

Life Science Real Estate

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ZENZIC
CAPITAL 

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SPEED READ

- ◆ Rapid biotech advances, an ageing population, and record investment levels are creating huge demand for life science real estate.
- ◆ Recent transactions and trends in public markets suggests superior total returns and asset pricing for life science relative to other real estate sub-sectors.
- ◆ Existing supply is insufficient to meet existing demand even before anticipated growth is factored in.
- ◆ The life science sector has strong recession-resistant credentials (in terms of occupancy and NOI performance), although conditions in individual markets can vary depending on supply considerations.
- ◆ An increased allocation to life science property may improve long-term performance and risk-adjusted returns for real estate portfolios.
- ◆ In our view, given current pricing of completed stock and current supply levels, investors should be able to capture a healthy premium via financing development of new life science real estate.
- ◆ Additionally, it provides investors the opportunity to contribute to the growth of an industry that will be vitally important to society over the coming decades.

1. Emergence of a New Asset Class

Two years after the onset of the COVID-19 pandemic, the importance of a high class life science industry is self-evident. Yet the scale of the industry, and the resources required to sustain it, are perhaps still underappreciated. Within the broad umbrella of life sciences there are many disciplines, encompassing a cycle of work that begins with initial research through clinical testing to ultimate patient delivery and includes traditional R&D, biotechnology, and medical technology such as specialised diagnostics and devices (see Figure 1). Breakthroughs in gene therapies and data revolution have added to this capability, further broadening the expectations of what life science can deliver and with it increased production demands.

Until recently, the European life science industry has lagged behind its US counterpart both in terms of funding and size (as measured by the number of life science companies and numbers employed). However, there are now signs European life science is beginning to catch up. In 2021, for life science-related capital raised by companies headquartered in the UK, the annual level of venture capital raised was £5.6bn. This was 120% higher than 2020; and a near five-fold increase on the 2017 total¹.

¹ Savills: Spotlight: Life Sciences - Trends and Outlook 2022

The corresponding figures for Europe as a whole, including the UK, stand at €18bn for venture capital fundraising in 2021; an increase of 71% over 2020². Additionally, COVID-19 has been the catalyst for enormous public funding for R&D and medical care around the world. In response to the pandemic, European Commission leaders agreed on the NextGenerationEU stimulus package totalling €1.8 trillion to rebuild Europe’s economy, with a focus on health programmes and digital transitions. Employment growth in the sector (although more muted recently) has accelerated also. Since 2010, job creation across Europe has consistently exceeded +5% y/y – leading to an estimated 225,000 new jobs. The years 2012 and 2015, saw job growth expand by +35% and +64%, respectively³, which suggests that recent historic investment is translating into employment often in dynamic and highly skilled arenas.

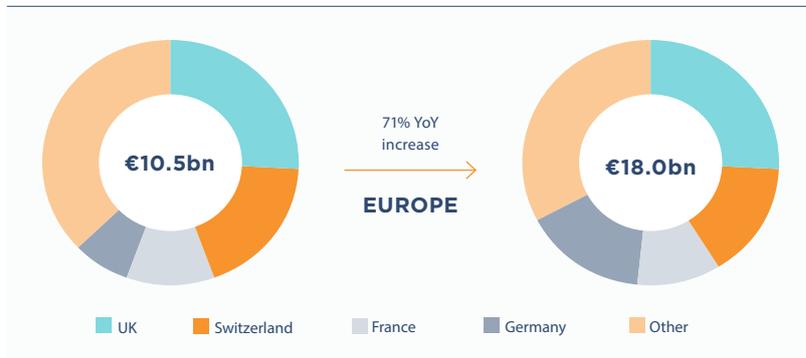
European life science has seen a 71% year on year increase in venture capital funding in 2021

Figure 1: Life Sciences Cycle: From Lab Bench to Patient Bed⁴



The fundamentals for a flourishing European life science sector are strong. Europe produces twice the number of scientific publications compared to the US and three times that of China. It is home to 43 of the global top 100 life sciences universities, while the US has 34, and produces thousands of high-value patents each year. Add to this numerous strong clusters across multiple geographies; powerhouse research and industry expertise (Novartis, Roche, Bayer, Novo Nordisk, AstraZeneca, Sanofi, GSK, and many other leading pharmaceutical companies are all headquartered in Europe) to support basic science and innovation; and an abundance of high-calibre talent. Many have speculated that what has held European life science back in the past was a lack of funding. But as discussed above, there has been significant movement on this in the past decade, and now ambition and a desire for growth must be allied to that capital investment.

Figure 2: 2020 to 2021 VC Financing Breakdown by Geography



² Invest Europe: Investing in Europe: Private Equity activity 2021

³ Colliers: Life Sciences Under the Microscope

⁴ Hines Perspectives: Life Sciences - The Potential of Purpose Built Properties

Such growth and investment levels are translating directly into higher demand for suitable real estate space. Savills estimates that every £1bn of venture capital investment creates 46,000 sqm of life science real estate demand. Based on historic funding estimates this would translate into 474,000 sqm of new real estate requirements during 2021-22⁵. This demand is multifarious, encompassing properties with a focus on pharmaceutical logistics, research and development areas (including laboratories), company locations (office areas) and production areas. Simultaneously, the supply of fit-for-purpose real estate in many parts of Europe is materially constrained - even before growth is factored in - with, for instance, vacancy levels in Cambridge standing at a staggering 0.0% and 2.0% in Oxford⁶.

In our view, for real estate focused investors, this presents significant opportunities. In particular the potential of rising rents and exceptionally low voids, at a time when the fundamentals of other commercial real estate (office and retail) are being questioned. Indeed, in a turbulent macroeconomic outlook, one of the most attractive aspects of the life science sector is its non-cyclical demand. As data on real estate usage during and post the COVID 'interregnum' becomes clearer, there is growing evidence to support the view that life science has a better claim to be recession resistant than many other real estate sub-sectors; the specialised nature of the real estate, equipment and supporting infrastructure makes relocating complicated and expensive, creating a "sticky" tenant base relative to traditional office. Simultaneously, the relative nascence of the sector allows fast-moving investors to make a meaningful contribution to the acceleration of a dynamic and socially valuable industry. The breadth and importance of life science contributions and discoveries will continue to shape nearly every aspect of people's lives. Europe, with its world-leading academic institutions and fast growing life science clusters is perfectly poised to be at the vanguard of future achievements.

Based on historic funding estimates, European life science requires 474,000 sqm of new real estate during 2021-22

⁵ Savills European Life Sciences 2021

⁶ Bidwells Life Sciences 2030 Report

2. The Value Proposition

Looking to the more developed US life science real estate market, we see significant investment outperformance between traditional office (often regarded as the most 'blue-chip' of commercial real estate sectors) and life science workspace. For instance, in recent years, Alexandria Real Estate Equities (one of the few pure-play life science REITs in the US) has outperformed traditional US office significantly in terms of both total returns (see Figure 3) and asset values, with capitalisation rates now almost 50 bps lower than those of traditional office⁷. We are seeing evidence of a similar trend in Europe, particularly in the UK, where valuations have risen due to the huge weight of capital looking to buy (see Figure 4). In 2021, Brockton Everlast acquired a portfolio of five properties at Cambridge Science Park for £99mn from Legal & General - this was over £36mn ahead of the asking price (59% above valuation levels), following a fierce bidding process. British Land made its debut in the sector with a £75mn purchase (representing a 4.15% yield) of Peterhouse Technology Park in Cambridge in August 2021⁸. But what are the fundamentals supporting such valuations, especially when the construction costs of life science real estate can easily exceed traditional office builds?

In the US, both total returns and asset values in life science real estate have outperformed traditional office for nearly a decade

Figure 3: Comparative Total Returns: Life Science Real Estate v Traditional Office⁹



First, powerful demographic shifts are underway that will support sustained demand for life science output. It is well known that Western Europe has an ageing population. The European Union's population aged 65+ is expected to increase by 18% from 94 million to 111 million over the next ten years according to Oxford Economics. At the same time, average life expectancy is increasing. According to the World Health Organisation, average global life expectancy has increased by more than six years between 2000 and 2019 – from 66.8 years in 2000 to 73.4 years in 2019, the fastest increase since the 1960s. This has been driven by greater prosperity and the increased effectiveness of pharmaceuticals and medical care. Therefore, over the next decade, national health care spending is projected to grow. The latest Eurostat data shows that, with the exception of Greece, all European countries increased health expenditure between 2012 and 2017, some by over 20 percent. At 11.2%, Germany has the highest health expenditure in relation to gross domestic product, alongside France and Switzerland, whereas the EU-27 average is 9.9%¹⁰.

⁷ DWS: Life Science Drivers

⁸ BizNow: These 5 Deals Helped UK Life Sciences Real Estate to a Record Year

⁹ Clarion Partners: Life Science Real Estate Opportunity

¹⁰ Eurostat databases

In response to the vast levels of funding into the sector, 2020 patent applications data from the European Patent Office (EPO) indicates a 10.2% annual increase in pharmaceutical and a 6.3% increase in biotechnology applications, despite overall applications falling by 0.7%. Recent research by Savills notes that this spending increase is coinciding with a number of patent cliffs “emerging towards the start of 2021, which will increase R&D opportunities and increase demand for real estate space to effectively deliver the products”. Just as the surge in private investment is translating into increased real estate demand, so too will the record levels of public expenditure across a number of life science disciplines.

Growth of just half of the 630-life science businesses headquartered in Cambridge would overwhelm existing supply capacity

Figure 4: Recent Life Science Real Estate Transactions¹¹

Transaction	Portfolio Description	Quantum (£mn) / NIY (%)	Buyer
Arlington Portfolio	36 assets across UK Golden Triangle, plus >1m sqft in development potential	714 / unknown	Brookfield
Oxford Science Park	40% stake in Oxford Science park, a campus of life science properties	>300 / unknown	GIC
Rolling Stock Yard	Nine-storey office and laboratory building near London's St Pancras station	99 / 3.7	Life Sciences REIT
Cambridge Science Park	5 life science buildings	99 / 4.2	Brockton Everlast
Peterhouse Technology Park	Four buildings totalling 140,00 sqft and leased to chip designer Arm	75 / 4.15	British Land

Second, as far as European life science is concerned, supply/demand dynamics at the tenant level are particularly favourable. Recent data from the ‘Golden Triangle’ (London-Oxford-Cambridge) indicates an acute shortage of purpose-built real estate. Laboratory floor space across Cambridge almost doubled from 1.49 million sq ft in 2011 to 2.90 million sq ft over the decade to the end of 2021, including the space provided in the new AstraZeneca R&D global HQ facility which officially opened in 2022. This equates to growth of 95.4% or 6.9% per annum. Excluding the AstraZeneca space, the total addition of laboratory floor space over the last decade reflects growth of 59% or 4.7% per annum. Yet the short-term pipeline for commercial laboratory space is lacking to such a degree (see Figure 5) that a recent Bidwells report stated that the growth of just half of the 630-life science businesses headquartered in Cambridge would overwhelm existing supply capacity.

¹¹ Life Science REIT Presentation for the period ended 30 June 2022

This pattern is repeated in other prominent life science clusters. For example, life science companies consisted of 52% of the total office take up in Leiden in 2020, while prior to 2020, this percentage was between 2% and 6%, but this surge in demand is not matched by equivalent new supply. In many cases, barriers to construction in many existing life science clusters, the need for highly bespoke real estate to meet specialised laboratory requirements, and simply the time taken to bring forward new stock are likely to prevent this shortfall being reversed in the near-term.

Supply/demand imbalance is particularly pronounced in leading life science clusters with current vacancies running below 0.5%

Figure 5: Laboratory Requirements and Supply in Oxford and Cambridge, Dec 2021



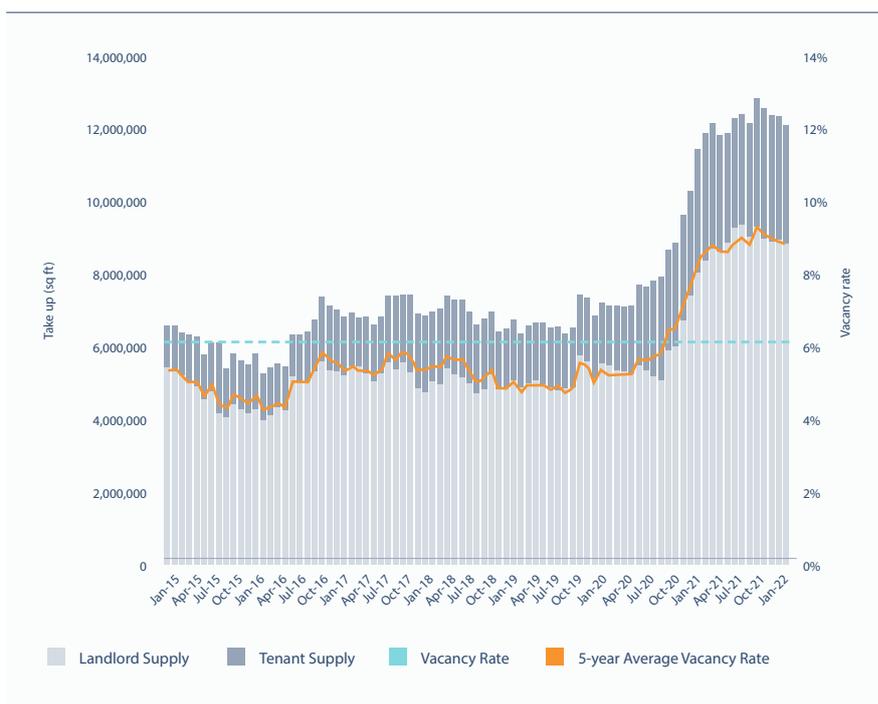
Third, this imbalance has translated into significantly faster rental growth in life science office versus traditional commercial real estate sectors. Over the last ten years, prime rents have increased by 75% in Cambridge and 130% in Oxford in London, while prime rents are up by 113% in King's Cross/Euston, 63% in Paddington and 55% in West London. Clearly this is a significant outperformance compared to most, if not all, commercial real estate markets and the case for future rental growth (even if not at the same exceptional levels) seems relatively strong given the supply/demand imbalances previously discussed. For instance, projected growth rates for life science rents in Oxford and Cambridge for 2022 are estimated at 8.3% and 21.9% respectively - a huge delta against comparative growth projections in other real estate sub-sectors.

Fourth, via occupancy analysis, an argument can be made that the cash flows are more secure in a post-COVID environment. Laboratory and R&D occupiers will continue to require workspace, as the vast majority of their work cannot be carried out at home. The relative lack of workforce disruption seen in the sector during the pandemic has been a notable positive. Vacancy rates during the pandemic for laboratory real estate stood at 1% in Cambridge; 4% in Oxford; and 1.5% in London. Again, this is a stark contrast to the general softening of the commercial real estate market, which has been rocked by the COVID slowdown and the rise of remote working. Office vacancy rates have risen steadily during COVID even in central London, where the current vacancy rate stands at 8.2%, its highest level in 10 years (see Figure 6), and a number of marquee transactions failing to clear as buyers take a more cautious view.

As a result, life science capitalisation rates are now often tighter in many instances to office, reflecting both greater contractual rent increases, and expectations for better market rent growth. There is also evidence - primarily drawn from the more evolved US market - to support the view that the sector has greater resilience than other real estate markets. Looking at data from the US, during prior recessions, life science outperformed the traditional office sector and the broader real estate market in terms of both occupancy and NOI growth.

Rental growth, occupancy and asset pricing for life science assets outperform most other commercial real estate sectors

Figure 6: Traditional Office v Life Science Occupancy Analysis



3. Accessing the Opportunity

With occupied life sciences generating record prices, in our view, the best means of generating attractive returns for real estate driven investors is via the development of new projects, which should offer a significant development premium. The immediate opportunity is to target the traditional laboratory space where we see the acutest demand but also a capital deficit arising from the retrenchment of the banking sector for development finance.

Such projects could either be new build or repositioning of existing assets. Prima facie, a new build project is ideal for a life science development. It allows the special characteristics required from a life science building to be embedded within the design, making it easier to plan the correct adjacencies and massing to create an efficient design that can optimise the use of the building. It is interesting to note that developers are responding to occupier demand with significant speculative projects. Current speculative development of purpose-built R&D space in London includes: Kadan's 114,000 sq ft Brandan Road scheme, north of King's Cross, N1; Arlington's 250,000 sq ft Manbré Wharf in Hammersmith, W6; and Reef Group's 600,000 sq ft Tribeca scheme in King's Cross, N1.

However, the shortage of laboratory space is driving developers and operators to consider converting existing commercial office space to life sciences buildings – a potentially faster and more efficient solution than building new facilities. Examples of this repurposing in the South-East of England include Bentall Green Oak and Mission Street's acquisition of two retail warehouse assets in Oxford for conversion into laboratory space. Elsewhere, Legal & General is preparing to sell the Grafton shopping centre in Cambridge with the project positioned as an opportunity to create a £300mn life sciences-led ecosystem, with labs, education, office, co-working and leisure uses. The Clarendon Centre in Oxford is being considered by Lothbury for similar uses.

But conversions are not a panacea; for instance, the specific needs, requirements and specialist spaces required in BSL-3 and BSL-4 labs mean that conversions become substantially more onerous, increasingly difficult and cost prohibitive to achieve. As such, virtually all BSL-3 and BSL-4 labs are located within new, purpose-built buildings or developments. In all cases, the level of work, effort, time and cost to convert an existing building into a life science building is dependent on the design of the existing building, its characteristics and what the requirements are of the converted building and its associated labs and specialist areas. As Savills commented in recent research: "The challenge for developers to date has been rationalising a lack of historic take-up data with addressing supply shortfalls in a market where the existing demand might have high growth potential, but remains small scale in nature and early stage in enterprise terms. Such demand is therefore largely unable to pre-commit to space. Local planning authorities that host principle or potential emerging clusters have similarly been on a learning curve, albeit some more so than others. This has been particularly in terms of the requirements of a commercial life sciences market cluster versus those of the institutional facilities that form part of London's traditional healthcare and educational infrastructure. Crucially, success will depend on creating and curating the right ecosystem. The education process is ongoing, but as projects move through planning and into delivery stage, first-hand knowledge and experience across landowners, developers and institutions is building"¹².

Given current life science pricing, the development of new projects should be capable of generating significant development premium

¹²Savills/EGI: Harnessing the high growth potential of London's life sciences sector

4. In Search of Life Science “Frontier” Markets

Over the past 20 years or so, a number of key life science clusters have emerged across Europe. These locations are typically formed in close co-operation with major academic research institutions, direct sources of corporate capital and government support – both financial and intellectual. Overall, countries with established clusters have continued to attract large sums of capital, with the UK, Germany, France, and Switzerland accounting collectively for 33% of all EMEA’s investment. As the saying goes, innovation happens in proximity. Within the UK, the market is dominated by the Golden Triangle (Oxford, Cambridge and London), where 82% of all UK life science investment happens (see Figure 6).

High quality assets located in established life science clusters will likely continue to be in high demand, in our view. They tend to attract the highest occupancy and maintain outstanding NOI performance. Further, as life science companies prefer to reside in the top clusters that foster collaboration and innovation, we expect future demand, from both tenants and investors, to continue to favour established clusters pushing vacancy rates lower, rents higher, and creating new development opportunities. However, given the pressure on land availability and the time to bring new stock to market, we would expect to see the life science industry and its supporting real estate expand beyond the established clusters. In the US, this is already occurring. A recent paper by Allianz looked at in detail the context of what they termed the ‘forced suburbanization’ of the life science industry, where life science investment ripples out from existing clusters to surrounding locations and in the process creating new clusters and with it investment opportunities.

Given the UK’s strength in tertiary and academic education we would expect further clusters to develop around ‘redbrick’ university towns which combine academic excellence and pedigree with the amenities of mid-to-large towns/cities. Pricing opportunities should exist for investors capable of capitalising on a cluster’s relative nascence to more established locations. Beyond the UK, notable clusters include areas such as Bio Science Park in the Dutch city of Leiden, which is home to Johnson & Johnson vaccine producer Janssen, and The Stockholm-Uppsala cluster (which houses >50% of the country’s biotech companies and >60% of Sweden’s employees in the sector) – are among several major European ones. Clearly, not every area is suitable for a life sciences centre, as the infrastructure of nearby universities, major hospitals and good housing or cultural activities is also needed. That said, new clusters are forming outside of these traditional locations, with Spain, Italy, Russia, Poland, and Hungary now on the map, having surpassed \$1bn (individually) of new investment in the last 10 years. Ireland, in particular, has been leading the way recording approximately \$14.5bn of investment, 18% of EMEA’s total investment. Ultimately, the life sciences ecosystem is all about attracting and retaining the right talent. Similar to the office sector, life sciences occupiers are seeking to be in central urban locations that are easily accessible and in proximity to cultural and recreational amenities. Moreover, city centre locations offer agglomeration benefits that facilitate interaction between industry players and knowledge spill-overs which drives innovation. But there are numerous city and urban hubs across Europe (see Figure 7) that could offer this proposition to the life science community that are not yet as capacity-constrained as some of the more well known clusters.

Investors are beginning to look beyond the established clusters for life science opportunities

Figure 7: Key Life Science Clusters in Europe



Source: Catella Research, medtecheurope, Sanofi, ULI, Colliers, fDi Markets

5. Outlook

The volume of capital that exists for operational life science assets is not yet matched by the appetite to fund the development expenditure of new stock necessary to address growing supply/demand imbalances in the sector. In the longer term, structural changes in the life sciences industry, including escalating demand for new medicines, treatments and technology, will produce further growth, creating additional demand for space.

The provision of intelligent development finance can offer attractive risk-adjusted returns to investors while simultaneously contributing to the growth of a dynamic and socially valuable industry. While the pandemic and economic uncertainty are not the ideal economic backdrop, the life sciences growth story's underpinnings and the inherent "recession resiliency" of the sector should incentivise investors to consider current opportunities. Opportunities exist for investors and developers to build out/upgrade existing properties, convert other property types (e.g. traditional office, retail space), or initiate new ground-up developments both within and outside established clusters.

Life science real estate will see escalating demand in the short and medium term which, together with its recession resilience, should continue to attract investors to the sector

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