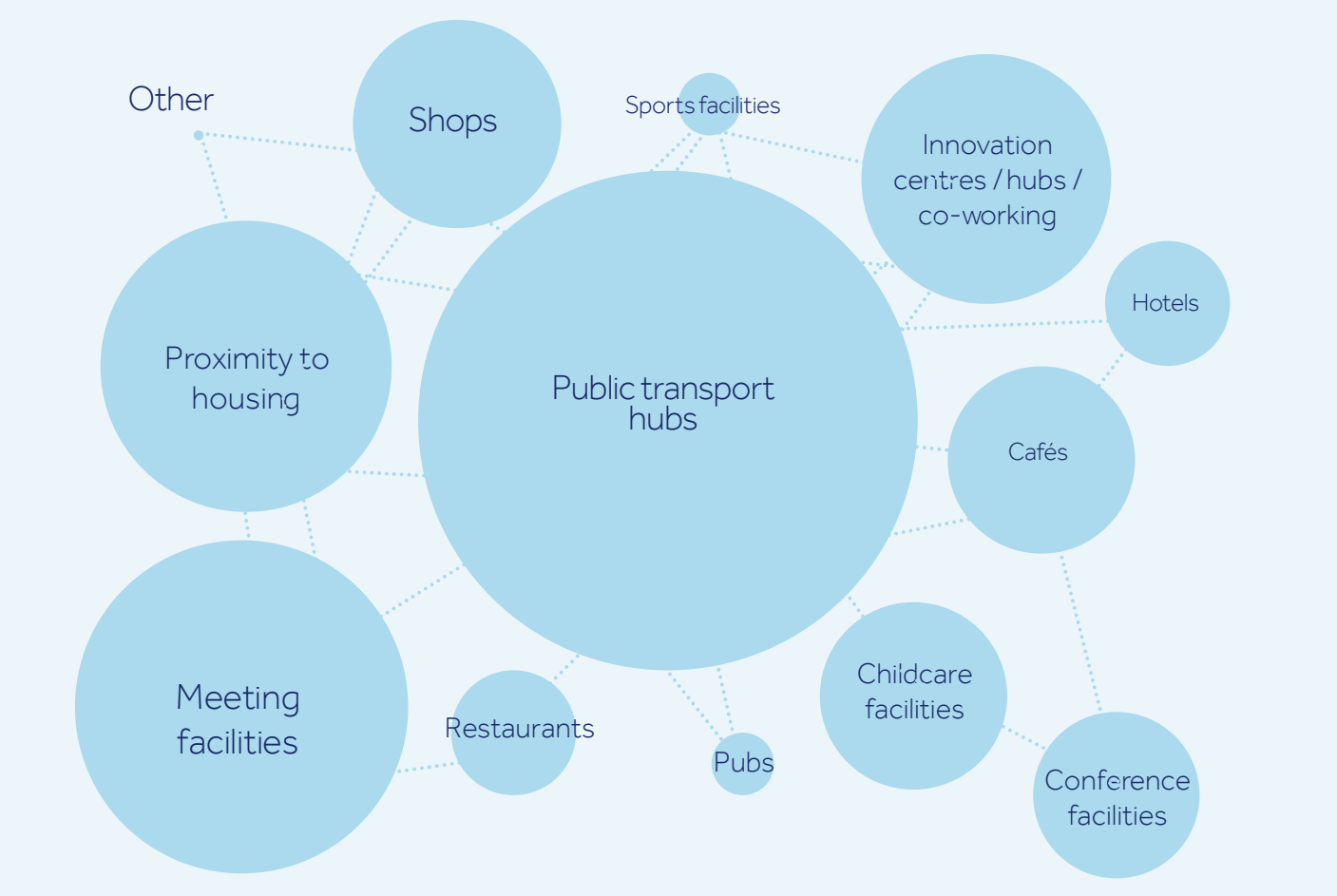
2.1m

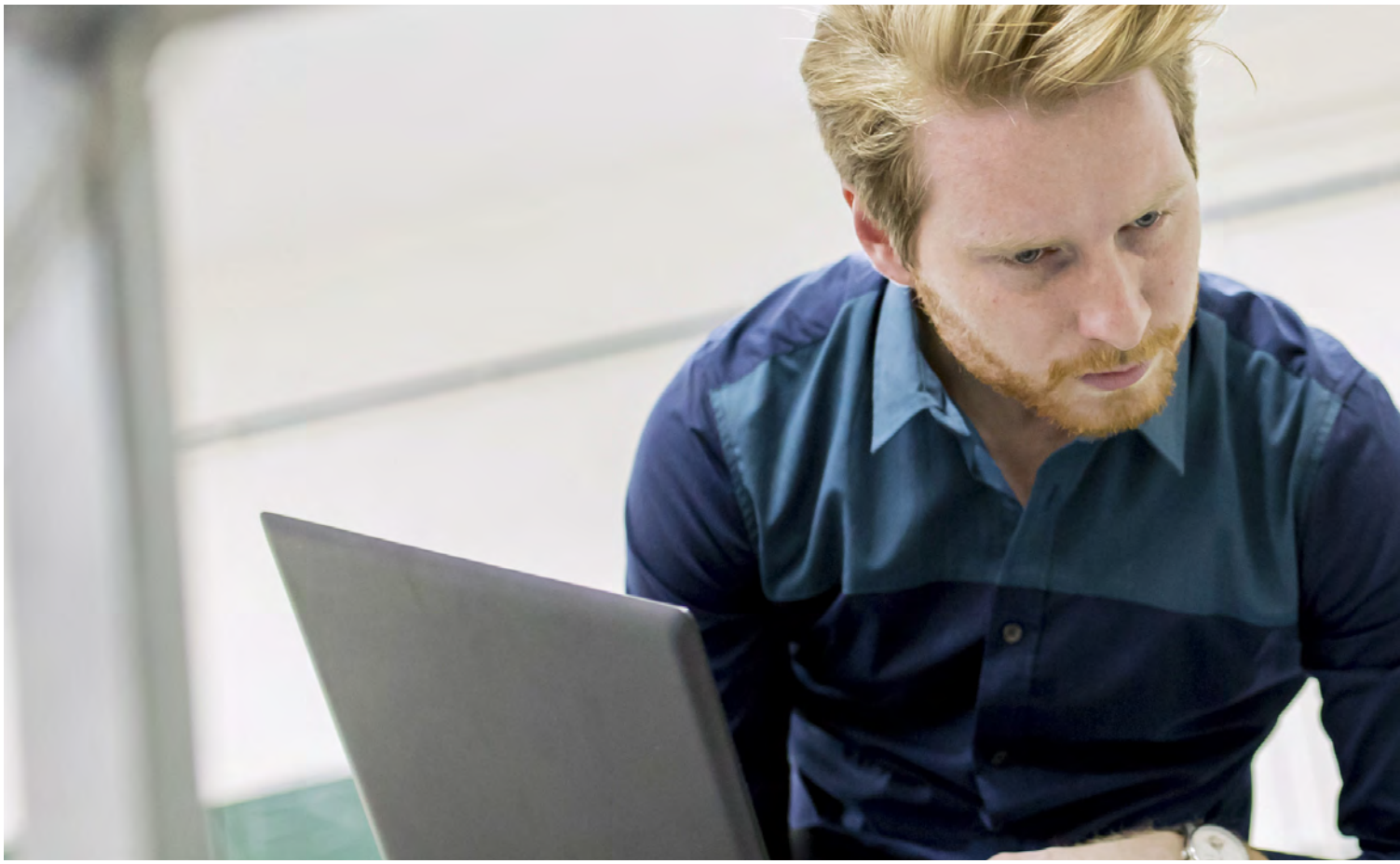
Sq ft take up by knowledge industry over last three years across the Oxford and Cambridge office markets

Source: ONS, Bidwells

Hierarchy of facilities important to large R&D business

Source: Bidwells & Creative Places, YouGov





Industrial repurposing to fill the void

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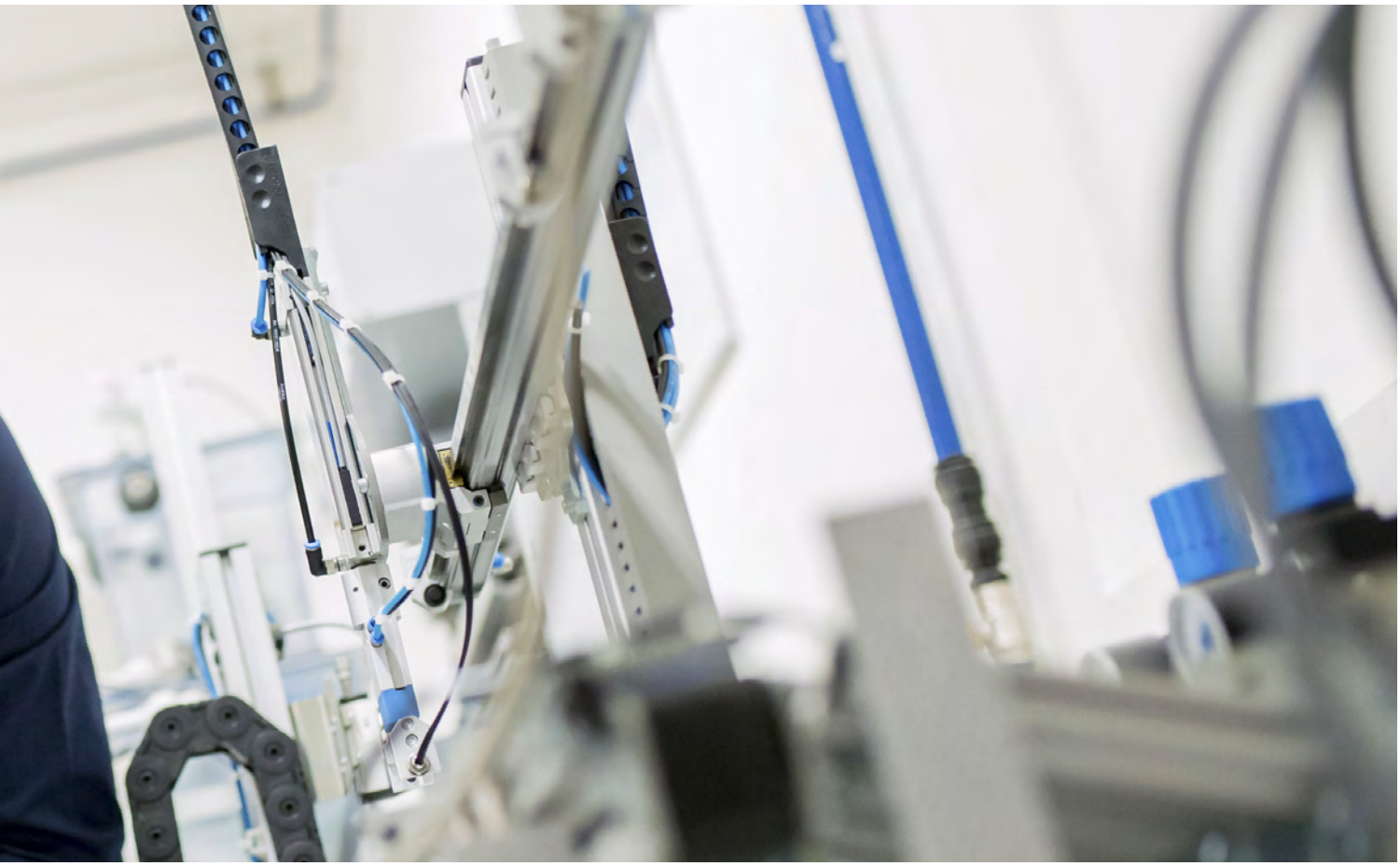
As always, the market has found a way to adapt to the challenge of space shortages against a backdrop of rapid growth.

In 2019, 15% of industrial take-up in Cambridge was by occupiers in knowledge intensive industries. In Oxford, such businesses comprised 35% of take up.



To an extent there is capacity in the industrial market to accommodate this knowledge industry infiltration. We estimate the Arc is currently home to 284m sq of industrial floorspace, a 22.5m sq ft (8.61%) increase since 2000. However, as with the office market, this stock is not necessarily in the high demand locations for knowledge industry occupiers.

Oxford is faced with a particularly acute space shortages, although the need to 'make do' in order secure suitable office, lab and high tech engineering space is being felt across the Arc.

This has driven widespread redevelopment of stock, particularly industrial. The COVID-19 crisis has seen such activity extend further. The immediate quest to create labs for testing and research activity has driven radical repurposing solutions to meet urgent space requirements. Longer term aspirations, now being voiced, to build greater resilience into supply chains will also have implications for space requirements, across the Arc and for the UK as a whole.

7.5m sq ft

Increase in office and lab floorspace over last two decades

284m sq ft

Industrial floorspace across the arc

15-20m sq ft

Estimated increase in office and lab floorspace required over next two decades

Source: Bidwells Research, ONS

‘Making-do’ is not a strategy for growth

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The current ‘make-do’ real estate strategy for the Arc will work to an extent, displacing lower GVA uses to other locations across the region and potentially beyond, with the benefit of lower rents. But, looking ahead we estimate the Arc’s economic growth potential will drive demand for an additional 15-20m sq ft of offices and labs over the next two decades, twice the volume of the previous 20 years.

A similar picture of requirements is anticipated in the industrial sector, where Oxford and Cambridge have seen a 63% increase in demand overall. The former city dominates these potential requirements. Distribution and traditional industrial uses are increasingly competing with knowledge industry occupiers for space in core locations.

In order to capture the vision for the Oxford-Cambridge Arc, it will be necessary to plan ahead for future space demands. This not only requires the addition of physical floorspace but also the need to accelerate accessibility within the core centres, as well as linkages across the Arc.

Proposed transport infrastructure improvements important. This was underlined in the findings of our YouGov survey, which found accessibility and transport infrastructure are key drivers in location decision-making amongst R&D companies.

There will inevitably be funding constraints in the near future, as well as practical challenges in the operation of public transport. However, looking beyond the current crisis, accessibility facilitated by public transport holds a fundamental importance to organisations seeking to extend their talent catchment area and develop linkages with other organisations.

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Commercial floor space across the Oxford – Cambridge Arc

Size of Arc	2.8m acres
Science Park floorspace	12m sq ft
Current Office stock	60m sq ft
Current Industrial stock	284m sq ft
Estimate of acres committed to Office/Ind Floor space	18,200 acres

Source: ONS, Bidwells

Capitalising on potential

Capitalising on potential
We estimate the Arc has the potential to contribute almost 11% to UK GVA by 2050, up from 6% currently a gain not just for the region but the country as a whole.

With the Government's commitment to spend 2.4% of GDP on R&D by 2027, total R&D spending could increase by £22bn, or 41%, between 2015 and 2027; from a total of £32bn to £54bn. This compares with £6.6bn, or 26% over the previous 11 years, between 2004 and 2015. There is clearly enormous future potential to be captured.

41%
Possible increase in R&D spending 2015-2027

5%
Arc landmass as a proportion of the UK

But, such growth relies on investors and facilitators to make decisions and move things forward. Since the National Infrastructure Commission's recommendations for the Oxford-Cambridge Arc in 2016, decision making has slowed in the wake of the political uncertainty associated with Brexit. This has taken its toll on business investment, to which R&D activity is particularly sensitive.

The arrival of COVID-19 has changed the economic landscape for the Arc and its rich mix of stakeholders. Plans will inevitably be revisited to accommodate the new reality of financial challenge. However, the virus has also underlined the importance of the Arc to the nation and our global standing.

It is evident that the centres of Oxford, Cambridge and Milton Keynes do not have the capacity to solely accommodate all future growth potential. Furthermore, this would not be desirable from an economic or social perspective.

However, our research, and that of others, makes it clear that accessibility to the centre of research, innovation activity and skills is paramount. This is a challenge. The need for a strategic approach to the integration of infrastructure, housing and education was set out in our Radical Regeneration Manifesto in 2019. COVID-19 has forced the issue of radical and parties across the Arc are now considering innovative visions for the future. This will undoubtedly encompass higher levels of collaboration, born of both recent experience and financial imperative.

Such activity will inevitably drive the aspiration to capture, measure and track economic and social contribution of innovation and invention that is so well illustrated by the Arc during the current global crisis. An investment in measuring and evaluating this economic impact will become an increasing priority and one in which Bidwells will play a role.

We are in early days of the COVID-19 story, with long road ahead of us to the new normal. As we start to look ahead, Building Back Better is a refrain that is gaining momentum. While this may have multiple meanings, it is clear that a region, for which the vision for the future is still in development, is well positioned to take up this challenge. We can and should aspire to be an exemplar approach to innovation, infrastructure, social inclusiveness and natural capital.

A strategic approach to transport infrastructure, housing and education across the Arc as a whole will be needed, as set out in our Radical Regeneration Manifesto in 2019.

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